Published in final edited form as:

J Patient Saf. 2010 June ; 6(2): 59–67. doi:10.1097/PTS.0b013e3181bc05fc.

Assessing Resident Safety Culture in Nursing Homes: Using the Nursing Home Survey on Resident Safety

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Abstract

Objectives—To examine the overall responses of nursing home staff to a newly developed nursing home specific survey instrument to assess patient safety culture (PSC) and to examine whether nursing home staff (including Administrator / Manager, Licensed Nurse, Nurse Aide, Direct Care Staff, and Support Staff) differ in their PSC ratings.

Methods—Data were collected in late 2007 through early 2008 using a survey administered to staff in each of 40 nursing homes. In four of these nursing homes the responses of different staff were identified. The Nursing Home Survey on Patient Safety Culture (NHSPSC) was used to assess 12 domains of the PSC and identify differences in PSC perceptions between staff.

Results—For the 40 nursing homes in the sample, the overall facility response rate was 72%. For the four nursing homes of interest, the overall facility response rate was 68.9%. The aggregate NHSPSC scores, using all staff types for all survey items, show that most respondents report a poor PSC. However, Administrators / Managers had more positive scores than the other staff types ($p < 0.05$) across most domains.

Conclusions—Staff in nursing homes generally agree that PSC is poor. This may have a significant impact on quality of care and quality of life for residents.

Patient safety culture (PSC) is used to characterize the safety performance of a facility. In this research, we examined the responses of nursing home staff to a newly developed nursing home specific survey instrument to assess PSC. Little is known about the PSC of nursing homes, therefore this research first presents aggregate information on PSC. Moreover, PSC comparisons between different staff may allow for a more fine-grained view of safety performance. Therefore, the second objective of this research was to examine whether nursing home staff differed in their PSC ratings.

A number of organizations are focusing on improving patient safety, such as The Joint Commission, the Institute of Medicine (IOM), and the Agency for Healthcare Research and Quality (AHRQ).¹ The IOM has defined patient safety as “the prevention of harm caused by errors of commission and omission.”² State and federal regulatory bodies are also asking health care institutions to make patient safety a priority.¹

One important area of patient safety information is the culture. That is, healthcare organizations can move towards a safer environment for patients by improving their PSC. The PSC of an organization is defined as an organization committing to its health and safety management based on principles, mannerisms, perceptions, competencies, and behavior patterns.³ A positive safety culture includes effective teamwork, communication, non-punitive response to error, and collaborative learning.¹ PSC tools are important as a diagnostic means for assessing the status of PSC, as interventions to raise staff awareness about patient safety issues, as a mechanism to evaluate patient safety improvement initiatives, and as a way to track changes in PSC over time.

PSC assessments in long-term care settings such as nursing homes is limited.⁴ Nursing homes differ from acute care settings in a number of ways. For example, hospitals focus heavily on Joint Commission accreditation and patients with short-stays, while nursing homes focus on complying with government regulation standards and care planning processes.¹ Like acute care, however, nursing homes are also susceptible to errors and adverse events. Nursing home residents typically require multiple medications and have multiple health problems including cognitive and sensory impairments that can lead to an increased risk of a medical error.⁴ Thus, the use of PSC information may be important in improving nursing home safety. As AHRQ³ has described, PSC tools are important as a diagnostic means for assessing the status of PSC, as interventions to raise staff awareness about patient safety issues, as a mechanism to evaluate patient safety improvement initiatives, and as a way to track changes in PSC over time.

One reason for infrequent PSC assessments in nursing homes may be the lack of available instruments for this setting. Several PSC instruments have been developed,⁵ but few have been previously applied for use in nursing homes.^{1,6} One exception is AHRQ's *Hospital Survey on Patient Safety Culture* (www.ahrq.gov/qual/hospculture), which was made publicly available in 2004 and tested in 382 hospitals on 108,621 staff as of 2007.^{1,6} However, in the nursing home setting some limitations of this instrument were identified (including non-response to some items, inapplicability of other items, and possible misunderstanding of some items).^{1,6} Due to such concerns AHRQ sponsored the

development of a nursing home specific PSC instrument. The resulting Nursing Home Survey on Patient Safety Culture (NHSPSC) instrument was designed specifically to measure the culture of resident safety from a nursing home staff perspective. To our knowledge, the research presented here is the first to report findings using the NHSPSC instrument.

In addition to using PSC instruments with noted limitations in nursing home settings, previous research has also tended to focus on few types of staff. Castle¹ and Bonner et al.⁴ examined responses only from Certified Nursing Assistants (CNAs) and Hughes and Lapane⁷ examined responses only from nurses and CNAs; whereas, Castle and Sonon⁶ used only nursing home administrators. More staff types (doctors, pharmacists, advanced practitioners and nurses) were examined by Handler and colleagues.⁸ Wagner et al. queried U.S. and Canadian registered nurses in nursing home settings and identified significant differences in PSC perceptions between staff nurses and managers.⁹

The aforementioned research identified some differences between staff (e.g., attitudes about staffing issues), but did not include all staff, had a limited sample size, and used a modification of the Hospital Survey on Patient Safety Culture.⁸ Examining opinions of interdisciplinary staff working within the same nursing home facilities certainly gives a more comprehensive picture of the overall PSC of a facility, it may also highlight differences between staff. Thus, we collected data from a broad range of staff (including Administrator / Manager, Licensed Nurse, Nurse Aide, Direct Care Staff, and Support Staff) and examined whether different staff opinions of the nursing home PSC existed.

DATA AND METHODS

In this research, the recently developed NHSPSC (i.e., Nursing Home Survey on Patient Safety Culture) was used and distributed to 40 nursing homes. The University of Pittsburgh Institutional Review Board granted approval to use staff job position identifiers in four non-profit nursing homes (with 151 staff). The study was exempt from informed consent procedures since responses were anonymous. Further details of the NHSPSC and data collection procedures are described below.

Data Source

Data were collected in late 2007 through early 2008. This consisted of a paper survey (the NHSPSC described below) administered to staff in each of 40 nursing homes. The 40 nursing homes were pilot facilities used to develop the NHSPSC. The authors had a previous working relationship with four of these nursing homes, and used these facilities to examine the responses of different staff to the NHSPSC. These four nursing homes represented a sample of convenience.

Each nursing home designated a staff member to assist with survey administration. The staff member was responsible for compiling staff lists, distributing the survey, and promoting survey completion.

Each survey was distributed with a cover letter and a postage-paid envelope for returning completed surveys. A \$5 monetary incentive was used to complete the survey, but no additional monetary incentive was used for the staff member assisting with survey administration. Individual identifiers were not used in survey administration. Thus, after a period of two weeks all staff received a thank you / reminder card and a second survey packet. Staff who had already responded were instructed to disregard the second survey.

Patient Safety Culture Nursing Home (NHSPSC) Instrument

The NHSPSC survey development is described in detail in a technical report <http://www.ahrq.gov/qual/nhsurvey08/nhdimensions.pdf>). This instrument was developed by Westat, a private research organization. The survey was designed using a review of the literature on safety, interviews with long-term care researchers, and interviews with nursing home administrators. The subsequent draft survey was pretested with 21 nursing home staff. Questions were examined to ensure that they were easy to understand and that the items were relevant. Questions were written at a 7th-grade reading level (or below).

The pilot version of the NHSPSC was tested in 40 nursing homes and with 3,698 nursing home staff. Using Cronbach's alpha, all domains were shown to have acceptable levels of reliability. The final version of the instrument included 62 survey items. Most of these items related to 12 areas (i.e., domains) of the resident safety organizational culture: supervisor expectations and actions promoting resident safety, training and skills, management support for resident safety, overall perceptions of resident safety, teamwork, feedback and communication about incidents, handoffs, communication openness, compliance with procedures, nonpunitive response to mistakes, organizational learning, and staffing. The NHSPSC also included two additional questions, one question whether or not the respondent would tell friends this is a safe nursing home for their family, and a second question asking them to provide an overall rating on resident safety.

In addition to the NHSPSC questions, in four nursing homes respondent information on staff position was available. These staff positions were identified on the survey as: Administrator / Manager (which included the executive director, administrator, medical director, director of nursing, nursing supervisor, department head, unit manager, charge nurse, assistant director, assistant manager, MDS coordinator, and resident nurse assessment coordinator); Administrative Support Staff (which included administrative assistant, admissions, billing, insurance, secretary, human resources, and medical records); Licensed Nurse (which included registered nurse [RN], licensed practical nurse [LPN], and wound care nurse); Nursing Assistant / Aide (which included certified nursing assistant [CNA], geriatric nursing assistant, nursing aide, and nursing assistant); Direct Care Staff (which included activities staff member, dietitian, nutritionist, medication technician, pastoral care, chaplain, pharmacist, physical therapy, occupational therapy, speech therapy, respiratory therapy, podiatrist, and social worker); Support Staff (which included drivers, food service, dietary, housekeeping, laundry service, maintenance, and security); Physician (MD, DO), Other Provider (which included nurse practitioner, clinical nurse specialist, and physician assistant); and, Other.

Analyses

An agreement scale and a frequency scale were used as part of the NHSPSC. The agreement scale uses: Strongly Agree, Agree, Neither, Disagree, Strongly Disagree. The frequency scale uses: Always, Most of the Time, Sometimes, Rarely, Never. For our first objective of providing an overall picture of the PSC of these nursing homes, descriptive statistics consisting of the percent and number (i.e., N) of respondents answering each question for each scale were computed. Item-scale internal consistency was computed using Cronbach's alpha for each domain.

For our second objective of comparing PSC responses of different staff, other descriptive statistics (consisting of the proportion and N of positive respondents) were computed for individual categories of staff. Agree/Strongly Agree or Most of the Time/Always for positively worded items and, Disagree/Strongly Disagree or Rarely/Never responses for negatively worded items were treated as positive responses. These are provided for five different staff types (Administrator / Manager, Licensed Nurse, Nurse Aide, Direct Care Staff, and Support Staff) following the staff categories included as part of the NHSPSC. However, because of sample size limitations no information is provided for three other categories of staff used as part of the NHSPSC (i.e., Other, Physician, and Other Provider).

A summary score for each staff category for each domain is provided. The summary score consists of the average proportion of positive answers for all items included in the domain. For domain score analyses, we used linear mixed models^{9,10} with each domain score as the response variable; profession as the main fixed effect of interest; a facility random effect to account for the clustering effect due to the fact that respondents from the same facility are possibly more likely to respond similarly than those from different facilities; and, Fisher's least significant difference for pairwise comparisons between professions. For individual item analyses, we used generalized estimating equations (GEE) model^{12,13} with each of the dichotomized response (positive/not positive) as the dependent variable; profession as the main factor of interest; and a compound symmetric correlation matrix to account for clustering of responses due to facility. For parsimony, only pairwise comparisons of the domain scores between staff categories are provided. The aggregate summary score for all staff combined for each domain for the four nursing homes of interest is also provided; along with summary scores from all 40 nursing homes. SAS[®] version 9.11¹⁴ was used for all statistical analyses.

RESULTS

Descriptive characteristics of the sample of nursing homes and staff respondents to the NHSPSC are provided in Table 1. For the 40 nursing homes in the sample, the overall facility response rate was 72%. For the four nursing homes of interest, the overall facility response rate was 68.9%, and the overall staff response rate varied from 52%–100% for different staff types. Most respondents (76%) were female and had worked in nursing homes for an average of 9.8 years, and at their current facility for 5.4 years (not shown in Table).

The aggregate NHSPSC scores, using all staff types for all survey items, are given in Table 2. Focusing on the most skewed distributions, the scores show that few (i.e., 1) respondents

strongly agreed that “enough staff were available to handle the workload” (i.e., item A3). Few (i.e., 1) respondents believed staff were never “given all the information they needed to care for residents” (i.e., item B10). Few (i.e., 1) respondents believed staff would never “tell someone if they see something that might harm a resident” (i.e., item B6).

The proportion of NHSPSC positive scores by staff type for all survey items are given in Table 3. For Administrators / Managers, the lowest positive score (i.e., 0.03) was for item B5, “In this nursing home, we talk about ways to keep incidents from happening again,” and the highest positive score (i.e., 0.85) was for item C3, “My supervisor pays attention to safety problems in this nursing home”. For Licensed Nurses, the lowest positive score (i.e., 0.11) was for also for item B5 and the highest positive score (i.e., 0.89) was for item B6, “Staff tell someone if they see something that might harm a resident”. For Nurse Aides, the lowest positive score (i.e., 0.08) was for item A3, “We have enough staff to handle the workload” and the highest positive score (i.e., 0.78) was for item C3, “My supervisor pays attention to safety problems in this nursing home”. For Direct Care Staff, the lowest positive score (i.e., 0.05) was for item B5 and the highest positive score (i.e., 0.82) was for item C3. For Support Staff, the lowest positive score (i.e., 0.14) was for item A3, “We have enough staff to handle the workload” and the highest positive score (i.e., 0.78) was also for item C3.

The NHSPSC positive scores by staff type for the domains are given in Table 4, along with the results from pairwise comparisons between staff types. Professions agreed on 2 of 12 domains. That is, no significant pairwise comparisons were identified for the teamwork and feedback and communication about incidents domains. Administrators / Managers differed significantly ($p<0.05$) from at least one other staff type for all domains, except organizational learning (and for the two domains previously noted with no significant comparisons). In most cases, Administrators / Managers had more positive scores than the other staff types. Administrators / Managers differed significantly ($p<0.05$) from all other staff type for the nonpunitive response to mistakes domain (with Administrators / Managers having the lowest domain score). In addition, Nurse Aides differed significantly ($p<0.05$) from support staff for the training and skills domain.

The NHSPSC positive scores for all staff in the four nursing homes of interest are given in Table 4 (see column 6). The NHSPSC positive scores for all staff in the sample of all 40 nursing homes are also given (in column 7). Of note, all of the NHSPSC positive scores for all staff in the four nursing homes of interest were lower than in the sample of 40 nursing homes indicating lower perceptions of PSC. In some cases these differences were relatively large. For example, the average communication openness score was 0.23 in the four nursing homes, whereas the average score in the 40 nursing homes was 0.59.

DISCUSSION

Published accounts of nursing homes using specific resident safety tools or implementing large-scale resident safety initiatives are limited. Still, as Castle¹ described the absence of large-scale safety initiatives obscures the many safety related areas of care nursing homes undertake, such as: medication errors, pain management, staffing ratios, restraint use, and resident falls. Moreover, some state organizations have begun including nursing homes

along with hospitals in their patient safety efforts (e.g., Maryland: www.marylandpatientsafety.org). Thus, resident safety is of increasing importance in nursing homes.

Amplifying the importance of resident safety in nursing homes is the recent recognition that PSC may be associated with worse resident outcomes. Bonner and associates,¹⁵ using 72 nursing homes and 1,579 nurse aides, identified restraint use to be associated with worse PSC using the HSOPSC survey. Moreover, this is consistent with an extensive body of literature that has shown the impact of organizational culture to be wide ranging.¹⁶ In other settings, organizational culture has been shown to be associated with quality, safety, and productivity.^{17,18}

Our findings show some variation on the items in the NHSPSC. Overall aggregate staff findings would seem to show few positive opinions of the workplace PSC. Stratifying the results by staff type further shows relatively less well-developed PSC. That is, analyses show uniform low opinions on the NHSPSC domains by all staff types, with the exception of Administrators / Managers who rate them significantly higher. This finding is consistent with previous research.⁹

Despite the fact that our subsample of four nursing homes is limited in size, the aggregate staff findings are striking in the many low scores given at these nursing homes. For example, few staff would appear to believe these facilities are adequately staffed (item A3). Items regarding communication openness are also generally low. Thus, many of the items and domains would appear to reflect many of the troubling issues inherent to nursing home care, including: staffing issues, low moral, poor communication, and little management support.

These same results, when viewed by staff type, also show low scores. It is uncertain what opinions (i.e., scores) on the NHSPSC should be. However, Administrators / Managers did provide somewhat more positive feedback than the other staff types. Of the 42 items, Administrators / Managers provided the most positive responses in 38 cases. This may reflect a “disconnect” between staff and managers,⁹ and could be one reason that troubling issues (listed above) persist in nursing homes. However, we noted some variability in the scores for Administrators / Managers as they were not uniformly high. In short, Administrators / Managers views would also seem to substantiate a poor PSC in these nursing homes.

When the NHSPSC domain scores by staff type are viewed, a similar picture is evident. That is, Administrators / Managers provided the most positive responses while in general the PSC was poor. It is somewhat tenuous to compare nursing homes to hospitals; however, we note that similar findings do exist on the *Hospital Survey on Patient Safety Culture* (www.ahrq.gov/qual/hospculture). That is, Administrators / Managers provided the most positive responses. Still, this divergence is much larger for the nursing homes we examined.

Research in hospital settings have also reported a consistently higher perception of PSC among managers compared to front-line staff.^{19,20} These authors suggest that managers may be “out of touch” with care processes, and unlike direct caregivers may not be aware of safety concerns.²¹ A strategy suggested to reduce the divergence of opinions between

managers and front-line staff has been to implement executive walk rounds. That is, to encourage managers to visit the units and engage with direct care staff on a more frequent basis.²¹ Other suggested strategies include leadership and management education programs for managers addressing communication issues.²⁰ Similar initiatives may be appropriate for nursing homes.

Others have described PSC as “the way things are done around here.”²² Based on our findings, the way things are done in these four nursing homes would seem to be somewhat of a safety concern. Clearly, with only four nursing homes for one area of the country we cannot raise any alarm bells as to the safety of nursing homes in general. That is, our results may not be generalizable. However, our findings are concerning in that these four nursing homes have a reputation in our community for providing high quality care and in the recent five-star quality rating system implemented on Nursing Home Compare²³ most of the scores are in the best quality categories (i.e., five-stars representing “much above average”).

Clearly, more information on PSC in nursing homes is needed from a larger sample. Nevertheless, our findings highlight the potential safety concerns that may exist in nursing homes. Further research could substantially add to our understanding of PSC by examining the association with quality indicators (such as those found in Nursing Home Compare). Identifying associations between types of nursing homes (such as for-profit versus not-for-profit)^{9,18} and PSC, or market conditions (such as levels of competition) and PSC, may further add to our understanding of PSC. Moreover, further identifying the impact of nursing home operating conditions (such as staffing levels) on PSC may present intervention strategies to influence resident safety.

Limitations

Our findings come from a sample of convenience and may not be generalizable to the nursing home industry as a whole. As we note above, the scores for the four nursing homes of interest are lower than those for all 40 nursing homes in the sample. This gives us further concern that results from these four facilities may not be generalizable.

The results for the 40 nursing homes in the sample are likely more representative of the nursing home industry. The sample closely represents many characteristics of the nursing home industry (including size and ownership characteristics). However, this sample was used to test the NHSPSC, and as such likely do not represent benchmark scores.

Moreover, when presenting the NHSPSC scores no real definitive sense of “low” or “high” exists. Still, with careful development of the NHSPSC instrument we would argue that a full range of scores is likely, and the many scores in the lowest terciles possible are likely low scores. In this regard, the relative scores between staff are less problematic.

A related issue is the practical significance of the findings. We cite Bonner et al.¹⁸ above showing the association between PSC and quality of care. Nevertheless, the point at which PSC influences quality is unclear. This point may not even be a linear one, that is the functional form between PSC and quality of care is unknown.

As noted above, due to small sample sizes, we were unable to include physician and nurse practitioner results in the analyses. This exclusion leaves a gap in our understanding of PSC in nursing homes, as all clinical staff contribute to PSC. Nevertheless, the contribution of physicians to PSC is unclear, as they typically spend less than 2 hours per week in the nursing home caring for their residents.²⁴

Finally, due to the large number of items on the NHSPSC and the five different staff types examined, for parsimony we presented the summary domain scores. Some granularity was lost by taking this approach. However, the domain summary score comparisons represented very well the relationships inherent to the individual items in each domain.

Conclusions

Staff in nursing homes generally agree about safety characteristics of their facilities: the PSC in nursing homes is quite low. We are not able to determine whether this is significantly impacting quality of care or quality of life for residents. However, we speculate that this is likely the case. Further comparisons across nursing home settings and staff is needed, as are identifying targets for interventions to improve patient safety.

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TABLE 1

Descriptive Characteristics of Sample Nursing Homes and Staff Respondents

	Number of Surveys Distributed	Number of Surveys Returned	Response Rate
All 40 nursing homes	5,136	3,698	72%
Nursing home 1	101	66	65%
Nursing home 2	180	134	74%
Nursing home 3	136	93	68%
Nursing home 4	138	120	87%
	Number of Surveys Returned	Percent of all Respondents	
Nursing Assistant/Aide	102	28%	
Support Staff	102	28%	
Licensed Nurse	49	13%	
Administrator/Manager	40	11%	
Direct Care Staff	42	11%	
Administrative Support Staff	19	5%	
Other	9	2%	
Physician (MD, DO)	3	1%	
Other Provider	1	0%	

TABLE 2

Aggregate Patient Safety Culture Nursing Home (NHSPSC) Instrument Scores

Domain and Survey Items	Strongly Disagree Percent (N)	Disagree Percent (N)	Neither Agree Or Disagree Percent (N)	Agree Percent (N)	Strongly Agree Percent (N)
1. Teamwork (Cronbach's alpha = .86)					
A1. Staff in this nursing home treat each other with respect.	7% (24)	18% (60)	19% (64)	48% (158)	8% (26)
A2. Staff support one another in this nursing home.	5% (18)	21% (71)	19% (62)	47% (155)	8% (25)
A5. Staff feel like they are part of a team.	10% (32)	23% (76)	29% (94)	33% (106)	5% (16)
A9. When someone gets really busy in this nursing home, other staff help out.	6% (18)	25% (77)	23% (71)	43% (135)	3% (10)
2. Staffing (Cronbach's alpha = .71)					
A3. We have enough staff to handle the workload.	37% (122)	42% (137)	11% (36)	10% (33)	0% (1)
A8. Staff have to hurry because they have too much work to do. (N).	3% (8)	11% (32)	13% (41)	45% (138)	28% (86)
A16. Residents' needs are met during shift changes.	11% (30)	30% (84)	33% (94)	24% (69)	3% (9)
A17. It is hard to keep residents safe here because so many staff quit their jobs. (N).	6% (19)	31% (92)	27% (81)	24% (72)	12% (35)
3. Compliance With Procedures (Cronbach's alpha = .73)					
A4. Staff follow standard procedures to care for residents.	3% (10)	13% (43)	21% (68)	54% (176)	9% (28)
A6. Staff use shortcuts to get their work done faster. (N)	3% (10)	18% (53)	25% (75)	42% (126)	11% (33)
A14. To make work easier, staff often ignore procedures. (N)	9% (28)	34% (103)	25% (76)	27% (80)	4% (12)
4. Training & Skills (Cronbach's alpha = .76)					
A7. Staff get the training they need in this nursing home.	5% (17)	18% (56)	18% (55)	50% (154)	9% (28)
A11. Staff have enough training on how to handle difficult residents.	9% (27)	35% (102)	23% (67)	29% (85)	3% (8)
A13. Staff understand the training they get in this nursing home.	3% (7)	9% (28)	25% (75)	58% (175)	6% (18)
5. Nonpunitive Response to Mistakes (Cronbach's alpha = .74)					
A10. Staff are blamed when a resident is harmed. (N)	4% (12)	19% (53)	38% (105)	32% (89)	8% (21)
A12. Staff are afraid to report their mistakes. (N)	7% (21)	27% (77)	28% (80)	33% (94)	5% (14)
A15. Staff are treated fairly when they make mistakes.	7% (19)	22% (65)	32% (92)	36% (106)	3% (10)
A18. Staff feel safe reporting their mistakes.	10% (27)	30% (84)	33% (94)	24% (69)	3% (9)
6. Handoffs (Cronbach's alpha = .86)					
B1. Staff are told what they need to know before taking care of a resident for the first time.	2% (6)	15% (42)	34% (97)	33% (93)	16% (47)

Domain and Survey Items		Strongly Disagree Percent (N)	Disagree Percent (N)	Neither Agree Or Disagree Percent (N)	Agree Percent (N)	Strongly Agree Percent (N)
B2.	Staff are told right away when there is a change in a resident's care plan.	7% (19)	19% (52)	32% (87)	29% (79)	13% (36)
B3.	We have all the information we need when residents are transferred from the hospital	6% (15)	24% (65)	37% (99)	26% (69)	7% (19)
B10.	Staff are given all the information they need to care for residents.	0% (1)	5% (14)	22% (65)	46% (138)	28% (83)
7. Feedback & Communication About Incidents (Cronbach's alpha = .85)						
B4.	When staff report something that could harm a resident, someone takes care of it.	1% (3)	8% (23)	25% (74)	42% (123)	23% (68)
B5.	In this nursing home, we talk about ways to keep incidents from happening again.	1% (4)	10% (30)	30% (90)	38% (112)	21% (62)
B6.	Staff tell someone if they see something that might harm a resident.	0% (1)	5% (14)	22% (65)	46% (138)	28% (83)
B8.	In this nursing home, we discuss ways to keep residents safe from harm.	2% (7)	8% (24)	29% (89)	34% (104)	27% (81)
8. Communication Openness (Cronbach's alpha = .84)						
B7.	Staff ideas and suggestions are valued in this nursing home.	10% (30)	22% (66)	36% (107)	21% (63)	11% (33)
B9.	Staff opinions are ignored in this nursing home. (N)	10% (29)	21% (62)	46% (134)	17% (49)	6% (18)
B11.	It is easy for staff to speak up about problems in this nursing home.	6% (18)	20% (58)	39% (117)	26% (76)	9% (28)
9. Supervisor Expectations & Actions Promoting Resident Safety (Cronbach's alpha = .81)						
C1.	My supervisor listens to staff ideas and suggestions about resident safety.	2% (7)	8% (25)	14% (44)	57% (177)	19% (60)
C2.	My supervisor says a good word to staff who follow the right procedures.	6% (18)	12% (39)	15% (48)	50% (160)	16% (52)
C3.	My supervisor pays attention to safety problems in this nursing home.	3% (8)	4% (13)	14% (46)	54% (173)	25% (80)
10. Overall Perceptions of Resident Safety (Cronbach's alpha = .86)						
D1.	Residents are well cared for in this nursing home.	4% (14)	12% (38)	23% (74)	48% (154)	14% (44)
D6.	This nursing home does a good job keeping residents safe.	1% (2)	8% (27)	26% (83)	58% (187)	8% (25)
D8.	This nursing home is a safe place for residents.	2% (5)	7% (24)	23% (75)	57% (185)	11% (36)
11. Management Support for Resident Safety (Cronbach's alpha = .83)						
D2.	Management asks staff how the nursing home can improve resident safety.	9% (27)	25% (77)	22% (69)	35% (109)	9% (27)
D7.	Management listens to staff ideas and suggestions to improve resident safety.	6% (20)	20% (64)	31% (98)	37% (116)	5% (15)
D9.	Management often walks around the nursing home to check on resident care.	12% (37)	20% (62)	19% (58)	40% (124)	10% (30)
12. Organizational Learning (Cronbach's alpha = .62)						
D3.	This nursing home lets the same mistakes happen again and again. (N)	12% (38)	45% (138)	25% (76)	14% (43)	5% (15)
D4.	It is easy to make changes to improve resident safety in this nursing home.	3% (10)	16% (50)	36% (110)	38% (117)	7% (21)
D5.	This nursing home is always doing things to improve resident safety.	1% (3)	13% (42)	35% (112)	42% (135)	8% (27)

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Domain and Survey Items	Strongly Disagree Percent (N)	Disagree Percent (N)	Neither Agree Or Disagree Percent (N)	Agree Percent (N)	Strongly Agree Percent (N)
DI0. When this nursing home makes changes to improve resident safety, it checks to see	4% (11)	15% (44)	25% (74)	51% (152)	5% (16)

N = negatively worded question;

^ Based on information from 4 nursing homes

TABLE 3
Patient Safety Culture Nursing Home (NHSPSC) Instrument Positive Scores by Staff Type

Domain and Survey Items	Admin / Manager Mean (N)	Licensed Nurse Mean (N)	Nurse Aide Mean (N)	Direct Care Staff Mean (N)	Support Staff Mean (N)
1. Teamwork (Cronbach's alpha = .86)					
A1. Staff in this nursing home treat each other with respect.	0.65 (40)	0.60 (47)	0.56 (101)	0.55 (42)	0.49 (102)
A2. Staff support one another in this nursing home.	0.68 (40)	0.53 (47)	0.51 (101)	0.55 (42)	0.52 (101)
A5. Staff feel like they are part of a team.	0.43 (40)	0.28 (47)	0.42 (101)	0.38 (40)	0.36 (96)
A9. When someone gets really busy in this nursing home, other staff help out.	0.26 (35)	0.32 (44)	0.36 (100)	0.34 (41)	0.24 (91)
2. Staffing (Cronbach's alpha = .71)					
A3. We have enough staff to handle the workload.	0.18 (38)	0.02 (47)	0.08 (100)	0.10 (41)	0.14 (102)
A8. Staff have to hurry because they have too much work to do. (N).	0.63 (35)	0.89 (45)	0.79 (98)	0.78 (40)	0.62 (87)
A16. Residents' needs are met during shift changes.	0.32 (34)	0.42 (45)	0.43 (94)	0.11 (35)	0.29 (76)
A17. It is hard to keep residents safe here because so many staff quit their jobs. (N).	0.57 (35)	0.42 (45)	0.29 (96)	0.34 (35)	0.36 (88)
3. Compliance With Procedures (Cronbach's alpha = .73)					
A4. Staff follow standard procedures to care for residents.	0.69 (39)	0.68 (47)	0.63 (101)	0.55 (42)	0.60 (97)
A6. Staff use shortcuts to get their work done faster. (N)	0.57 (35)	0.51 (45)	0.61 (97)	0.51 (37)	0.46 (83)
A14. To make work easier, staff often ignore procedures. (N)	0.45 (33)	0.56 (45)	0.43 (98)	0.36 (36)	0.41 (87)
4. Training & Skills (Cronbach's alpha = .76)					
A7. Staff get the training they need in this nursing home.	0.26 (35)	0.38 (45)	0.19 (99)	0.30 (40)	0.18 (91)
A11. Staff have enough training on how to handle difficult residents.	0.36 (33)	0.16 (45)	0.31 (96)	0.28 (39)	0.43 (76)
A13. Staff understand the training they get in this nursing home.	0.64 (33)	0.53 (45)	0.66 (99)	0.61 (38)	0.68 (88)
5. Nonpunitive Response to Mistakes (Cronbach's alpha = .74)					
A10. Staff are blamed when a resident is harmed. (N)	0.23 (35)	0.38 (45)	0.46 (93)	0.29 (34)	0.44 (73)
A12. Staff are afraid to report their mistakes. (N)	0.21 (33)	0.44 (43)	0.28 (95)	0.55 (31)	0.45 (84)
A15. Staff are treated fairly when they make mistakes.	0.70 (33)	0.24 (45)	0.34 (91)	0.49 (35)	0.39 (88)
A18. Staff feel safe reporting their mistakes.	0.40 (30)	0.23 (44)	0.31 (96)	0.18 (33)	0.25 (80)
6. Handoffs (Cronbach's alpha = .86)					
B1. Staff are told what they need to know before taking care of a resident for the first time.	0.62 (34)	0.38 (45)	0.37 (99)	0.67 (36)	0.58 (71)
B2. Staff are told right away when there is a change in a resident's care plan.	0.52 (31)	0.29 (45)	0.44 (96)	0.36 (36)	0.48 (65)
B3. We have all the information we need when residents are transferred from the hospital	0.27 (33)	0.24 (45)	0.25 (85)	0.38 (39)	0.49 (65)

Domain and Survey Items	Admin / Manager Mean (N)	Licensed Nurse Mean (N)	Nurse Aide Mean (N)	Direct Care Staff Mean (N)	Support Staff Mean (N)
B10. Staff are given all the information they need to care for residents.	0.66 (32)	0.53 (45)	0.40 (100)	0.59 (39)	0.55 (75)
7. Feedback & Communication About Incidents (Cronbach's alpha = .85)					
B4. When staff report something that could harm a resident, someone takes care of it.	0.82 (33)	0.80 (45)	0.56 (97)	0.58 (40)	0.67 (76)
B5. In this nursing home, we talk about ways to keep incidents from happening again.	0.03 (34)	0.11 (45)	0.11 (99)	0.05 (38)	0.18 (82)
B6. Staff tell someone if they see something that might harm a resident.	0.80 (35)	0.89 (45)	0.72 (98)	0.70 (40)	0.65 (83)
B8. In this nursing home, we discuss ways to keep residents safe from harm.	0.77 (35)	0.58 (45)	0.57 (100)	0.65 (40)	0.58 (85)
8. Communication Openness (Cronbach's alpha = .84)					
B7. Staff ideas and suggestions are valued in this nursing home.	0.56 (34)	0.18 (45)	0.22 (96)	0.33 (39)	0.41 (85)
B9. Staff opinions are ignored in this nursing home. (N)	0.56 (34)	0.23 (44)	0.19 (95)	0.37 (38)	0.37 (81)
B11. It is easy for staff to speak up about problems in this nursing home.	0.61 (33)	0.20 (45)	0.31 (95)	0.26 (39)	0.42 (85)
9. Supervisor Expectations & Actions Promoting Resident Safety (Cronbach's alpha = .81)					
C1. My supervisor listens to staff ideas and suggestions about resident safety.	0.87 (39)	0.68 (47)	0.71 (98)	0.86 (39)	0.75 (92)
C2. My supervisor says a good word to staff who follow the right procedures.	0.74 (39)	0.64 (47)	0.61 (98)	0.68 (38)	0.71 (95)
C3. My supervisor pays attention to safety problems in this nursing home.	0.85 (39)	0.77 (47)	0.78 (100)	0.82 (39)	0.78 (95)
10. Overall Perceptions of Resident Safety (Cronbach's alpha = .86)					
D1. Residents are well cared for in this nursing home.	0.05 (39)	0.15 (47)	0.13 (101)	0.22 (41)	0.22 (96)
D6. This nursing home does a good job keeping residents safe.	0.74 (39)	0.66 (47)	0.67 (101)	0.56 (41)	0.64 (96)
D8. This nursing home is a safe place for residents.	0.82 (39)	0.63 (46)	0.70 (99)	0.62 (42)	0.66 (99)
11. Management Support for Resident Safety (Cronbach's alpha = .83)					
D2. Management asks staff how the nursing home can improve resident safety.	0.68 (38)	0.28 (47)	0.37 (95)	0.47 (36)	0.48 (93)
D7. Management listens to staff ideas and suggestions to improve resident safety.	0.68 (37)	0.23 (44)	0.35 (97)	0.49 (41)	0.45 (94)
D9. Management often walks around the nursing home to check on resident care.	0.66 (38)	0.41 (46)	0.47 (98)	0.39 (36)	0.54 (93)
12. Organizational Learning (Cronbach's alpha = .62)					
D3. This nursing home lets the same mistakes happen again and again. (N)	0.10 (39)	0.15 (47)	0.22 (93)	0.25 (40)	0.19 (91)
D4. It is easy to make changes to improve resident safety in this nursing home.	0.45 (38)	0.24 (45)	0.47 (90)	0.49 (39)	0.51 (96)
D5. This nursing home is always doing things to improve resident safety.	0.67 (39)	0.43 (47)	0.43 (98)	0.57 (42)	0.54 (96)
D10. When this nursing home makes changes to improve resident safety, it checks to see if the changes worked.	0.70 (37)	0.61 (44)	0.48 (91)	0.51 (35)	0.59 (90)

N = negatively worded question

Proportion of positive answers are given (i.e., Agree/Strongly Agree or Most of the Time/Always for positively worded items was calculated, and for negatively worded items the proportion of Disagree/Strongly Disagree or Rarely/Never responses was calculated)

TABLE 4
Patient Safety Culture Nursing Home (NHSPSC) Instrument Domain Scores by Staff Type

Domain and Summary Score	Admin / Manager (1)	Licensed Nurse (2)	Nurse Aide (3)	Direct Care Staff (4)	Support Staff (5)	All Staff Sites (6)	All Staff Sites (7)
<u>1. Teamwork</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.75 [0.32]	0.69 [0.31]	0.68 [0.32]	0.66 [0.32]	0.64 [0.34]	0.65	0.80
<u>2. Staffing</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.40 [0.34] (1 vs 3)	0.31 [0.26]	0.29 [0.26]	0.30 [0.28]	0.31 [0.30]	0.30	0.52
<u>3. Compliance With Procedures</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.50 [0.27] (1 vs 4 and 5)	0.44 [0.23]	0.44 [0.24]	0.40 [0.24]	0.41 [0.26]	0.44	0.77
<u>4. Training & Skills</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.53 [0.30]	0.54 [0.27]	0.60 [0.27] (3 vs 5)	0.56 [0.28]	0.48 [0.29]	0.57	0.75
<u>5. Nonpunitive Response to Mistakes</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.18 [0.25] (1 vs 2,3,4,5)	0.38 [0.29] (2 vs 5)	0.32 [0.30]	0.35 [0.32]	0.29 [0.31]	0.33	0.53
<u>6. Handoffs</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.43 [0.24] (1 vs 3)	0.36 [0.18]	0.32 [0.25]	0.44 [0.29] (4 vs 3)	0.44 [0.33] (5 vs 3)	0.42	0.60
<u>7. Feedback & Communication About</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.51 [0.29]	0.41 [0.27]	0.43 [0.37]	0.44 [0.37]	0.51 [0.38]	0.47	0.80
<u>8. Communication Openness</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.25 [0.24] (1 vs 2 and 3)	0.14 [0.21]	0.17 [0.22]	0.20 [0.24]	0.25 [0.24] (5 vs 2 and 3)	0.23	0.59
<u>9. Supervisor Expectations & Actions Promoting Resident Safety</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.58 [0.22] (1 vs 2)	0.48 [0.26]	0.51 [0.28]	0.55 [0.23]	0.52 [0.27]	0.52	0.80
<u>10. Overall Perceptions of Resident Safety</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.65 [0.32] (1 vs 2)	0.52 [0.28]	0.65 [0.31] (3 vs 2)	0.55 [0.41]	0.63 [0.34] (5 vs 2)	0.59	0.80
<u>11. Management Support for Resident</u>							
Domain Summary Score [Std.] (pairwise comparison)	0.63 [0.15] (1 vs 2 and 3)	0.48 [0.27]	0.52 [0.27]	0.61 [0.24] (4 vs 2)	0.50 [0.29]	0.51	0.74

Domain and Summary Score	Admin / Manager (1)	Licensed Nurse (2)	Nurse Aide (3)	Direct Care Staff (4)	Support Staff (5)	All Staff 4 Sites (6)	All Staff 40 Sites (7)
12. Organizational Learning							
Domain Summary Score [Std.] (pairwise comparison)	0.29 [0.19]	0.24 [0.21] (2 vs 4 and 5)	0.30 [0.24]	0.36 [0.29]	0.35 [0.25]	0.33	0.53

The summary score consists of the average proportion of positive answers for all items included in the domain

All pairwise comparisons given are significant at .01

Pairwise comparisons are given in parentheses, and indicate significance between the column numbers given. For parsimony, only pairwise comparisons of the domain scores between staff categories are provided. Only significant pairwise comparisons are presented.