The Effectiveness of Visitor Management in Hospitals

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EXECUTIVE SUMMARY

This report offers a snapshot of the visitation policies and visitor management approaches of participating IAHSS members' institutions sampled in September and October, 2018. In total, 135 facilities were included in the survey analysis. The sample included 37 facilities with 500 licensed beds or more, 55 facilities with 200-499 licensed beds, and 43 facilities with 200 licensed beds or fewer. Among participating facilities, 54% were teaching hospitals, 78% were located in urban settings, and 10% were located outside of the United States. Approximately 65% of respondents reported that their annual security budget was $500,000 or greater. Ten of the survey respondents also participated in a one-on-one telephone interview with a member of the research team.

A mixed method approach was selected to identify, evaluate, and contextualize facilities' current visitor management programs. A cross-sectional, online survey was administered to hospital safety and security administrators to capture information on their facilities' visitation scheduling and visitor management protocols as they related to safety and security. Then, a set of 10 key informant interviews was executed to collect additional details about the visitor management programs' structures, effectiveness, and issues.

Among responding organizations, 81% had a facility-wide visitation policy, of which 55% had a policy of unrestricted or open visitation (i.e., facility-wide visitation policies that allow patient visitors 24-hours per day, seven days per week, in general). The mean costs to implement (one-time) and maintain (annually) the facility's current visitor management program were $154,292 and $44,196, respectively. Specific visitor management practices tended to vary by facility attribute; facility square footage, number of licensed beds, in-patient census, whether the facility was a teaching hospital, and whether the facility had a facility-wide visitation policy were each positively associated with more rigorous visitor management practices.

Slightly more than one-third of facilities reported a total 12-month security call volume of fewer than 3,500 calls, and one-fourth of facilities reported a total 12-month security call volume of more than 17,500 calls. Among hospitals with more than 500 beds, 77% reported more than 10,000 calls annually, and 37% reported 50,000 calls or more. Disorderly conduct calls were the most frequently reported type of call, overall. Annual call volumes increased as facility square footage and the number of licensed beds increased; higher call volumes were also evident among teaching hospitals, urban hospitals, and facilities with electronic visitor management systems. Factors associated with increasing categories of call volume were in-patient or emergency department patient censuses, having 500 or more licensed beds, and having an electronic visitor management system.

No differences were seen in the number of security calls reported overall between facilities with and without facility-wide visitor management policies. When comparing hospitals with open visitation to those without, no statistical differences were seen in terms of 12-month total call volume or call volume by specific type of call (e.g., disorderly conduct, assault, theft), with the exception of battery and robbery. Among facilities

reporting security call volumes before and after implementing open visitation, 88% indicated that their total annual call volumes did change following the transition. Additionally, no statistical differences were seen in terms of 12-month total call volume or call volume by specific type of call when comparing facilities with and without electronic visitor management systems.

Slightly more than half of respondents indicated that their facility's visitor-related security issues had become more challenging over the past 12 months; fewer than 5% reported that their issues had become less challenging. Among open visitation facilities, the majority indicated that their visitor-related security issues had remained about the same prior to and since implementing open visitation. Interview participants generally expressed a desire to increase the rigor of their visitor management and facility access control, which they indicated were more pressing issues than visitation scheduling. Facilities requiring visitor registration (or more stringent visitor management practices) reported generally positive public responses to increased levels of security scrutiny.

Facilities' safety and security efforts could benefit from future research that promotes the collection of standardized information related to crime, violence, and victimization, broadly, with a particular focus on collecting objective data prior to and following the implementation of policy or practice changes. Given the influence of month, day-of-the-week, and time-of-day on security issues, future studies examining temporal trends would be valuable, particularly for staffing purposes. Future research could also assess the effectiveness of specific visitor management policies and practices and conduct efficacy, translational, and dissemination research on interventions that promote hospital safety and security based on the findings of those assessments.

BACKGROUND

The frequency and severity of violent and criminal incidents in healthcare settings are a growing public health concern. Healthcare security personnel are tasked with preventing and managing such incidents, increasing staff awareness of security issues, and improving staff skills related to incident management, all in an environment of compassionate caregiving and customer service.[1] Protecting the safety of staff, patients, and visitors has been made more complex by recent U.S. trends towards increasing general access to healthcare facilities, including the widespread lifting of restrictions on visitors and visiting hours in hospitals.

Historically, U.S. hospitals have restricted who could visit a patient as well as when visitation could occur.[2,3] Beginning in 2011, as mandated by a presidential memorandum[4] and subsequent U.S. Department of Health and Human Services (HHS) regulation,[5] hospitals that participate in Medicare or Medicaid must allow patients to decide who may visit them during an inpatient stay, thereby eliminating hospital-imposed policies requiring that visitors have specific relationships to patients (e.g., parent, spouse).[6] Although the HHS rule addresses who may visit patients, it does not specify when visitors may access patients.[5] Thus, hospitals continue to set their own guidelines for patient visitation scheduling, including the hours during which visitors may see patients, the security screening process for visitors, and the criteria for restricting patient access.

Since the 1960s, three primary visitation schedules have been in effect in U.S. hospitals:[7] (1) scheduled visitation (i.e., visitors allowed on a scheduled basis only, such as between 11 am and 8 pm); (2) open to visitors except during rounds/shift changes (i.e., closed to visitors at scheduled times twice per day for 30-120 minutes); and (3) open at all times (i.e., 24-hour patient access).[8-10] For the past 15 years, many hospitals have been eliminating visiting hour restrictions and introducing 24-hour visitation policies.[7,10,11] These so-called "open" or "unrestricted" visitation policies are intended to promote a more welcoming environment for family members, to increase the information exchanged between families and healthcare providers, and to ensure families that adequate care is being provided.[7] However, open visitation policies vary in their scope. Although "open visitation" allows 'round-the-clock patient visitation, the number and/or age of visitors may still be restricted, particularly after hours (i.e., between 8 pm and 5 am), and patient access may be denied during consultations or procedures.[11] In contrast, unrestricted visitation does not impose these same limitations.

Compared to more limited visitation policies, open visitation is associated with several benefits, including improved patient outcomes,[12,13] enhanced patient perceptions of and satisfaction with care (e.g., feeling safe, secure, relaxed during treatment),[11,13-16] increased family satisfaction with care,[11,17-19] reduced patient and family anxiety regarding treatment,[12-15,17] and increased communication between healthcare providers, patients, and families.[13,15] Because of these benefits, universal open or unrestricted visitation has been recommended by several professional organizations for healthcare providers.[20,21] However, these findings are not equivocal, and studies have reported that open visitation does not improve patient outcomes,[22] interferes with patient care,[16,17,23] reduces patient

rest and recovery time,[16] increases patient physiological and psychological stress,[16,17,23] and precludes communication with care providers.[16] Survey data have consistently shown that patients and visitors prefer open visitation,[17] though hospital staff generally do not.[23,24]

Absent from the literature on open visitation are studies of the impact of visitation scheduling and visitor management practices on the safety of staff, patients, and visitors or on facility security operations. Although a few anecdotal reports have been published on the demands placed on hospital security personnel under open visitation,[1] little is known about the security implications of open visitation, such as crime trends or the effectiveness and perception of visitor management practices. This is important because ongoing surveys of IAHSS members have demonstrated relatively high rates of criminal events in hospital settings. In 2016, IAHSS survey participants' data showed aggregated crime rates per 100 beds of 34.1 disorderly conduct events, 9.3 assaults, and 8.0 thefts.[25] Although several types of crime had shown decreasing trends in previous years, all of the crime rates – which were calculated for violent crime (i.e., murder, rape, robbery, aggravated assault), assault (i.e., simple), burglary, disorderly conduct, motor vehicle theft, theft (i.e., larceny-theft), and vandalism – increased between 2015 and 2016.[25] Further, recent evidence suggests that the rate of violence directed against hospital workers has been increasing since 2014, from 4 per 10,000 full-time equivalents to 5.9 per 10,000 full-time equivalents, with rates nearly doubling for some occupational groups.[26] However, there is currently no data on what influence visitation scheduling and visitor management practices may have had on these rates, if any.

The purpose of this study was to assess the effectiveness of visitor management programs on the safety and security of healthcare facilities. To those ends, a two-phase approach was undertaken. In Phase 1, we constructed and administered a cross-sectional online survey of IAHSS members to ascertain details about their facility's visitation scheduling and visitor management as they related to safety and security. In Phase 2, we executed 10 telephone interviews with a sub-set of survey respondents to collect in-depth details about the structure of their visitor management programs, barriers to and promoters of the programs, and their assessments of the effectiveness of their existing programs, including what they would alter, if they could. This research was approved by the Committee for the Protection of Human Subjects at The University of Texas Health Science Center at Houston.

PHASE 1: SURVEY INSTRUMENT CONSTRUCTION, PARTICIPANT RECRUITMENT, AND ADMINISTRATION.

Research Design and Study Methods

Instrument Development. We constructed a cross-sectional online survey to capture details about visitation scheduling and visitor management practices among participating facilities. Designed to take no longer than 15 minutes to complete, the survey collected information about participants' work experience/history, hospital demographics, type and number of security staff employed, visitation scheduling, visitor management, and

security call volumes in the previous 12 months. Survey questions focused on the components, effectiveness, and the total costs associated with implementing and maintaining the visitor management program. To assess the components of the visitor management program, data were collected on factors such as the structure of the program, pertinent aspects of any patient visitation policies (including visitation scheduling and exceptions), and the use of specific visitor management practices (e.g., metal detectors, background checks). To assess the potential impact of an opne visitation policy, data were collected on factors such as the date of implementation and the total annual security call volume as well as the volume of specific types of security calls (e.g., disorderly conduct, battery) prior to and since the introduction of open visitation. Preliminary domains and data elements of interest were presented to IAHSS Foundation (IAHSS-F) leadership for feedback; revised target areas of investigation were incorporated into the initial survey draft. The initial draft was shared with IAHSS-F members, from whom additional input and recommendations were solicited. Based on this information, the survey was updated and finalized for use with IAHSS members working in hospital settings (Appendix A).

Participant Recruitment. All IAHSS members (approximately 2,000) were invited to participate in this study. A recruitment email was sent from IAHSS-F directly to the IAHSS membership at the initiation of the survey, which provided information on the survey topic and rationale as well as contact information for the research team (Appendix B). Additional reminders were included in IAHSS weekly email newsletters. A final recruitment message was emailed from IAHSS-F prior to the last week the survey was available online. All potential participants received the same recruitment messages on the same days and with the same frequency. Prior to the launch of the study, materials were developed to address anticipated questions or concerns from recruits; these responses and resources were shared with potential participants as issues were raised.

Survey Execution. In total, the survey was available online to respondents for five weeks during September and October of 2018. The survey was conducted via the Research Electronic Data Capture (REDCap) data collection and management tool,[27] which is a secure, web-based application for building and managing online surveys and databases. The survey instrument fields and skip patterns were input into REDCap. Fields that constituted potentially identifying information were optional to respondents. All data were collected into and downloaded from REDCap at the conclusion of the survey period.

Data Analysis. Questionnaire data collected through REDCap were downloaded for analysis in Stata statistical software (v.14).[28] Data were cleaned, and distributions for each variable were visually inspected. New variables were constructed by collapsing response categories to normalize distributions or by combining variables to create interaction terms for subsequent testing. Next, frequencies and prevalences of facility attributes, visitation scheduling, visitor management practices, and call volumes were calculated to describe the visitation policies and procedures in place at IAHSS members' hospitals, both overall and across categories of interest.

Bivariate analyses were conducted for each visitation scheduling and visitor management

practice by hospital demographics, security team components, and security call volumes. Relationships between the visitation scheduling and visitor management practices were explored using descriptive and bivariate analyses to identify patterns or categories of overlap between the two.

Then, a series of multivariate ordinal logistic regression models were constructed to calculate crude and adjusted odds ratios and 95% confidence intervals. This was done to determine the set of factors that, when taken together, were associated with increasing security call volumes. Total 12-month security call volume was modeled independently, and a step-down multivariate modeling strategy was employed in order to identify the association between variables of interest and a reduced or increased number of security calls. Before being finalized, the multiple regression models were tested to ensure they did not violate proportionality assumptions.

Although these factors cannot be considered predictive of increasing call volumes because of the study's design, they each demonstrated strong relationships independently and together with increased numbers of security calls. Because facility security depends on many different, interrelated factors, this set of variables provides a more complete picture of the factors related to call volumes than they do individually. Data on the outcome of interest – security call volume – was captured as a set of categories, with respondents selecting the category that reflected their total prior 12-month security call volume. As a result, the factors associated with increased call volumes are interpreted as being associated with increasing categories of call volumes. Due to small sample sizes, the analysis of factors influencing call volumes for specific types of calls are not presented as they did not provide reliable results.

All analyses were performed at the facility level, with the exception of the interview participant demographic summary, which was executed at the individual level. For all analyses, statistical significance (e.g., the point beyond which it is statistically unlikely the results are due to chance) was set at or below 5% (or 0.05) and reported in terms of probability values (or p-values). However, because of the potential influence of small category sizes to bias results towards the null, near-significant values (defined as p-values greater than 0.05 but less than or equal to 0.1) have been discussed as such. Because of the size of the cohort, small sample methods (including "exact" statistical tests and/or "robust" variance estimators) were used when deemed necessary due to small numbers of specific responses and the heteroskedasticity seen in the residual distributions.

Findings

Overview of Survey Cohort

There were 176 surveys initiated in the system, of which 112 were completed. An additional 23 surveys were incomplete but provided enough facility, visitor management, and call volume information to be included in the analysis. This yielded an analytical cohort of 135 facilities.

An additional 22 respondents provided facility and limited visitor management information, but no call volume information; as a result, those surveys were excluded from the analytical cohort. A sensitivity analysis was performed to determine whether those facilities' characteristics (e.g., square footage, number of licensed beds, patient censuses) differed from those facilities in the analytical cohort. There was no evidence of differences in characteristics between the facilities that completed the survey and those that did not.

Description of Facilities

The mean interior square footage of participating institutions was 1,376,284 ft^2, with a range from 2,500 ft^2 to approximately 10,000,0000 ft^2 (standard error [S.E.]: 224,727.4 ft^2; interquartile range [IQR]: 55,000-6,000,000 ft^2) (Table 1). More than three-quarters of respondents indicated that their facility had 1,000 employees or more; of those, almost one-quarter reported having 5,000 employees or more. The 2017 means for annual in-patient census and emergency department (ED) patient census among responding facilities were 48,844.4 and 50,711.7 patients, respectively (in-patients: SE: 18,322.1; range: 0-1,000,000; IQR: 245-187,500; ED patients: SE: 5,333; range: 1-180,000; IQR: 0-139,000). The number of licensed beds in responding facilities ranged from fewer than 25 to more than 500, with about 40% of facilities reporting between 100 and 499 beds and the remaining 60% relatively evenly split between reporting either fewer than 200 beds or 500 beds or more. Additionally, responding organizations were split almost equally in terms of whether they were teaching hospitals (teaching vs. non-teaching: 54.1% and 45.9%, respectively).

Almost half of respondents indicated that their facility layouts were best described as medium density with units clustered in one or more multi-functional buildings with one or more floors (46.0%) (Table 1). About 20% of the remaining participants' locations were layouts that were spread across multiple, one- or two-story separate buildings (i.e., low density), and about 30% were concentrated into a single multi-functional, multi-floor building (i.e., high density). Respondents reported an average of 12.5 public entrances (SE: 2.6; range: 1-250; IQR: 2-75); public entrances were defined as any open, unsecured entrance that the public can use to access the hospital and included exterior public entrances as well as entrances from other connected buildings.

The majority of respondents were located in urban areas rather than rural ones (77.8% vs. 22.2%, respectively) (Table 1), as defined by the U.S. Centers for Medicare and Medicaid Services (i.e., rural facilities are those (1) operating in counties outside metropolitan statistical areas, (2) operating in areas with < 50,000 residents, or (3) that have been reclassified from urban to rural). In terms of the geographical locations of the facilities, the largest portion of responders (36.3%) came from the southern U.S. states (e.g., Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia), followed by the Midwestern states (28.2%) (e.g., Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Ohio, North Dakota, Nebraska, South Dakota,

Table 1. Selected facility and security program characteristics (n = 135).

	Frequency/ Mean (SE)	%/ Range (IQR)
Interior square footage	1,376,284 (224,727.4)	2,500 - 10,000,000 (55,000 - 6,000,000)
Number of facility employees		
Fewer than 100 employees	2	1.5
100 employees or more, but fewer than 200	6	4.4
200 employees or more, but fewer than 500	8	5.9
500 employees or more, but fewer than 1,000	13	9.6
1,000 employees or more, but fewer than 2,000	34	25.2
2,000 employees or more, but fewer than 5,000	41	30.4
5,000 employees or more	31	23.0
Number of licensed beds		
Fewer than 25 beds	4	3.0
25 beds or more, but fewer than 50	6	4.4
50 beds or more, but fewer than 100	6	4.4
100 beds or more, but fewer than 200	27	20.0
200 beds or more, but fewer than 300	29	21.5
300 beds or more, but fewer than 400	15	11.1
400 beds or more, but fewer than 500	11	8.2
500 beds or more	31	27.4
In-patient census, 2017	48,844.4 (18,322.1)	0 - 1,000,000 (245 - 187,500)
ED patient census, 2017	50,711.7 (5,333)	0 - 180,000 (0 - 139,000)
Teaching hospital		
Yes	73	54.1
No	62	45.9
Facility layout		
Low density (Spread across multiple, one- or two-story separate buildings)	28	22.2
Medium density (Units clustered into one or more multi-functional buildings with one or more floors)	58	46.0
High density (Concentrated into one single building that is multi-functional and multi-floor)	40	31.8
Number of public entrances (includes exterior entrances as well as entrances from other connected buildings)	12.5 (2.6)	1-250 (2 - 75)
Urbanicity		
Urban	105	77.8
Rural	30	22.2

Table 1 (con't). Selected facility and security program characteristics (n = 135).

	Frequency/ Mean (SE)	%/ Range (IQR)
Geographic location		
Northeast (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont)	22	16.3
Midwest (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Ohio, North Dakota, Nebraska, South Dakota, Wisconsin)	38	28.2
South (Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia)	49	36.3
West (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Nevada, New Mexico, Montana, Oregon, Utah, Washington, Wyoming)	13	9.6
North America, but not the U.S.	12	8.9
Country outside of North America	1	0.7
Safety/ security department employees		
Fewer than 10	23	17.0
10 or more, but fewer than 25	48	35.6
25 or more, but fewer than 50	36	26.7
50 or more	28	20.7
Safety/ security officer employment status		
Employees	85	63.4
Contractors	29	21.6
Mix of employees and contractors	20	14.9
Contract with local police for security officers		
Yes	32	23.9
No	102	76.1
Annual security budget		
Less than $100,000	11	9.6
$100,000 or more, but less than $500,000	28	24.4
$500,000 or more, but less than $1.5 million	40	34.8
$1.5 million or more	36	31.3
Approximate total cost to implement current visitor management program	$154,292 ($54,232.13)	$0 - $3,000,000 ($1,200 - $75,000)
Approximate total cost to maintain current visitor management program	$44,196 ($13,773.09)	$1 - $500,000 ($450 - $20,000)
Written visitor management policy or policies		
Yes, and written policy is facility-wide	110	81.5
Yes, but written policy is not facility-wide	11	8.1
No	14	10.4

Table 1 (con't). Selected facility and security program characteristics (n = 135).

	Frequency/ Mean (SE)	%/ Range (IQR)
Facility policy on when patient visitation is allowed		
Patient visitation is allowed during regularly scheduled hospital visiting hours	43	35.0
Patient visitation is allowed at any time except during rounds or shift changes	6	4.9
Patient visitation is allowed around the clock (e.g., open/ unrestricted visitation)	60	46.8
No facility-wide policy	14	11.4
Electronic visitor management system		
Yes	40	33.1
No, but plan to implement in the next 12 months	41	33.9
No, and no plans to implement in the next 12 months	40	33.1
Implementation of electronic visitor management system		
In 2018	3	8.8
In 2017	5	14.7
In 2016	10	29.4
In 2015	2	5.9
In 2014	2	5.9
Prior to 2014	12	35.3

Notes: Percentages may not sum to 100% due to rounding; SE: standard error; IQR: inter-quartile range; ED: emergency department

and Wisconsin) and the northeastern states (16.3%) (e.g., Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont). Just under 10% of responding facilities were located in the western U.S. (e.g., Alaska, Arizona, California, Colorado, Hawaii, Idaho, Nevada, New Mexico, Montana, Oregon, Utah, Washington, and Wyoming) or in North America, but not in the U.S. (e.g., Canada, Mexico). Only one responding organization was located outside of North America (0.7%).

Security Force and Budget

About half of responding facilities reported employing fewer than 25 security personnel (in terms of full-time equivalents, or FTEs), with the other half of respondents relatively evenly split between those that employed 25-49 FTEs (26.7%) and 50 or more FTEs (20.7%) (Table 1). The majority of healthcare facilities reported that their safety/security officers were employees of the facility (63.4%), with an additional 21.6% of respondents indicating that their security officers were contractors and 14.9% reporting that their officers were a mix of facility employees and contractors. Only about one-quarter of respondents (23.9%) indicated that they contracted with their local police department to provide security officers.

Approximately 65% of respondents reported that their annual security budget was $500,000 or greater (Table 1). The mean costs to implement (one-time) and maintain

(annually) the facility's current visitor management program were $154,292 and $44,196, respectively (one-time: SE: $54,232.13; range: $0-$3,000,000; IQR: $1,200-$75,000; maintain: SE: $13,773.09; range: $1-$500,000; IQR: $450-$20,000).

Patient Visitation Policies

Ninety percent of respondents (or 121/135) reported that their facility had one or more written visitor policies that set guidelines regarding patient visitation (Table 1). Of those, 90.9% (or 110/121) indicated that their visitor management policies were facility-wide, which was defined as a formal policy statement that applied to the entire healthcare facility. More than 70% of facilities with facility-wide visitor policies also reported having departments with additional patient visitation guidelines, either as part of the facility-wide policy or as a separate policy. Among those with additional department policies (Table 2), the emergency department, intensive care, obstetric, and behavioral health/ psychiatric care were the most frequently identified units with additional visitation guidelines (reported by 68.6%, 66.3%, 59.3%, and 57.0% of respondents, respectively). Similarly, among those without a facility-wide visitor management policy, unit-specific visitation policies were reported most frequently for this set of departments but at much lower proportions (ED: 42.9%; intensive care: 35.7%; obstetric: 28.6%; behavioral health/ psychiatric care: 44.9%).

Among responding organizations with facility-wide patient visitation policies, slightly more than half (55.0%, or 60/109) reported that patient visitation is allowed around the clock (also called "open visitation" or "unrestricted visitation") (Table 1); among the remaining facilities, 39.4% (or 43/109) reported that patient visitation is allowed during regularly scheduled hospital visiting hours (such as daily between 10 am and 8 pm), and 5.5% (or 6/109) reported that patient visitation is allowed at any time except during rounds or shift changes. Compared to facilities without written visitation policies, those with such policies more frequently reported having additional (and more restrictive) visitor management guidelines in their intensive care and obstetric units (p-value for both: 0.04) (Table 2). They did not differ statistically in terms of interior square footage, inpatient or ED patient averages, number of licensed beds, urbanicity (e.g., urban vs. rural), teaching status (e.g., whether the facility was a teaching facility), whether they allowed separate unit guidelines, or whether they had an electronic visitor management system (either one developed by the organization or one purchased from a vendor, such as Quantum Secure SAFE Visitor Identity Manager or HID EasyLobby).

Among those with open visitation (Table 3), the majority had introduced around-the-clock visitation prior to 2014 (64.6%). Most allowed visitation to be restricted in specific departments (71.7%) or to limit the number of visitors allowed in a patient room (65.0%). Compared to facilities without open visitation, those with open visitation were not statistically different in terms of their square footage, inpatient or ED patient censuses, number of licensed beds, urbanicity, or teaching status. They also were not different in terms of the units that had additional visitor management policies or whether they had implemented an electronic visitor management system.

Table 2. Comparison of facility and security program characteristics by written visitor management policy status (n = 135).

| | Written visitor management policy | | | | |
| | Yes n = 121 (89.6%) | | No n = 14 (10.4%) | | |
	Frequency/ Mean	%/ SE	Frequency/ Mean	%/ SE	P Value
Interior square footage	1,417,118	244,984.2	1,063,223	536,440.9	0.62
Number of licensed beds					0.22
Fewer than 200 beds	36	29.8	7	50.0	
200 beds or more, but fewer than 499 beds	52	43.0	3	21.4	
500 beds or more	33	27.3	4	28.6	
In-patient census, 2017	50,154.4	21,147.1	40,656.9	15,559.8	0.86
ED patient census, 2017	52,298.6	5,783.8	37,024.6	11,846.0	0.39
Urbanicity					0.51
Urban	95	78.5	10	71.4	
Rural	26	21.5	4	28.6	
Teaching hospital					0.41
Yes	67	55.4	6	42.9	
No	54	44.6	8	57.1	
Unit visitor management policies/ guidelines allowed					0.99
Yes	86	73.5	10	71.4	
No	31	26.5	4	28.6	
Units with visitor management policies*					
Emergency department	59	68.6	6	42.9	0.08
In-patient surgical units	24	27.9	2	14.3	0.35
Intensive care units (including neonatal)	57	66.3	5	35.7	0.04
Obstetric units	51	59.3	4	28.6	0.04
Out-patient units	10	11.6	1	7.1	0.99
Psychiatric care/ behavioral care units	49	57.0	6	42.9	0.39
Electronic visitor management system					0.14
Yes	38	35.5	2	14.3	
No	69	64.5	12	85.7	

Notes: Percentages may not sum to 100% due to rounding; SE: standard error *Percentages will not sum to 100% because multiple responses were allowed; Percentages may not sum to 100% due to rounding

Visitor Management Practices

Approximately one-third of participating facilities reported having implemented an electronic visitor management system (Table 1). Of those, more than half implemented their systems in the last three years (2016-2018) and an additional 35% implemented their systems prior to 2014. Fewer than half (43.6%) of facilities with an electronic visitor management system had integrated it with any of their other healthcare information systems, such as their electronic medical record system. Of the facilities without

Table 3. Comparison of facility and security program characteristics of facilities with written visitor management policies by open visitation policy status (n = 121).

| | Open visitation policy | | | | |
| | Yes n = 60 (55.1%) | | No n = 49 (44.9%) | | |
	Frequency/ Mean	%/ SE	Frequency/ Mean	%/ SE	P Value
Interior square footage	1,574,932	37,7317.7	1,143,683	217,578.7	0.30
Number of licensed beds					0.94
Fewer than 200 beds	17	28.3	29	29.9	
200 beds or more, but fewer than 499 beds	25	41.7	37	38.1	
500 beds or more	18	30.0	31	32.0	
In-patient census, 2017	77,417.7	38,388.6	23,606.4	5,705.6	0.12
ED patient census, 2017	53,831.8	7,228.5	45,604.1	7,172.0	0.42
Urbanicity					0.99
Urban	47	78.3	74	77.9	
Rural	13	21.7	21	22.1	
Teaching hospital					0.99
Yes	34	56.7	53	56.4	
No	26	43.3	41	43.6	
Unit visitor management policies allowed (in addition to the facility policy)					0.08
Yes	38	65.5	58	79.4	
No	20	34.5	15	20.6	
Units with additional visitor management policies*					
Emergency department	20	52.6	45	72.6	0.05^
In-patient surgical units	9	23.7	17	27.4	0.82
Intensive care units (including neonatal)	21	55.3	41	66.1	0.30
Obstetric units	23	60.5	32	51.6	0.41
Out-patient units	4	10.5	7	11.3	0.99
Psychiatric care/ behavioral care units	23	60.5	32	51.6	0.41
Electronic visitor management system					0.70
Yes	20	35.7	20	30.8	
No	36	64.3	45	69.2	
Introduction of open visitation					
In 2018	0	0.0	-	-	
In 2017	5	10.4	-	-	
In 2016	5	10.4	-	-	
In 2015	5	10.4	-	-	
In 2014	2	4.2	-	-	
Prior to 2014	31	64.6	-	-	

Table 3 (con't). Comparison of facility and security program characteristics of facilities with written visitor management policies by open visitation policy status (n = 121).

| | Open visitation policy | | | | |
| | Yes n = 60 (55.1%) | | No n = 49 (44.9%) | | |
	Frequency/ Mean	%/ SE	Frequency/ Mean	%/ SE	P Value
Visitation restrictions*					
By department	43	71.7	-	-	
Based on visitor age	29	48.3	-	-	
During consultations or procedures	20	33.3	-	-	
Limitations on the number of visitors in a room/ area	39	65.0	-	-	

Notes: Percentages may not sum to 100% due to rounding; SE: standard error * Percentages will not sum to 100% as multiple responses were allowed; ^ Not statistically significant; - Not applicable, as measures are specific to facilities with open visitation

electronic visitor management systems, half planned to implement a system in the next 12 months. Additionally, among those with electronic visitor management systems, almost three-quarters (72.5%) indicated that, compared to the 12-month period prior to implementing their visitor management program, the rate of their security incidents had "stayed about the same"; an additional 20.0% indicated that their security incidents had decreased.

Specific visitor management practices were provided by 121 respondents, of which only two practices were reported by more than half of respondents (Table 4). Approximately three-in-five participants reported that their facilities issue visitors with badges or passes (62.0%) or require that visitors sign-in or register (57.0%) upon entering the facility and prior to visiting patient rooms. Almost half (46.3%) reported having security-related signage in their facilities, and approximately one-third reported collecting driver's license information (33.9%), checking visitors' names against lists from patients of individuals who should not gain admission (33.1%), or photographing visitors (28.1%). Fewer than 20% of respondents indicated they collect information other than driver's license information (such as the purpose of their visit or their anticipated length of visit) (17.4%), hand search bags or packages (15.7%), utilize found weapons lockers (16.5%) or metal detectors (either freestanding or wand) (13.2%), check visitors' names against lists from human resources of former employees (13.2%) or electronically screen visitors (such as against sex offender registries) (12.4%).

Differences were seen in the use of specific visitor management practices by facilities with particular attributes (Table 4). Increasing facility square footage was associated with the use of security-related signage, found weapons lockers, and the use of lists from patients of individuals who should not gain admission (p-values: 0.05, 0.01, and 0.02, respectively). Increasing numbers of in-patients was associated with the use of sign-in/registration (p-value: 0.04), but no differences in visitor management practices were seen with increasing numbers of ED patients. The number of licensed beds (Table 5) influenced the use of electronic screening, with mid-sized hospitals (200-499 beds) more likely to do so than those with fewer (<200 beds) or more beds (≥500 beds) (p-value:

Table 4. Visitor management practices by selected facility characteristics (n = 121).

	Total cohort		Square footage			In-patient census, 2017			ED patients, 2017		
	n	%	Mean	SE	*P* Value	Mean	SE	*P* Value	Mean	SE	*P* Value
Sign-in/ registration					0.28			0.04			0.51
Yes	69	57.0	1,517,823	343,734.6		19,177.16	5,774.1		47,832.4	6,261.0	
No	52	43.0	1,015,605	251,059.2		99,320.82	4,6179.5		55,006.2	9,350.6	
Collect driver's license information					0.39			0.31			0.94
Yes	41	33.9	1,588,948	462,374.8		80230.28	5,4591.0		51,160.3	8,129.6	
No	80	66.1	1,172,308	252,109.4		37627.28	11,558.5		50,353.1	6,810.9	
Collect information other than driver's license					0.38			0.50			0.21
Yes	21	17.4	1,702,517	713,435.8		237,11.5	23,885.3		37,804.8	10,601.6	
No	100	82.6	1,206,990	220,727.9		582,18.5	11,994.2		53,995.2	5,987.4	
Electronic screening					0.20			0.51			0.99
Yes	15	12.4	2,087,528	102,2362		20,250.4	7,562.3		50,620.0	5,820.6	
No	106	87.6	1,199,421	216,537.3		57,320.1	22,941.7		50,637.4	11,065.6	
Take photo of visitor					0.24			0.48			0.33
Yes	34	28.1	1,795,456	615,533.0		28,087.5	8,849.5		59,169.8	9,184.7	
No	87	71.9	1,161,884	229,576.3		60,137.6	26,276.9		47,557.9	6,329.5	
Issue visitor badge/ pass					0.88			0.83			0.53
Yes	75	62.0	1,281,428	261,012.2		55,090.8	29,179.2		52,957.2	5,963.5	
No	46	38.0	1,355,446	434,581.1		46,282.0	19,585.8		45,952.1	10,437.1	
Hand search bags, packages					0.45			0.51			0.30
Yes	19	15.7	1,666,576	493,241.4		25,716.7	11,093.6		62,949.5	13,350.3	
No	102	84.3	1,223,635	254,918.7		58,507.9	24,443.9		48,156.7	5,710.3	
Metal detectors (freestanding or wand)					0.91			0.55			0.23
Yes	16	13.2	1,364,005	387,805.1		23,282.3	14,941.2		66,518.1	15,897.6	
No	105	86.8	1,295,378	262,936		56,792.8	22,861.6		48,058.3	5,525.5	
Security-related signage					0.05			0.20			0.22
Yes	56	46.3	1,761,111	408,271.7		26,579.7	6,637.6		56,922.9	7,030.1	
No	65	53.7	877,635.1	192,486.5		77,076.9	38,428.8		43,961.4	7,794.4	
Found weapons lockers					0.01			0.93			0.95
Yes	20	16.5	2,490,750	805,038.3		48,268.1	28,475.3		51,376.5	14,561.4	
No	101	83.5	1,055,252	204,701.1		52,739.0	23,679.8		50,471.3	5,653.6	
Distribution of written guidelines					0.84			0.57			0.30
Yes	20	16.5	1,210,336	323,051.1		26,834.8	12,381.1		65,040.8	17,912.7	
No	101	83.5	1,328,127	266,590.5		56,826.9	23,401.0		48,562.4	5,447.4	
Lists from patients of individuals who should not gain admission					0.02			0.45			0.13
Yes	40	33.1	2,108,780	646,521.2		29,552.3	7,222.4		62,647.0	10,365.1	
No	81	66.9	989,920.2	172,662.8		62,063.2	28,415.9		45,331.3	5,956.7	
Lists from human resources of former employees					0.74			0.53			0.72
Yes	16	13.2	1,509,819	624,886.1		16,432.7	8,875.4		55,328.0	12,159.3	
No	105	86.8	1,279,412	244,168.9		56,252.7	21,993.2		49,863.2	5,808.1	

Notes: Percentages may not sum to 100% due to rounding; n: frequency; SE: standard error

Table 5. Visitor management practices by additional facility characteristics (n = 121).

	Number of Licensed Beds						Teaching Hospital					Urbanicity				
	<200		200 - 499		≥500		P	Yes		No		P	Urban		Rural		P
	n	%	n	%	n	%	Value	n	%	n	%	Value	n	%	n	%	Value
Sign-in/ registration							0.30					0.07					0.52
Yes	23	62.2	31	60.8	15	45.5		32	49.2	37	66.1		52	55.3	17	63.0	
No	14	37.8	20	39.2	18	54.5		33	50.8	19	33.9		42	44.7	10	37.0	
Collect driver's license information							0.26					<0.01					0.65
Yes	9	24.3	21	41.2	11	33.3		30	46.2	11	19.6		33	35.1	8	29.6	
No	28	75.7	30	58.8	22	66.7		35	53.8	45	80.4		61	64.9	19	70.4	
Collect information other than driver's license							0.75					0.63					0.99
Yes	8	21.6	8	15.7	5	15.2		10	15.4	11	19.6		16	17.0	5	18.5	
No	29	78.4	43	84.3	28	84.8		55	84.6	45	80.4		78	83.0	22	81.5	
Electronic screening							0.03					0.17					0.99
Yes	3	8.1	11	21.6	1	3.0		11	16.9	4	7.1		12	12.8	3	11.1	
No	34	91.9	40	78.4	32	97.0		54	83.1	52	92.9		82	87.2	24	88.9	
Take photo of visitor							0.37					0.07					0.63
Yes	8	21.6	18	35.3	8	24.2		23	35.4	11	19.6		28	29.8	6	22.2	
No	29	78.4	33	64.7	25	75.8		42	64.6	45	80.4		66	70.2	21	77.8	
Issue visitor badge/ pass							0.11					0.09					0.99
Yes	21	56.8	37	72.6	17	51.5		45	69.2	30	53.6		58	61.7	17	63.0	
No	16	43.2	14	27.4	16	48.5		20	30.8	26	46.4		36	38.3	10	37.0	
Hand search bags, packages							0.23					0.08					0.76
Yes	3	8.1	11	21.6	5	15.2		14	21.5	5	8.9		14	14.9	5	18.5	
No	34	91.9	40	78.4	28	84.8		51	78.5	51	91.1		80	85.1	22	81.5	
Metal detectors (freestanding or wand)							0.89					0.99					0.35
Yes	4	10.8	7	13.7	5	15.2		9	13.8	7	12.5		11	11.7	5	18.5	
No	33	89.2	44	86.3	28	84.8		56	86.2	49	87.5		83	88.3	22	81.5	
Security-related signage							0.47					0.58					0.66
Yes	14	37.8	25	49.0	17	51.5		32	49.2	24	42.9		45	47.9	11	40.7	
No	23	62.2	26	51.0	16	48.5		33	50.8	32	57.1		49	52.1	16	59.3	
Found weapons lockers							0.32					0.14					0.39
Yes	4	10.8	8	15.7	8	24.2		14	21.5	6	10.7		14	14.9	6	22.2	
No	33	89.2	43	84.3	25	75.8		51	78.5	50	89.3		80	85.1	21	77.3	
Distribution of written guidelines							0.52					0.04					0.39
Yes	4	10.8	9	17.7	7	21.2		15	23.1	5	8.9		14	14.9	6	22.2	
No	33	89.2	42	82.4	26	78.8		50	76.9	51	91.1		80	85.1	21	77.8	
Lists from patients of individuals who should not gain admission							0.08					0.04					0.49
Yes	7	18.9	19	37.3	14	42.4		27	41.5	13	23.2		33	35.1	7	25.9	
No	30	81.1	32	65.7	19	57.6		38	58.5	43	76.8		61	64.9	20	74.1	
Lists from human resources of former employees							0.08					0.99					0.35
Yes	5	13.5	10	19.6	1	3.0		9	13.8	7	12.5		11	11.7	5	18.5	
No	32	86.5	41	80.4	32	97.0		56	86.2	49	87.5		83	88.3	22	81.5	

Notes: Percentages may not sum to 100% due to rounding; n: frequency

Table 6. Visitor management practices by selected visitor management policies and utilization of electronic visitor management systems (n = 121).

	Facility-wide visitor management policy					Open visitation policy					Electronic visitor management system				
	Yes		No		P	Yes		No		P	Yes		No		P
	n	%	n	%	Value	n	%	n	%	Value	n	%	n	%	Value
Sign-in/ registration					<0.01					0.06					0.44
Yes	64	92.8	5	7.3		25	69.4	33	51.6		25	62.5	44	54.3	
No	36	69.2	16	30.8		11	30.6	31	48.4		15	37.5	37	45.7	
Collect driver's license information					0.04					0.99					<0.001
Yes	38	38.0	3	14.3		21	37.5	17	38.6		32	80.0	9	11.1	
No	62	62.0	18	85.7		35	62.5	27	61.4		8	20.0	72	88.9	
Collect information other than driver's license					0.12					0.32					<0.01
Yes	20	20.0	1	4.8		9	16.1	11	25.0		14	35.0	7	8.6	
No	80	80.0	20	95.2		47	83.9	33	75.0		26	65.0	74	91.4	
Electronic screening					0.47					0.57					<0.001
Yes	14	14.0	1	4.8		9	16.1	5	11.4		14	35.0	1	1.2	
No	86	68.0	20	95.2		47	83.9	39	88.6		26	65.0	80	98.8	
Take photo of visitor					0.06					0.83					<0.001
Yes	32	32.0	2	9.5		17	30.4	15	34.1		29	72.5	5	6.2	
No	68	68.0	19	90.5		39	69.6	29	65.9		11	27.5	76	93.8	
Issue visitor badge/ pass					0.08					0.83					<0.001
Yes	66	66.0	9	42.9		36	64.3	30	68.2		35	87.5	40	49.4	
No	34	34.0	12	57.1		20	35.7	14	31.8		5	12.5	41	50.6	
Hand search bags, packages					0.52					0.19					0.06
Yes	17	17.0	2	9.5		7	12.5	10	22.7		10	25.0	9	11.1	
No	83	83.0	19	90.5		49	87.5	34	77.3		30	75.0	72	88.9	
Metal detectors (freestanding or wand)					0.74					0.15					0.78
Yes	14	14.0	2	9.5		5	8.9	9	20.5		6	15.0	10	12.4	
No	86	86.0	19	90.5		51	91.1	35	79.5		34	85.0	71	87.6	
Security-related signage					0.48					0.55					<0.001
Yes	48	48.0	8	38.1		25	44.6	23	52.3		29	72.5	27	33.3	
No	52	52.0	13	61.9		31	55.4	21	47.7		11	27.5	54	66.7	
Found weapons lockers					0.75					0.41					0.04
Yes	16	16.0	4	19.1		7	12.5	9	20.5		11	27.5	9	11.1	
No	84	84.0	17	80.9		49	87.5	35	79.5		29	72.5	72	88.9	
Distribution of written guidelines					0.52					0.04					0.12
Yes	18	18.0	2	9.5		6	10.7	12	27.3		10	25.0	10	12.4	
No	82	82.0	19	90.5		50	89.3	32	72.7		30	75.0	71	87.6	
Lists from patients of individuals who should not gain admission					0.20					0.41					<0.001
Yes	36	36.0	4	19.1		18	32.1	18	40.9		24	60.0	16	19.8	
No	64	64.0	17	80.9		38	67.9	26	59.1		16	40.0	65	80.2	
Lists from human resources of former employees					0.07					0.41					0.99
Yes	16	16.0	0	0.0		7	12.5	9	20.5		5	12.5	11	13.6	
No	84	84.0	21	100.0		49	87.5	35	79.5		35	87.5	70	86.4	

Notes: Percentages may not sum to 100% due to rounding; n: frequency

0.03). Additionally, teaching facilities were more likely to collect visitors' driver's license information, distribute written visitor guidelines, and utilize lists from patients of individuals who should not gain admission than non-teaching hospitals (*p*-values: <0.01, 0.04, and 0.04, respectively). No differences were seen in visitor management practices based on urbanicity.

Facilities with and without written visitor management policies differed in their uses of specific visitor management practices (Table 6). Those with facility-wide written policies more frequently required visitors to sign-in or register (92.8% vs. 7.3%, *p*-value<0.01) or collected driver's license information (38.0% vs. 14.3%, *p*-value: 0.04) compared to facilities without such policies; there was also evidence to suggest that they more frequently photographed visitors (32.0% vs. 9.5%, *p*-value: 0.06), issued visitor badges or passes (66.0% vs. 42.9%, *p*-value: 0.08), or utilized lists from human resources of former employees (16.0% vs. 0.0%, *p*-value: 0.07). Those with open visitation policies were less likely to distribute written guidelines to visitors than facilities without open visitation (10.7% vs. 27.3%, *p*-value: 0.04); there was also evidence to suggest that open visitation facilities more frequently required visitor registration than those without open visitation (69.4% vs. 51.6%, *p*-value: 0.06). Those that used electronic visitor management systems reported more frequently collecting driver's license information (80.0% vs. 11.1%, *p*-value<0.001), information other than driver's license information (35.0% vs. 8.6%, *p*-value<0.01), performing electronic screenings (35.0% vs. 1.2%, *p*-value<0.001), photographing visitors (72.5% vs. 6.2%, *p*-value<0.001), issuing visitor passes (87.5% vs. 49.4%, *p*-value<0.001), posting security-related signage (72.5% vs. 33.3%, *p*-value<0.001), having a found-weapons locker (27.5% vs. 11.1%, *p*-value: 0.04), and utilizing lists from patients of individuals who should not gain admission (60.0% vs. 19.8%, *p*-value<0.001); there was also the suggestion that they were more likely to hand search bags or packages (25.0% vs. 11.1%, *p*-value: 0.06).

Call Volumes

Slightly more than one-third of facilities reported a total 12-month security call volume (defined as any type of call, page, radio transmission, etc., that required a security response) of fewer than 3,500 calls, and one-fourth of facilities reported a total 12-month security call volume of more than 17,500 calls (Table 7). Evidence of a direct relationship between the number of beds in a hospital and the total number of security calls in the prior 12-month period was identified. Among hospitals with more than 500 beds (urban and rural), 77% (or 27/35) reported more than 10,000 calls annually, and 37% (or 13/35) reported 50,000 calls or more. Disorderly conduct calls were the most frequently reported type of call, in general, followed by assault and battery; robbery was the least frequently reported type of call. Total security call volume varied significantly by facility square footage, with increasing call volume associated with increasing square footage (*p*-value: 0.02); analogously, call volume varied by the number of licensed beds (Table 8), with call volume increasing as the number of beds increased (*p*-value<0.001). Similar patterns of increased call volumes were seen with increasing in-patient and ED patient censuses (both *p*-values <0.001). Total call volume was also higher among teaching hospitals compared to non-teaching hospitals (*p*-value<0. 01) and among urban hospitals when

compared to rural hospitals (*p*-value<0.001). Additionally, having an electronic visitor management system was associated with a higher volume of security calls compared to not having such a system (*p*-value<0.01) (Table 9).

Among the specific categories of security calls (i.e., disorderly conduct, assault, battery, theft, robbery, vandalism) (Table 7), significant differences in call volume were reported for assault, battery, theft, and vandalism by facility square footage, with increasing call volumes associated with increasing square footage (all *p*-values ≤0.04); similar patterns were seen for increasing numbers of licensed beds and increasing call volumes for disorderly conduct, assault, and battery (both *p*-values <0.001). Increasing in-patient or ED patient counts were associated with increasing call volumes for disorderly conduct and battery (both *p*-values <0.01); higher numbers of in-patients were also associated with increasing robbery calls (*p*-value: 0.02), whereas higher numbers of ED patients were associated with increasing theft and assault calls (both *p*-values ≤0.03). No differences across specific crime-related categories of call volumes were seen by teaching hospital or rural/urban designations. When assessing the specific categories of security calls by specific visitor management practices, such as collecting driver's license information or the use of metal detectors, only the practice of hand searching bags or packages was associated with call volumes. Specifically, facilities that executed hand searches were almost six times more likely to reported higher call volumes for disorderly conduct (OR: 5.82; 95% CI: 2.61, 13.00; *p*-value ≤0.001) and almost five times more likely to report higher call volumes for theft (OR: 4.96; 95% CI: 1.98, 12.28; *p*-value ≤0.01). Although the distribution of written guidelines for visitation initially appeared to be related to increasing disorderly conduct and theft call volumes and the use of found weapons lockers initially appeared to be related to increasing theft call volumes, further analyses demonstrated that these associations were due to facility characteristics, including patient volumes and the number of licensed beds, rather than the specific visitor management practice.

No differences were seen in the number of security calls reported overall between facilities with and without facility-wide visitor management policies (Table 9). Although theft call volume appeared to be higher among facilities with facility-wide visitor policy, further analyses demonstrated that the increases in theft calls were more likely a function of the size of the organization rather than its policy structure. When comparing hospitals with open visitation to those without, no statistical differences were seen in terms of 12-month total call volume or call volume by specific type of call (e.g., disorderly conduct, assault, theft), with the exception of battery and robbery. Although battery calls appeared more frequent in facilities without open visitation and robbery calls appeared more frequent in facilities with open visitation, further analyses demonstrated that both of these effects were more likely due to variation in specific facility attributes (such as facility size and number of patients) than their visitation policies. No statistical differences were seen in terms of 12-month total call volume or call volume by specific type of call when comparing facilities with and without electronic visitor management systems.

Of the facilities that provided total call data for the 12-month period prior to implementing open visitation and the 12-month period prior to the survey (n=16) (results not shown),

87.5% reported the same total security call volume ranges for both periods. The remaining 12.5% indicated that their call volume for the most recent 12 month period was greater than that of the same period prior to open visitation implementation (p-value<0.001). Accordingly, call volume prior to implementing open visitation was strongly associated with call volume over the prior 12-month period, even when accounting for the year of open visitation implementation (p-value<0.001). In terms of specific call types, significant post-implementation increases were seen in calls for disorderly conduct (20.0% of facilities reported increases; p-value<0.001), assault (26.7% of facilities reported increases; p-value<0.01), battery (6.7% of facilities reported increases; p-value<0.01), theft (13.3% of facilities reported increases; p-value<0.01), and vandalism (6.7% of facilities reported increases; p-value: 0.03). No increases were seen in the call volume of robbery post-implementation; however, all reports of robbery call volumes were in the lowest category (i.e., fewer than 20 calls annually).

Perception of Security Challenges

More than half of all respondents indicated that they believe their facility's visitor-related security issues (i.e., security concerns or incidents due to or exacerbated by the presence of facility visitors) have become more challenging over the past 12 months (52.3%) (Table 10). Fewer than 5% reported that their facility's security issues have become less challenging during that time. No significant differences in prior 12-month security challenges were evident by square footage, in-patient census, or ED patient census. However, urban facilities more frequently reported increasing security challenges over the prior 12 months than did rural facilities (58% vs. 32%, respectively; p-value: 0.04) (Table 11), with the majority of rural facilities reporting that their security issues had remained about the same during that time (62.3%). There no evidence of differences in reports of prior 12-month security issues by number of licensed beds or by whether the facility was a teaching hospital. Among those with facility-wide visitor management policies (Table 12), approximately half of reported that their security issues had become more challenging over the prior 12-month period (48.1%), whereas almost three-fourths of facilities without such policies reported more challenging security issues over the prior 12 months (72.7%), though the result was not statistically significant (p value: 0.11). There was also no statistical difference in security challenges over the prior 12-month period among facilities with and without open visitation or with or without electronic visitor management systems.

Among respondents whose facilities have open visitation policies, the majority indicated that visitor-related security issues had remained about the same as those experienced prior to open visitation (56.1%), with just more than 40% indicating their issues had been less challenging since implementing open visitation (Table 13); fewer than 2% reported that their organization's visitor-related security issues had become more challenging since implementing open visitation. No evidence of a statistical difference was seen among 12-month security challenges and facility square footage, ED patient census, number of licensed beds, or whether the facility was a teaching hospital, in an urban setting or had an electronic visitor management system (Tables 13 and 14). There was evidence suggesting differences in the in-patient census means among facilities reporting

Table 7. Prior 12-month call volumes by selected facility characteristics (n = 135).

	Total Sample		Square footage			In-patient census, 2017			ED patient census, 2017		
	n	%	Mean	SE	P Value	Mean	SE	P Value	Mean	SE	P Value
Total security call volume					0.02			<0.001			<0.001
<250 calls	14	10.6	110,611.1	24,914.3		1,002. 3	965.5		5,111.1	2,850.2	
250-999 calls	13	9.9	294,741.1	68,791.1		11,161.3	8,768.6		7,869.8	4,104.2	
1,000-3,499 calls	21	15.9	267,977.1	102,482.1		24,741.1	7,838.7		54,721.4	17,895.0	
3,500-9,999 calls	29	22.0	674,236.3	90,459.9		7,915.7	4,282.5		38,227.4	8,579.4	
10,000-17,499 calls	9	6.8	750,000	180,277.6		30,935.5	16,991.5		54,058.3	22,145.9	
17,500-29,000 calls	13	9.8	1,893,606	613,494.2		64,586.6	31,051.8		70,151.5	12,574.1	
30,000-49,999 calls	16	12.1	1,850,047	585,783.6		92,596.0	41,250.2		70,095.4	14,068.7	
≥50,000 calls	17	12.9	2,498,084	560,714.0		160,799.8	120,703.2		87,648.6	13,305.6	
Disorderly conduct					0.17			<0.01			<0.001
<20 calls	28	22.8	419,705.9	99,309.4		7,540.8	4,071.9		7,544.5	3,406.6	
20-49 calls	21	17.1	2,187,423.0	977,474.0		16,121.9	6,778.0		32,270.5	9,778.3	
50-99 calls	25	20.3	1,204,643.0	371,984.8		56,569.9	19,017.6		61,694.8	9,420.8	
100-499calls	25	20.3	1,184,220.0	301,497.1		17,425.4	7,259.5		77,098.7	13,377.5	
≥500 calls	24	19.5	1,772,474.0	445,174.9		148,234.9	89,967.9		70,061.6	10,777.3	
Assault					0.01			0.06			<0.001
<20 calls	58	47.2	623,173.8	106,795.6		23894.96	8,511.9		26,519.1	6,291.1	
20-49 calls	31	25.2	2,119,882.0	690,681.4		34887.82	16,863.1		52,410.4	8,775.8	
50-99 calls	17	13.8	894,768.9	296,851.9		16944.0	9,199.0		70,919.2	12,651.4	
100-499calls	11	8.9	3,424,286.0	744,004.2		193468.6	121,520.7		82,950.9	15,816.7	
≥500 calls	6	4.9	2,000,000.0	0.0		39217.5	38,372.5		86,434.2	22,565.2	
Battery					0.001			0.03			<0.001
<20 calls	80	67.8	721,010.8	103,130.6		26,524.24	7,319.2		35,022.5	5,736.8	
20-49 calls	18	15.3	280,0182 .0	1,149,445.0		7,168.0	6,354.4		70,195.5	11,787.2	
50-99 calls	8	6.8	188,3443.0	883,442.7		60,065.5	59,934.5		10,1514.0	14,527.2	
100-499calls	8	6.8	3,274,000.0	1,001,836.0		270,537.2	192,674.9		79,118.0	24,783.1	
≥500 calls	4	3.4	0	0.0		77,590.0	0.0		76,368.5	32,345.5	
Theft					0.04			0.18			<0.01
<20 calls	64	52.5	1,037,421.0	333,000.8		28,830.2	9,496.5		28,091.2	4,632.9	
20-49 calls	30	24.6	1,105,184.0	216,296.1		29,126.8	9,726.9		80,286.9	13,410.1	
50-99 calls	18	14.8	2,925,000.0	758,699.5		171,556.8	124,878.5		83,464.0	12,590.8	
100-499calls	10	8.2	1,881,440.0	657,447.7		44,121.2	24,488.8		44,262.5	12,518.3	
≥500 calls	0	0.0	0	0.0		0	0.0		0	0.0	

Table 7 (con't). Prior 12-month call volumes by selected facility characteristics (n = 135).

	Total Sample		Square footage			In-patient census, 2017			ED patient census, 2017		
	n	%	Mean	SE	P Value	Mean	SE	P Value	Mean	SE	P Value
Robbery					0.97			0.02			0.08
<20 calls	109	91.6	1,316,561.0	244,251.6		54,059.2	22,264.9		46,650.6	5,482.7	
20-49 calls	7	5.9	1,768,443.0	946,198.6		366.0	176.0		96,780.0	14,139.5	
50-99 calls	2	1.7	200,000.0	0.0		1,315.5	1,184.5		50,400.0	49,600.0	
100-499calls	1	0.8	0	0.0		0	0.0		0	0.0	
≥500 calls	0	0.0	0	0.0		0	0.0		0	0.0	
Vandalism					0.02			0.10			0.01
<20 calls	82	67.8	959,814.9	216,998.6		959,814.9	216,998.6		39,538.9	5,846.5	
20-49 calls	31	25.6	205,6074.0	615,291.9		2,056,074.0	615,291.9		68,321.7	11,817.1	
50-99 calls	6	4.9	2,613,750.0	1,036,913.0		2,613,750.0	1,036,913.0		89,170.5	11,081.2	
100-499calls	2	1.7	2,582,752.0	0.0		2,582,752.0	0.0		42,619.7	42,380.3	
≥500 calls	0	0.0	0	0.0		0	0.0		0	0.0	

Notes: Percentages may not sum to 100% due to rounding; n: frequency; SE: standard error

Table 8. Prior 12-month call volumes by additional facility characteristics (n = 135).

	Number of Licensed Beds							Teaching Hospital					Urbanicity				
	<200		200 - 499		≥500			Yes		No			Urban		Rural		
	n	%	n	%	n	%	P Value	n	%	n	%	P Value	n	%	n	%	P Value
Total security call volume							<0.001					<0.01					<0.001
<250 calls	11	26.2	2	3.6	1	2.9		2	2.9	12	19.4		6	5.8	8	27.6	
250-999 calls	8	19.1	5	9.1	0	0.0		5	7.1	8	12.9		5	4.9	8	27.6	
1,000-3,499 calls	8	19.1	9	16.4	4	11.4		14	20.0	7	11.3		19	18.5	2	6.9	
3,500-9,999 calls	8	19.1	18	32.7	3	8.6		14	20.0	15	24.2		24	23.3	5	17.2	
10,000-17,499 calls	2	4.8	5	9.1	2	5.7		4	5.7	5	8.1		8	7.8	1	3.5	
17,500-29,000 calls	2	4.8	7	12.7	4	11.4		5	7.1	8	12.9		10	9.71	3	10.3	
30,000-49,999 calls	2	4.8	6	10.9	8	22.9		11	15.7	5	8.06		16	15.5	0	0.0	
≥50,000 calls	1	2.4	3	5.5	13	37.1		15	21.4	2	3.2		15	14.6	2	6.9	
Disorderly conduct							<0.001					0.23					0.55
<20 calls	14	36.8	11	20.7	3	9.4		13	19.1	15	27.3		20	20.8	8	29.6	
20-49 calls	11	28.9	10	18.9	0	0.0		8	11.8	13	23.6		16	16.7	5	18.5	
50-99 calls	4	10.5	15	28.3	6	18.8		17	25.0	8	14.5		21	21.9	4	14.8	
100-499calls	4	10.5	11	20.7	10	31.2		15	22.1	10	18.2		18	18.8	7	25.9	
≥500 calls	5	10.5	6	11.3	13	40.6		15	22.1	9	16.4		21	21.9	3	11.1	

Table 8 (con't). Prior 12-month call volumes by additional facility characteristics (n = 135).

| | Number of Licensed Beds | | | | | | Teaching Hospital | | | | | Urbanicity | | | | |
| | <200 | | 200 - 499 | | ≥500 | | | Yes | | No | | | Urban | | Rural | | |
	n	%	n	%	n	%	P Value	n	%	n	%	P Value	n	%	n	%	P Value
Assault							<0.001					0.11					0.52
<20 calls	27	71.1	22	42.3	9	27.3		28	41.8	30	53.6		42	43.7	16	59.3	
20-49 calls	6	15.8	19	36.5	6	18.2		15	22.4	16	28.6		25	26.0	6	22.2	
50-99 calls	4	10.5	8	15.4	5	15.1		11	16.4	6	10.7		13	13.5	4	14.8	
100-499calls	1	2.6	2	3.8	8	24.2		7	10.4	4	7.1		10	10.4	1	3.7	
≥500 calls	0	0.0	1	1.9	5	15.1		6	9.0	0	0.00		6	6.2	0	0.0	
Battery							<0.01					0.16					0.47
<20 calls	31	83.9	35	70.0	14	45.2		38	59.4	42	77.8		60	64.5	20	80.0	
20-49 calls	5	13.5	9	18.0	4	12.9		11	17.2	7	13.0		15	16.1	3	12.0	
50-99 calls	1	2.7	4	8.0	3	9.7		5	7.8	3	5.6		8	8.6	0	0.0	
100-499calls	0	0.0	2	4.0	6	19.4		6	9.4	2	3.7		6	6.4	2	8.0	
≥500 calls	0	0.0	0	0.0	4	12.9		4	6.3	0	0.0		4	4.3	0	0.0	
Theft							<0.001					0.24					0.29
<20 calls	28	75.7	29	55.8	7	21.2		30	44.8	34	61.8		46	47.9	18	69.2	
20-49 calls	7	11.9	11	21.2	12	36.4		18	26.9	12	21.8		26	27.1	4	15.4	
50-99 calls	1	2.7	8	15.4	9	27.3		13	19.4	5	9.1		16	16.7	2	7.7	
100-499calls	1	2.7	4	7.7	5	15.1		6	9.0	4	7.3		8	8.3	2	7.7	
≥500 calls	0	0.0	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	
Robbery							0.17					0.49					0.84
<20 calls	36	97.3	44	88.0	29	90.6		60	92.3	49	90.7		86	91.5	23	92.0	
20-49 calls	0	0.0	5	10.0	2	6.3		4	6.1	3	5.6		5	5.3	2	8.0	
50-99 calls	1	2.7	1	2.0	0	0.0		0	0.0	2	3.7		2	2.1	0	0.0	
100-499calls	0	0.0	0	0.0	1	3.1		1	1.5	0	0.0		1	1.1	0	0.0	
≥500 calls	0	0.0	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	
Vandalism							0.20					0.41					0.16
<20 calls	30	81.1	34	66.7	18	54.6		41	62.1	41	74.6		61	64.2	21	80.8	
20-49 calls	7	18.9	13	25.5	11	33.3		19	28.8	12	21.8		27	28.4	4	15.4	
50-99 calls	0	0.0	3	5.9	3	9.1		4	6.1	2	3.6		6	6.3	0	0.0	
100-499calls	0	0.0	1	1.9	1	3.0		2	3.0	0	0.0		1	1.1	1	3.9	
≥500 calls	0	0.0	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	

Notes: Percentages may not sum to 100% due to rounding; n: frequency

Table 9. Prior 12-month call volumes by selected visitor management policies and utilization of electronic visitor management systems (n = 135).

| | Facility-wide visitor management policy | | | | | Open visitation policy | | | | | Electronic visitor management system | | | | |
| | Yes | | No | | | Yes | | No | | | Yes | | No | | |
	n	%	n	%	*P* Value	n	%	n	%	*P* Value	n	%	n	%	*P* Value
Total security call volume					0.64					0.33					0.15
<250 calls	12	11.1	2	8.3		5	8.5	7	14.6		2	5.0	10	12.4	
250-999 calls	9	8.3	4	16.7		4	6.8	5	10.4		1	2.5	11	13.6	
1,000-3,499 calls	15	13.9	6	25.0		9	15.3	6	12.5		5	12.5	15	18.5	
3,500-9,999 calls	24	22.2	5	20.8		12	20.3	11	22.9		8	20.0	16	19.8	
10,000-17,499 calls	9	8.3	0	0.0		6	10.2	3	6.3		4	10.0	3	3.7	
17,500-29,000 calls	11	10.2	2	8.3		6	10.2	5	10.4		4	10.0	9	11.1	
30,000-49,999 calls	13	12.0	3	12.5		11	18.6	2	4.2		8	20.0	8	9.9	
≥50,000 calls	15	13.9	2	8.3		6	10.2	9	18.8		8	20.0	9	11.1	
Disorderly conduct					0.69					0.10					0.79
<20 calls	24	23.1	4	21.1		13	22.8	11	23.9		7	17.9	16	20.5	
20-49 calls	16	15.4	5	26.3		5	8.8	11	23.9		5	12.8	16	20.5	
50-99 calls	21	20.2	4	21.1		16	28.1	5	10.9		9	23.1	16	20.5	
100-499calls	23	22.1	2	10.5		11	19.3	11	23.9		8	20.5	16	20.5	
≥500 calls	20	19.2	4	21.1		12	21.1	8	17.4		10	25.6	14	8.0	
Assault					0.17					0.65					0.64
<20 calls	46	44.2	12	63.2		25	43.9	21	45.7		15	38.5	39	50.0	
20-49 calls	29	27.9	2	10.5		17	29.8	11	23.9		10	25.6	19	24.4	
50-99 calls	16	15.4	1	5.3		10	17.5	6	13.0		6	15.4	11	14.1	
100-499calls	9	8.6	2	10.5		4	7.0	5	10.9		5	12.8	6	7.7	
≥500 calls	4	3.8	2	10.5		1	1.8	3	6.5		3	7.7	3	3.9	
Battery					0.06					0.01					0.29
<20 calls	66	65.4	14	82.3		37	67.3	29	64.4		22	61.1	54	71.1	
20-49 calls	18	17.8	0	0.0		13	23.6	5	11.1		5	13.9	12	15.8	
50-99 calls	7	6.9	1	5.9		0	0.0	7	15.6		4	11.1	4	5.3	
100-499calls	8	7.9	0	0.0		4	7.3	3	6.7		2	5.6	5	6.6	
≥500 calls	2	2.0	2	11.8		1	1.8	1	2.2		3	8.3	1	1.3	
Theft					0.04					0.79					0.08
<20 calls	54	52.4	10	52.6		32	57.1	22	47.8		14	36.8	46	59.0	
20-49 calls	25	24.3	5	26.3		12	21.4	13	28.3		11	29.0	18	23.1	
50-99 calls	18	17.5	0	0.00		9	16.1	8	17.4		7	18.4	10	12.8	
100-499calls	6	5.8	4	21.0		3	5.4	3	6.5		6	15.8	4	5.1	
≥500 calls	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	

Table 9 (con't). Prior 12-month call volumes by selected visitor management policies and utilization of electronic visitor management systems (n = 135).

	Facility-wide visitor management policy					Open visitation policy					Electronic visitor management system				
	Yes		No			Yes		No			Yes		No		
	n	%	n	%	*P* Value	n	%	n	%	*P* Value	n	%	n	%	*P* Value
Robbery					0.25					0.01					0.53
<20 calls	92	92.0	17	89.5		49	89.1	42	95.5		34	91.9	69	90.8	
20-49 calls	6	6.0	1	5.3		6	10.9	0	0.0		2	5.4	5	6.7	
50-99 calls	2	2.0	0	0.0		0	0.0	2	4.5		0	0.0	2	2.6	
100-499calls	0	0.0	1	5.2		0	0.0	0	0.0		1	2.7	0	0.0	
≥500 calls	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	
Vandalism					0.66					0.80					0.40
<20 calls	68	66.0	14	77.8		36	64.3	32	69.6		22	57.9	55	71.4	
20-49 calls	28	27.2	3	16.7		15	26.8	12	26.1		12	31.6	18	23.4	
50-99 calls	5	4.95	1	5.6		4	7.1	1	2.2		3	7.9	3	3.9	
100-499calls	2	1.9	0	0.0		1	1.8	1	2.2		1	2.6	1	1.3	
≥500 calls	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	

Notes: Percentages may not sum to 100% due to rounding; n: frequency

Table 10. Assessment of prior 12-month security issues by selected facility characteristics (n = 135).

	Total Sample		Square footage			In patient census, 2017			ED patient census, 2017		
	n	%	Mean	SE	*P* Value	Mean	SE	*P* Value	Mean	SE	*P* Value
Prior 12 months security issues					0.99			0.64			0.80
More challenging	71	52.3	1,298,057.0	245,863.8		58,573.4	34077.8		51136.8	7248.9	
Remained about the same	60	44.5	1,307,968.0	405,459.0		35,142.3	14537.5		45560.4	7633.6	
Less challenging	4	3.1	1,351,667.0	648,333.3		187,500.0	0.0		67000.0	0.0	

Notes: Percentages may not sum to 100% due to rounding; n: frequency; SE: standard error

Table 11. Assessment of prior 12-month security issues by additional facility characteristics (n = 135).

| | Number of Licensed Beds | | | | | | Teaching Hospital | | | | | Urbanicity | | | | |
| | <200 | | 200 - 499 | | ≥500 | | | Yes | | No | | | Urban | | Rural | | |
	n	%	n	%	n	%	P Value	n	%	n	%	P Value	n	%	n	%	P Value
Prior 12 months security issues							0.46					0.95					0.04
More challenging	16	41.0	31	56.4	20	58.8		37	53.6	30	50.9		58	58.0	9	32.1	
Remained about the same	21	53.9	23	41.8	13	38.3		30	43.5	27	45.8		39	39.0	18	62.3	
Less challenging	2	5.1	1	1.8	1	2.9		2	2.9	2	3.3		3	3.0	1	3.6	

Notes: Percentages may not sum to 100% due to rounding; n: frequency

Table 12. Assessment of prior 12-month security issues by selected visitor management policies and utilization of electronic visitor management systems (n = 135).

| | Facility-wide visitor management policy | | | | | Open visitation policy | | | | | Electronic visitor management system | | | | |
| | Yes | | No | | | Yes | | No | | | Yes | | No | | |
	n	%	n	%	P Value	n	%	n	%	P Value	n	%	n	%	P Value
Prior 12 months security issues					0.11					0.30					0.35
More challenging	51	48.1	16	72.7		24	41.4	26	55.3		24	60.0	41	50.6	
Remained about the same	51	48.1	6	27.3		32	55.2	19	40.4		16	40.0	36	44.4	
Less challenging	4	3.8	0	0.0		2	3.5	2	4.3		0	0.0	4	4.9	

Notes: Percentages may not sum to 100% due to rounding; n: frequency

Table 13. Assessment of security issues since implementing open visitation by selected facility characteristics (n = 57).

	Total Sample	Square footage		In patient census, 2017		ED patient census, 2017		Electronic visitor management system		
								Yes	No	
	n (%)	Mean (SE)	*P* Value	Mean (SE)	*P* Value	Mean (SE)	*P* Value	n (%)	n (%)	*P* Value
Security issues since implementing open visitation			0.95		0.09		0.32			0.25
More challenging	1 (1.8)	NA (NA)		NA (NA)		90,000.0 (0.0)		1 (5.0)	0 (0.0)	
Remained about the same	32 (56.1)	1,591,669 (625,952.7)		32,022.7 (14,751.7)		45,378.6 (9,180.1)		9 (45.0)	21 (60.0)	
Less challenging	24 (42.1)	1,545,125 (384,986.4)		154,589.2 (98,924.8)		63,818.7 (11,983.0)		10 (50.0)	14 (40.0)	

Notes: Percentages may not sum to 100% due to rounding; n: frequency; NA = Data not available (some fields missing and, thus, incalculable)

Table 14. Assessment of security issues since implementing open visitation by selected facility characteristics (n = 57).

	Number of Licensed Beds							Teaching Hospital					Urbanicity				
	<200		200 - 499		≥500		*P* Value	Yes		No		*P* Value	Urban		Rural		*P* Value
	n	%	n	%	n	%		n	%	n	%		n	%	n	%	
Security issues since implementing open visitation							0.20					0.88					0.63
More challenging	0	0.0	1	4.1	0	0.0		1	3.1	0	0.0		1	2.2	0	0.0	
Remained about the same	12	75.0	13	54.2	7	41.2		17	53.1	15	60.0		24	53.3	8	66.7	
Less challenging	4	25.0	10	41.7	10	58.8		14	43.8	10	40.0		20	44.4	4	33.3	

Notes: Percentages may not sum to 100% due to rounding; n: frequency

their security challenges had remained about the same compared to those reporting their security issues were less challenging, with larger mean in-patient populations associated with less challenging security issues, though this trend was not statistically significant (p-value: 0.09) (Table 13).

When comparing open visitation facilities' reports of visitor-related security challenges since implementing open visitation to those they experienced in the 12 months prior to being surveyed, an unexpected pattern emerged (Table 15). In general, there was a strong relationship between how a facility characterized their security challenges after implementing open visitation and how they characterized them over the 12 month period prior to the survey (p-value<0.001). To this end, the vast majority (78.9%) of those who reported that their security issues were "more challenging" or "remained about the same" following the implementation of open visitation gave the same report for the past 12 months (e.g., if they responded that their issues "remained about the same" following implementation of open visitation, they also responded that their issues "remained about the same" for the prior 12-month period). Unexpectedly, however, among those who indicated that their security issues after implementing open visitation were "less challenging" than prior to open visitation, two-thirds reported that their facility's visitor-related security issues had become "more challenging" over the past 12 months. This suggested that the facilities' transitions to open visitation had reduced their visitor-related security issues but that recent events had increased these issues. Upon further examination, it was identified that most of these participants also reported that their open visitation policies were implemented prior to 2014 (43.8%) or that they did not know the date of open visitation implementation (31.3%) (Table 3). For those facilities that implemented open visitation prior to 2014, this pattern suggested that security challenges prior to 2014 might differ from security challenges in the 12-months prior to this survey, that patterns of recall prioritize recent events, or both. For those respondents who did not know when their open visitation policy was implemented, this suggested that they perceived that the implementation of the policy did not increase their security challenges and that they do not perceive that their current challenges are due to open visitation. This issue was explored more fully in the interviews (please see section titled "Phase 2").

Table 15. Comparison of security issues since implementing open visitation compared to prior 12-month security issues among facilities with open visitation (n = 57).

	Security issues since implementing open visitation						
	More challenging		Remained about the same		Less challenging		
	n	%	n	%	n	%	*P* Value
Prior 12 months security issues							<0.001
More challenging	1	100.0	6	18.8	16	66.7	
Remained about the same	0	0.0	25	78.1	7	29.2	
Less challenging	0	0.0	1	3.1	1	4.1	

Notes: Percentages may not sum to 100% due to rounding; n: frequency

Factors Associated with Increased Security Call Volumes

In multivariate modeling, the factors associated with increased call volumes varied between facilities with and without emergency departments, although similar patterns were seen in both. For facilities with emergency departments, their number of licensed beds, annual ED patient volumes, and use of electronic management systems were associated with increased odds of reporting higher call volume categories (Table 16).

Table 16. Association between facility characteristics and 12-month call volume for facilities with emergency departments (n = 120).

Variable	Odds Ratio	(95% C.I.)	*P* Value
Licensed beds: ≥500	5.60	(1.83 –17.09)	<0.01
Emergency department patient census, 2017	1.00	(1.00 – 1.00)	<0.001
Electronic visitor management system			
Yes	3.69	(1.25 – 10.90)	0.02
No	1.00	Referent	

Specifically, facilities with 500 beds or more had 5.6-fold greater odds of reporting call volumes in each increasing category of call volume compared to hospitals with fewer beds (OR: 5.59; 95% CI: 1.83, 17.09; *p*-value <0.01); categories of fewer licensed beds did not influence security call volumes in the same way. In terms of ED patient volumes, each additional 1,000 patients cared for annually increased the odds of a facility reporting the next higher category of call volume by 2.3% (OR: 1.00; 95% CI: 1.00, 1.00; *p*-value <0.001). Finally, hospitals with an electronic visitor management system had 3.7-fold greater odds of reporting call volumes in each increasing category of call volumes (OR: 3.69; 95% CI: 1.25, 10.90; *p*-value: 0.02).

For facilities without emergency departments, their number of licensed beds, annual in-patient volumes, and use of electronic management systems were associated with increased odds of reporting higher call volume categories (Table 17).

Table 17. Association between facility characteristics and 12-month call volume for facilities without emergency departments (n = 15).

Variable	Odds Ratio	(95% C.I.)	*P* Value
Licensed beds: ≥500	6.58	(2.03 – 21.38)	<0.01
In-patient census, 2017	1.00	(1.00 – 1.00)	0.03
Electronic visitor management system			
Yes	3.29	(1.02 – 10.68)	0.04
No	1.00	Referent	

Note: Small sample methods were utilized.

Among these facilities, having 500 beds or more increased the odds of a facility reporting the next higher category of call volume by 6.6-fold (OR: 6.58; 95% CI: 2.03, 21.38; *p*-value <0.01). For each additional 10,000 in-patients treated annually, the odds of a hospital reporting the next higher category of call volume increased by 6.0% (OR: 1.00; 95% CI: 1.00, 1.00; *p*-value: 0.03). Lastly, facilities with electronic visitor management systems had 3.3-fold greater odds of reporting call volumes in each increasing category of call volumes (OR: 3.29; 95% CI: 1.02, 10.68; *p*-value: 0.04).

Due to small sample sizes, the analysis of factors influencing call volumes for specific types of calls did not provide reliable results.

PHASE 2: INTERVIEW GUIDE CONSTRUCTION, PARTICIPANT RECRUITMENT, AND EXECUTION OF KEY INFORMANT INTERVIEWS.

Research Design and Study Methods

Instrument Development. An interview guide comprised of open ended-questions was developed to build on the domains of greatest interest that had been identified during survey construction. Interview guide questions were prepared in advance by the research team and included structured content probing questions centered on specific topics of interest, which were used to clarify or expand on information provided by participants during the sessions. Like the survey, early drafts of the interview guide were circulated among the IAHSS Foundation (IAHSS-F) leadership and a small group of IAHSS members for pilot testing and feedback, which was incorporated into the final version of the interview guide (Appendix C).

Participant Recruitment. At the end of the Phase 1 survey, respondents were asked whether they would be willing to participate in a telephone interview to collect greater detail about their experiences with their visitor management program. Those who were willing to participate in an interview provided their email addresses. Interview participants were selected from among those who agreed, and we sought to interview individuals employed by institutions of varying sizes, patient populations, visitor management program components, and call volumes.

Survey Execution. Following the conclusion of the survey period, ten 60-minute semi-structured telephone interviews were conducted over a four week period at the convenience of the participant. Each interview was digitally recorded and transcribed into text in order to be analyzed. Interviewees were read a statement of informed consent prior to participating, which included the request to record the interview, and were given a period to ask questions. At the end of each session, participants were asked to provide any additional comments related to any topic addressed during the session.

Data Analysis. Focus group audio recordings were transcribed verbatim into text and loaded into NVivo qualitative analysis software (QSR International, Burlington, MA). Qualitative data analyses were conducted using an open coding framework and an inductive approach (i.e., the identification and assignment of concepts that emerge from the text).[29] We used these data to explore individuals' perceptions of visitor management effectiveness, efficacy, utility, and expense in depth and to provide context to the survey results. We also described the study sample in terms of sociodemographic and occupational characteristics using frequencies, percentages, and ranges, as appropriate.

Findings

Overview of Interview Cohort

Of the survey respondents, 35 indicated a willingness to be interviewed and provided their email addresses. In order to recruit the desired number of interviewees, 18 individuals were invited to participate in a one-on-one telephone interview, of whom 10 agreed to do so and were interviewed (response rate: 56%).

All interview participants were male; half of interviewees indicated they were under the age of 40 years, and 70% identified themselves as white, non-Hispanic. All reported having worked in healthcare-related occupational health and safety for more than two years, and half reported having worked in the industry for more than 10 years. Their tenure at their current organizations ranged from less than two years to more than 20 years, with a similar distribution for the length of time they had been in their current role. They all reported oversight of annual security budgets of at least $500,000.

Participants' facilities ranged in interior square footage from 400,000 to 1,000,000 ft^2 and had from 100 to more than 500 licensed beds. Most respondent facilities were located in the United States, though a few were located outside of the U.S. Half reported working at teaching hospitals, and 80% reported working in urban settings. In terms of patient visitation, 70% of interview participants' facilities allowed open visitation.

Current Approaches to Visitor Management

The current approaches to visitor management utilized by participants' facilities varied widely, from "walk in, walk on, no sign in" to "present an ID, we take your picture, we print it on the pass that you wear, and it's good for one day" to "hand-held metal detection on the at-risk patients – visitors get the same thing". This was attributed to the fact that "one size does not fit all," which was repeated by several participants to express the notion that a single approach will not meet the security needs of every facility. That said, there was general consensus that some practices might be appropriate for a breadth of facilities: "I think if you look at the larger urban areas of the country, most hospitals have a single point of entry and badge all visitors. But, where we're located – in a moderate-sized city – that thinking hasn't really set in yet, but I think it's coming." Only one participant overtly indicated that he considered his facility's security approach to be more progressive than that of others in his geographical region: "I think we're headed toward more of a modern approach, whereas most of the security of our competitors in our region falls more along the lines of a traditional approach to safety and security."

Most participants shared the belief that their current approach met their facility's security needs, in general. Even so, relatively few of the interview participants were so satisfied with their current approach to visitor management that they would not change it, if they were able; some referred to their security situation as "a Band-Aid until we find a better solution," one that "cost[s] me sleep at night". Participants were candid about questioning the effectiveness of aspects of their current protocols, and most of the participants indicated that they would like to see more active management of visitors.

I would like to see greater restriction on who can come [in] and how

we're tracking those individuals. There's not really any management right now – anybody can come in the building.

I'd like to help folks – structurally – be funneled to our information desk, so that when they walk in, there's a certain path they have to follow. Right now, it's just kind of wide open.

I would like to see more screening of visitors coming in twenty-four-seven.

I would like to account for all visitors to our facilities. I would like to limit access to our facilities to one or two circulation points, especially during after-hours and, at those circulation points, institute a process or a program to account for these visitors, either [a] traditional written log or some kind of automated process.

Ideally, I would like to know who's coming in the building after hours, where they're going, and signing them in and out. Then, if anything happens, at least we have some type of tracking.

I think that we could do more on the physical security side, which is the card readers and the cameras. I'd add more card readers and cameras to certain areas and avenues of entrance within the hospital – not the perimeter, but within the hospital, further restricting where these visitors can go.

The only change that I would make if I could – and [if] there was no issue with money or staffing or anything like that – is I would put metal detectors at the emergency room and [have] everybody go through those.

Several barriers to implementing these security changes were mentioned, including "the emphasis on patient-centered care", "organizational culture", "our facility's leadership", the "lack of resources – both staff and financial", "visitor feedback", and "fire code regulations". Additionally, a few participants mentioned the cyclic nature of security staff recruitment and retention as a hurdle. They highlighted that "the quality of officers we have is directly correlated to our baseline salary" and that the industry as well as healthcare administrators should "pay attention to the salary because you're asking a hospital security officer to do a lot more, in my opinion, than just a simple security person watching an empty location overnight".

Facilities requiring visitor registration (or more stringent visitor management practices) reported generally positive public responses to increased levels of security scrutiny. The consensus was that not all visitors immediately saw the value of the security protocol, but they were typically able to be convinced of its value: "Many people are maybe annoyed or unsure why [they must be screened], but it's very quick to explain to people that it's for

their safety, [for] the patients – their loved ones – and for the staff, and [then] there's very little pushback." In fact, it was suggested that visitors who continued to challenge and/or refused to comply with security protocols might be the individuals that the protocols were intended to identify: "Pushback from the public? Only [from] those people who shouldn't be there and are causing problems. The rest of them get it, and they actually agree with it."

Among those participants considering purchasing an electronic visitor management system, there were concerns about the cost of implementation as well as the perception by visitors: "In my opinion, a lot of senior teams still look at security as a barrier, as a deterrent to patient access…[they really] don't trust that [an electronic system] is going to help us continue to make sure that patients and visitors have easy access." Other participants indicated they were not pursuing electronic systems due to the "politics of privacy and the perception of people's privacy."

Very few participants reported using metal detection, either stand-alone machines or hand-held wands. Those who did tended to utilize these tools primarily in the emergency department. There was some concern that patients and visitors might perceive metal detectors as indicators of an unsafe environment: "How safe [is your facility] if you need a metal detector?" However, it was also suggested that the general public would be more willing to accept ongoing metal detection than the hospital administration:

> Right now, we've gotten our [administration] to agree to metal detection just at the ER. They're not comfortable with daytime metal detection throughout the rest of the house, though. It would take an imminent threat [in the community] to stand up metal detection [at other entrances]. The reaction from the public – they [have] thanked us for standing up metal detection [at all entrances] during [potentially incendiary community] events and questioned why we weren't doing it twenty-four-seven [at all entrances]. I think it would be well-received [by the public] because, unfortunately, that's what the nation has gotten used to. You can't go to a football game without walking through metal detection or using a clear bag.

Those who periodically utilized metal detectors (such as when local events necessitated extra caution) reported that, when they are in use, "we'll find knives and pepper spray and different things in bushes next to entry points because they knew they were coming to metal detection, and it makes me wonder how many different type of weapons are in the house on a daily basis" when they are not in use.

Some interviewees pointed out that their current approaches worked best with those visitors who meant no harm: "It keeps honest people honest." Respondents shared a concern that their protocols were most effective with individuals accessing their facilities to seek or visit those seeking care, and they questioned whether their programs were deterring those who might enter their facilities for nefarious purposes: "Somebody that's an active shooter, for example, they have an intent. They're not going to abide by security

signs. Only the people on the honor system would be doing that." To those ends, some participants indicated they had recently begun supplying their security officers with defensive equipment such as soft body armor "with stab plates which protect them from gunshot and knife wounds" and "non-lethal" pepper gel.

Visitation Policies

Participants stressed the importance of having "a clear policy" for visitor management that "reflects whatever you find is adequate for your organization" and that the "staff know it, that they're trained in it, that they know the procedures and what the resources are and how to seek help if they need it, and make sure everyone's on the same page". Among facilities with institution-wide visitation policies, those that also had department-level policies indicated the department-level policies were more restrictive than those at the institution level; such policies were often reported for emergency departments, detoxification units, intensive care units, and labor and delivery units.

Interviewees highlighted the critical role that staff members played in visitor management: "'Everybody's responsible for security' is the message we're putting out there." Many participants noted the need for staff to actively enforce security protocols: "Staff members are asked to challenge folks that they see without some sort of identification on their person. The intent is [for the staff member] to basically say, 'Hey, sir, I notice you don't have a [visitor's] pass. Let me help you with that.'" The importance of staff support was stressed equally by those participants whose facilities have rigorous security procedures for patient access as well as those without such procedures.

Respondents indicated that the organizational culture was a key factor in whether care providers were compliant with their facility-wide visitation policies, particularly those employees who had previously worked under different policies: "It's those that have been here for maybe fifteen, twenty, thirty years that are harder to get to comply." Respondents attributed some of the issues with compliance to recent or ongoing changes in security policies and procedures, as institutional cultures do not always keep pace with new security protocols: "A lot of the stuff we're doing here is brand new, so it's intended to create a culture of safety and security. So, while it's not perfect, [compliance] goes back to culture building, and we're still in that process." Notably, physicians were the only occupational group singled out as potentially less cooperative with security policies: "And then, probably, if I had to name a group it would be physicians [who] are harder to move towards a safe and secure environment and to get to follow policies and procedures than any other employee group that we have."

Additionally, participants indicated that staff compliance varied by individual, particularly when they were tasked with enforcing security protocols, as some care providers considered visitor management beyond the scope of their role: "It really depends on the personality because some of our teammates are less apt to confront [visitors without badges]. That's not their skill set and, in their minds, that's not why they're here." This was attributed, in part, to the emphasis on customer service from the hospital administration: "That's what senior leaders are pushing to the department heads:

customer service, customer service, get your scores up. It's about the patients being happy and coming back. And it's how they designate your reimbursement for the next year." That said, participants were quick to acknowledge that they did not believe staff members intentionally undermined security efforts by being overly accommodating: "[The care providers] won't put safety behind customer service, if they see the safety issue. They just don't always see the safety issue."

Several respondents indicated that their organizations included health care facilities of different types (e.g., maternity hospitals vs. nursing homes vs. outpatient surgical centers vs. emergency departments) and, thus, had different visitation policies for each. While some of these participants indicated they were seeking to establish best practices for each of their different hospital settings, others were attempting to find a single solution that could be utilized across their organizations. This was also an issue for facilities with different daytime and nighttime services, such as facilities providing both in-patient and out-patient care. Even among these facilities with a single visitor-management policy that applied around the clock, participants reported differences between policy enforcement during the day vs. at night, with the daytime often characterized as "more accepting" of visitors who had not followed procedures, which made it "difficult to make sure that everybody has been vetted". This was typically attributed to the desire to be considered a preferred care provider in the area by patients and visitors by having a facility that was "welcoming, warm, comfortable, convenient". Having different visitor management practices depending on the time of day also manifested in different safety cultures among the staff: "The day shift is definitely different than the night shift. Night shift is more stringent about [security], more meticulous. They make a strong effort to make sure everybody's got [visitor] passes. The day shift – not so much."

Among those respondents whose facilities had open visitation, some reported that units imposed visitation restrictions based on the prognosis of the patient, the number of patient visitors, the age of the visitors, or the demeanor of the visitors.

> [Restrictions to open visitation are] going to come directly from the caregivers, and it will depend on the unit. For a lot of the units, it depends specifically on the patient. Say there's some challenges with certain family members, or if [care givers] need to make sure that [the patient is] getting adequate rest, a lot of times they'll restrict visiting at night or put a limit on the number of visitors.

Among those respondents whose facilities did not have open visitation, some reported allowing visitors to stay overnight despite the end of visiting hours. Such visitors were typically restricted in number (generally, only one or two persons were allowed to stay) and were often identified using a badging system and/or escorted onto the unit by a security officer. Additional allowances were typically made by the care team when patients required special sensitivity, such as when a patient's prognosis was grim or when the patient was a minor.

> The reason why they would deviate from the facility policies and

procedures is because of special circumstances, such as end-of-life, where there needs to be flexibility in allowing some of the visitors that the patient might have beyond the normal scope of visitor hours.

However, participants agreed that the security department was typically not consulted on issues of expanding or restricting access to patient visitors:

> It would be the caregivers and not others [who alter the visitation allowances] because they – the caregivers – know the condition of the patient and not the people who enforce the visitor rules and regulations. So, it's the caregivers who call the shots based on patient condition.

> Yeah, it would be very rare that [care givers] would seek [security's] input because, generally, it's not really required, [even in] situations where we're talking about the behavior of visitors. Say we have a visitor who has some behavior issues, but – as far as the care provider can tell – it's still in the best interest of the recovery process for the patient to have [the visitor] here at given times. Security then would be brought in for input at that point but, generally, it's not the case. Generally, it's totally up to the discretion of the care provider.

In terms of facility visitors other than patient visitors (e.g., vendors, contractors, volunteers), the majority of respondents utilized an outside service to vet their vendors, and most also had check-in/badging requirements for contractors and volunteers. This was done to establish that the individual was, in fact, who they claimed to be: "It's very easy to come into a hospital and pretend to be a contractor or a vendor." Additionally, in most cases, volunteers were processed like employees, with background checks (often involving fingerprinting) and permanent badges.

Security approaches were slightly more complicated for interview participants employed by faith-based organizations. They indicated that their organizations' mandates, which state how they should approach their communities, could both influence their approach to security ("our world has changed, and there's some unique ethical issues and challenges") and give a false sense of safety to the staff: "A lot of folks have the 'nothing will ever happen here' mentality. Like everyone that comes to the door is a nice, wonderful person."

The Influence of Building Design

Facility design was consistently mentioned by participants as a security issue, as most facilities had been designed with a focus on the patient and visitor experience rather than on safety and security:

> So many times, security is not included in any architectural designs when there's new construction or renovation.

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The first barrier is the fact that hospitals weren't built with security in mind at all. It was the last thing they were thinking about.

Some participants indicated that their building design complemented their visitor management efforts:

If you walk into our main lobby, you'll see the information desk right there for you, and, the way [the lobby] is designed, you walk directly to the information desk. You give the patient's name, and then the information desk rep basically logs in and checks to make sure there's no visitor restrictions or issues. Then, they give you a pass that you stick on your shirt to go upstairs, [and] you're allow to go to the elevators to see whoever you're coming to see.

However, other participants expressed concern that their building design was unintentionally undermining patient and staff safety and security:

Our hospitals – the way they're designed – they're wide open to the public. We're not at the point of screening our visitors. We don't have strict control points.

We had fifty-one exterior entrances to our facility that could be open or closed or secured, [and] most [were] open day and night. The first project that I took on [was a] change of hardware and a new keyway [to] eliminate or reduce the number of open access points. And so we've done that, and [now] typically on a daily basis, we have twelve or thirteen open access points, with only one that's open twenty-four-seven.

Several participants stressed the importance of restricting access in managing patient visitors, and some respondents whose facilities were characterized as open, inviting environments emphasized the importance of interior access control:

It's contrary to any security professional [because] we want to secure the perimeter and stop the issues at the perimeter. But with [the current] strategy of letting [everybody] come in, we're trying to both limit access points and limit the inconvenience or the perception of inconvenience by our patients and visitors.

Some participants indicated that they were actively addressing the security issues relating to their buildings' designs, either by altering the flow of entrants or by redesigning the facilities: "We went through a major renovation, and we narrowed down our entrances considerably to three…That's helped considerably [with how we] filter people in." Respondents mentioned that retrofitting facilities with a focus on security raised issues with hospital visitors and administrators both aesthetically ("The information desk isn't

really positioned in a location where you can capture people, so we used theater rope to funnel people over. The theater rope didn't help that much [and] didn't go over that well because [patients] thought it was an eyesore.") and functionally ("You're faced with having to lock down doors and redirect foot traffic, you're going to need facilities and renovation, and you're going to need a lot more [security officers] and equipment, so you don't interrupt the flow of patients and visitors.")

Many participants shared that they are still working towards a solution that balances the desire for the facility to seem warm and accessible with the need to keep staff, patients, and visitors safe:

> So, we're still struggling, to be honest. Do we open up our front doors and have soft screening with a greeter instead of a hard-core, uniformed peace officer? Or do we need to put up turnstiles to count and control people? Or do we have to spend even more money locking every single door down a corridor that goes to an in-patient unit?

Additionally, building design emerged as critical for security officer response, as the location of the officer when a call came in was a key factor in the officer's response time: "That's probably a general rule for any facility, it all depends where the officers are deployed at the moment [there is a security call]. Whether they're outside, whether they're inside, how many buildings you have, how many floors you have." Participants pointed out the importance of simulating security emergencies in order for their officers to be knowledgeable about best approaches for maneuvering through their unique floorplans: "We usually like to get to wherever we're going within two minutes of an activation. We actually drill on response times in different locations, so we're pretty in-tune to getting to where we need to go quickly."

Participants pointed out that "single purpose facilities are pretty easy to control" but facilities with multiple care settings were often difficult to secure: "It's the major trauma centers, the multi-disciplinary hospitals that have your ERs, your inpatient units, your neonatal units, your mental health units, materials management, all that stuff – those are very challenging." Campus-style facilities were characterized as having their own challenges because such facilities "don't have just one single building with one entry point for the main entrance and one entry point for the emergency area." Conversely, some unit types were widely associated with certain security measures, which made managing them easier: "There's an expectation that when you're visiting your elderly parent who lives at a long-term care facility, the first thing you're greeted by when you walk in is the nursing station. People expect to sign in to see Grandma."

Open Visitation

Most of those with open visitation facilities reported that the transition from a more to less restricted visitation policy had gone smoothly, in general, and most had taken steps to address potential issues prior to implementing open visitation, including creating

handouts for visitors introducing the new policy ("…like a postcard-sized handout…that kind of outlined that we were extending this privilege to folks, but if people don't behave accordingly, their visitation privileges can be revoked"), installing "motel safes in every patient room for valuables", and restricting stairwell access.

Participants differentiated between 'round-the-clock access to patients versus to the facility. Those with open visitation acknowledged that "patient visitation is truly allowed twenty-four-hours a day". However, there were differences among facilities regarding whether the building was accessible around the clock. All reported reduced numbers of entry points after-hours, but, for some, there were no further restrictions – "Folks just come in and they can just use our corridors, and there's nothing preventing them from walking through" – whereas other facilities went further, requiring visitors be buzzed in and/or register upon entry:

> When I say twenty-four-seven for visitation, I don't want that to be perceived as the hospital is open twenty-four-seven. After nine o'clock the entire hospital is locked down. And the only way that you can get in is [through] an intercom system where we can badge people in, if they're legit. If not – or if we have any problems – then security is notified, and we question them.

In fact, most respondents reported employing more thorough visitor screening practices for night-time visitors than for day-time visitors:

> During the day, it's much more of an open environment. [Visitors are] coming through more of a check-point, but it's not somewhere they have to stop. We don't ask for ID, and they aren't given a visible badge of any kind. We don't do any kind of hard vetting at that point. After hours, we [restrict access] to two entry points, and then after nine o'clock, it goes to one entry point. Everybody has to present a valid picture identification. We go through the vetting process. We ask them where they're going. We document all that, and then they are given a visible badge that they have to wear.

Others highlighted that the access provided by open visitation only appeals to a few populations:

> Just because you have an open visitation policy doesn't mean that you're going to get everybody in the city coming down because it's open visitation. People generally come [because] they've got somebody there that they want to see that's a family member or friend, they themselves are coming because they have to have care, or it's an individual that's homeless and looking for a warm or cold to place to stay for a while.

Several participants with open visitation policies who reported increases in violent events

after instituting open visitation indicated that the perpetrators were typically patients or patient visitors with legitimate reasons for visiting: "We look at our statistics, and it's not been a matter of a bad person coming from the outside causing an issue. It's really the patients or their family members that are getting out of hand – the folks that really should be there are causing the majority of our issues." It was suggested that this could be due, in part, to shifts in the demographics of their facility's neighboring communities and the populations they served:

> There's been a lot of changes [and] a lot of construction in [the] downtown area where we're located. We're dealing [more] with transients, [the] homeless population.
>
> The geographical boundaries that used to be there twenty, thirty years ago are no longer there. [This community is] different than it was. Because we are so closely located to a few of the tougher cities – now, with those geographical boundaries blurred – we experience the same things that those cities face, maybe just on a little bit of a smaller scale. The problem is a lot of the people here don't realize that.

Many participants would like their open visitation facilities to heighten their approach to security: "I would like to have everyone visiting the hospital twenty-four-seven be badged, identify where they're going, and give their name. They should all have to come through a single point of entry and be badged." Although facility administrators were often identified as barriers to increasing the level of security, some respondents contended that the focus on customer service was beginning to give way to a more balanced approach in which security played a visible and important role in patient-centered care: "I believe that leadership in this organization recognizes that the wide-open-door policy is not a good idea, and you can still be welcoming and provide good service, but you can also raise your level of protection for the people you're entrusted to take care of."

Changes over Time

Some participants reported that their rates of security calls had been increasing and/or their security issues had been becoming more challenging over time. Among that group, several believed that decreased tolerance of violence at work and improved data collection efforts had contributed to increased reporting of events:

> I know it seems like violence in healthcare is on the rise across the country. I feel like, at least in our case, it's remained fairly stable, but there's a lot more reporting than we've ever seen before. I don't think we've had an uptick in incidents, but we've certainly had more reporting, which is great.

Other participants believed that not only were more events being reported, but that the frequency of workplace violence seemed to be increasing, as well:

Two things are at play in health care, and one is the proper collection of data, and the other is the fact that workplace violence is escalating. I think the numbers [of reported violent events] may be increasing because people no longer just accept it, but they report it, and there's a mechanism to do that. But I think the other half of that equation is [that] we are seeing an increase in incivility and disruption and disruptive people. They do not revere health care the way they used to, and they're very abusive to the health care worker.

The notion that violence was increasing due to a decline in respect for healthcare as a profession was an important concern of participants: "There used to be three areas that were relatively immune from society's disruptions, and they were health care, schools, and religion – churches, schools, and hospitals. That is not true anymore." Interviewees stated that this was a particular concern because of the vulnerability of patients:

I currently have 450 people laying in beds in one location, and so when you're tasked with trying to keep them safe, you have to realize that they're very vulnerable, and they cannot ambulate. They're not able to run for their own safety. They really are at the mercy of those around them.

Some participants attributed this decline in respect for healthcare providers to shifting patient demographics, including those attributable to the opioid epidemic: "Every day we have [a security] incident that's tied to a drug seeker or an opioid user who's trying to get meds." Additionally, the rise in opioid use has contributed to increased demand for beds by users, either in detoxification units, if available, or throughout facilities in units not designed to handle such patients, which has increased workplace violence among workers not accustomed to the effects of opioid use:

They present in the emergency department, and then, if they're admitted, they're throughout the hospital.

When you're full in detox and you're using other beds for detox purposes, those health care workers are not familiar with detoxification and opioid-seeking – they're not used to dealing with that level of withdrawal and violence.

While participants agreed that some units tended to have higher rates of violence, they also revealed that patient-perpetrated violence was wide-spread across their facilities: "It's higher, obviously, in the emergency department and in [our behavioral health unit] but it's growing outside of those [units] – it's house-wide." Some participants suggested that these changes were permanent and necessitated new ideas and courses of action: "We're trying to tackle 21st Century problems with 20th Century approaches and equipment."

DISCUSSION

In this study, questionnaire and interview data collected from members of the International Association for Healthcare Security and Safety were used to describe hospitals' current security policies and practices, including approaches to patient visitation scheduling, specific security activities, and security call volumes.

Among our respondents, four-out-of-five had facility-wide visitation policies, and just under half of the facilities surveyed had facility-wide open visitation policies. The prevalence of open visitation among U.S. hospitals varies widely based on facility-specific factors.[30] Prior studies of visitation policies, which have overwhelmingly been focused on specific facility or unit types (i.e., ICUs, pediatric hospitals), have estimated that up to 90% of hospital units in U.S. hospitals have some type of restriction on visitation.[30,31] Although the type of facility is a primary factor influencing visitation scheduling, there is tremendous variability (1) in visiting hours policies across the same type of facility (e.g., among pediatric hospitals, among acute care facilities, among academic medical centers), (2) in visiting hours across the same type of units in different facilities (e.g., among ICUs, among OB units), and (3) within individual facilities (e.g., between the ED and the OB units within a hospital). Additional factors influencing visitation policies include hospital size, geographic location, annual patient census, average distance traveled by visitors, availability of technology, and staff willingness to support new routines.[3] Studies of visitation policies have also noted incongruities between stated policies and actual restrictions placed on visitation.[30-32]

Due to recommendations from patient advocacy groups, many of which included health care practitioners and/or health researchers, the implementation of open visitation policies at acute, post-acute, and long-term care institutions in the U.S. has been increasing in frequency over the past two decades.[11,33-35] To our knowledge, however, there has been only one previous study that assessed the relationship between eliminating visitation restrictions and security incidents.[11] Shulkin *et al.* (2014) provided a case study of one hospital's transition to open visitation and reported no increase in security events, despite averaging almost 2,000 visitors per month "after hours" (i.e., between 8 pm and 5 am), no increase in complaints from patients, visitors, or staff, and increased overall satisfaction scores.[11] In the current study, 87.5% of facilities reporting security call volumes before and after open visitation indicated that their total annual call volumes did change following the transition. However, between 6.7% and 26.7% of participating facilities reported increases in specific types of security calls (e.g., assault, battery), with robbery being the only category of incident calls that remained consistent pre- and post-implementation of open visitation. Some participants suggested that these increases could be due to reduced employee tolerance of abusive or aggressive patients or visitors rather than an actual increase in the frequency of events, while others indicated that their facilities' event counts had been rising due to shifts in their patient populations. The prevalence of violence against workers in hospital settings has been estimated as ranging from 23% to 74%, with these estimates considered conservative given the underreporting of events, often attributed to the normalization of workplace violence by healthcare workers.[36-39] If health care workers are, in fact, less prone to simply accept

workplace violence as part of the job, this suggests improved cultures of safety within organizations as well as across occupations.[40]

Though there was general agreement among interview participants that open visitation was becoming increasingly common, they expressed greater concerns about visitor management and access control than visitation scheduling. None expressed the desire to make their visitation schedules more restrictive, but several indicated they would like to increase their facilities' restrictions on who could enter and where they could go. Enhanced approaches to visitor screening and badging and the installation or reconfiguring of access controls were priorities for many participants, a few of whom mentioned either using or considering electronic visitor management systems to assist with these efforts. Although industry reports have estimated that more than half of facilities use electronic visitor management systems,[41] only about one-third of the current study's participants have implemented such systems, with another one-third planning to implement a system in the next 12 months. Interview participants identified facility design as a barrier to effective visitor management, which aligned with previous recommendations that security personnel be involved in hospitals' architectural design stages.[42] Other key issues identified by participants included patient-centered approaches that unintentionally prioritized patient and visitor satisfaction over safety and budgetary restrictions.

The influence of visitation scheduling and visitor management practices on hospital security call volumes had not previously been studied among a robust sample of U.S. facilities. However, our findings should be considered in light of this study's limitations. Given the cross-sectional nature of this research, we examined relationships between facility characteristics, visitation policies and call volumes, but our ability to establish the temporality of those relationships is limited by the study design. The survey response rate, which we estimate at less than 10%, was lower than anticipated and may reflect possible selection bias. Additionally, although 135 facilities were represented in this study, some of the specific facility attribute or security call counts were small, which may have biased the resulting measures of association towards the null; to address this, near-significant values have been identified and discussed. Additionally, recording and dispositioning security calls may have lacked standardization across the facilities, and some institutions may have recorded calls for service that others did not. Moreover, security calls may have involved more than one issue (e.g., disorderly conduct and assault), but such calls may have only been dispositioned in the facility's records under a single heading. Further, the listing of specific types of calls on which data were collected should not be considered exhaustive and may have omitted particular categories. It should also be noted that events that were prevented by effective visitor management would not be reflected in the call data, and discussions of prevented events were not a focus of the interview questions. Compared to all U.S. hospitals, those in our study had more licensed beds than the industry average,[43] which may limit the generalizability of these findings. The study cohort should not be considered a representative sample of hospital security administrators or of the IAHSS membership. Similarly, interview participants were purposefully chosen and should not be considered a representative sample of the study cohort or of the industry, and their perspectives may not be shared

by all healthcare security professionals. Despite these limitations, this study's mixed-methods approach adds to our knowledge of visitor scheduling and management by providing a snapshot of current policies and approaches as well as an understanding of the context in which healthcare security administrators must advance staff, patient, and visitor safety and security.

Violence in healthcare continues to rise, and hospital staff and patients are particularly vulnerable populations. As hospitals seek to provide patient- and family-centered care, it is important for administrators, staff, patients, and visitors to recognize that a safe and secure environment is a patient-centered one. As an increasing number of facilities embrace less restrictive visitation policies, security departments must be included as active, valued members of teams engaged in facility design/redesign and policy creation and implementation. Moreover, security personnel are themselves at high risk of exposure to workplace violence and need training and tools to perform their work in ways that maximize their safety as well as that of the other hospital staff, patients, and visitors.

Facilities' safety and security efforts could benefit from future research that promotes the collection of standardized information related to crime, violence, and victimization, broadly, with a particular focus on collecting objective data prior to and following the implementation of policy or practice changes. Given the influence of month, day-of-the-week, and time-of-day on security issues, future studies examining temporal trends would be valuable, particularly for staffing purposes. Future research could also assess the effectiveness of specific visitor management policies and practices and conduct efficacy, translational, and dissemination research on interventions that promote hospital safety and security based on the findings of those assessments.

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APPENDIX A.

Confidential

Visitor Management Survey

We would like to learn about visitor management in your healthcare facility.

All responses to this survey will be anonymous and confidential. Reports that are produced from this survey will provide summaries of the data. We will never identify individuals or healthcare facilities.

If you are responsible for security at more than one healthcare facility, please answer these questions for the facility at which you are primarily located.

Facility Information

To begin with, please tell us a little bit about your facility.

How many licensed beds do you have in your facility?
- ○ Fewer than 25 beds
- ○ 25 beds or more, but fewer than 50 beds
- ○ 50 beds or more, but fewer than 100 beds
- ○ 100 beds or more, but fewer than 200 beds
- ○ 200 beds or more, but fewer than 300 beds
- ○ 300 beds or more, but fewer than 400 beds
- ○ 400 beds or more, but fewer than 500 beds
- ○ 500 beds or more

In 2017, what was your facility's annual inpatient census?

_____

In 2017, what was your annual emergency department patient volume?

_____

What is your facility's total number of employees?
- ○ Fewer than 100 employees
- ○ 100 employees or more, but fewer than 200 employees
- ○ 200 employees or more, but fewer than 500 employees
- ○ 500 employees or more, but fewer than 1,000 employees
- ○ 1,000 employees or more, but fewer than 2,000 employees
- ○ 2,000 employees or more, but fewer than 5,000 employees
- ○ 5,000 employees or more

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In what geographic region is your facility located?

○ Northeast (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont)
○ Midwest (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Ohio, North Dakota, Nebraska, South Dakota, Wisconsin)
○ South (Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia)
○ West (Alaska, Arizona, California, Colorado, Hawai'i, Idaho, Nevada, New Mexico, Montana, Oregon, Utah, Washington, Wyoming)
○ North America, but not the U.S.
○ Country outside of North America

Is your facility designated as urban or rural?

According to the Centers for Medicare and Medicaid Services, rural facilities are those (1) operating in counties outside metropolitan statistical areas, (2) operating in areas with < 50,000 residents, or (3) that have been reclassified from urban to rural.

○ Urban
○ Rural

Is your facility a teaching hospital?

○ Yes
○ No

Which of the following best describes the physical layout of your facility?

○ Spread across multiple, one- or two-story separate buildings
○ Medium density with units clustered into one or more multi-functional buildings with one or more floors
○ Concentrated into one single building that is multi-functional and multi-floor

What is the approximate interior square footage of your facility?

_____

How many public entrances does your facility have? Please include exterior public entrances as well as entrances from other connected buildings.

For the purpose of this survey, a public entrance is defined as any open, unsecured entrance that the public can use to access the hospital.

_____

How many public safety/security department FTEs are employed at your facility?

For the purpose of this survey, an FTE is defined as the number of full-time equivalents authorized by the hospital security department to work 40 hours per week, including contract and proprietary off-duty police, unarmed security officers, and armed security officers.

○ Fewer than 10
○ 10 or more, but fewer than 25
○ 25 or more, but fewer than 50
○ 50 or more

Are the public safety/security officers at your facility employees, contractors, or a mix of both?

○ Employees
○ Contractors
○ Both

Does your facility contract with the local police department for security personnel?

○ Yes
○ No

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Patient Visitation Scheduling

We are interested in learning how your facility manages its patient visitors.

Does your facility have one or more written Visitor Policies that set guidelines regarding patient visitation?	○ Yes ○ No

Is your Visitor Policy a facility-wide policy?

A facility-wide policy is a formal policy statement that applies to the entire healthcare facility.

○ Yes
○ No

Do any of your facility's departments have additional patient visitation guidelines, either as part of the Visitor Policy or as their own separate policy?

○ Yes
○ No
○ Don't know

In your facility, do any of the following departments have additional patient visitation guidelines?

Please select all that apply.

☐ Emergency department
☐ In-patient surgical units
☐ Intensive care units (may include neonatal intensive care)
☐ Obstetric units
☐ Outpatient units
☐ Psychiatric care/ behavioral care units
☐ None of the above

Bearing in mind your facility-wide Visitation Policy, which of the following best describes when your patients can have visitors, in general?

○ Patient visitation is allowed during regularly scheduled hospital visiting hours (such as daily between 10 am and 8 pm)
○ Patient visitation is allowed at any time except during rounds or shift changes
○ Patient visitation is allowed around the clock (also called "open" or "unrestricted" visitation)
○ Other visitation schedule(s)

Please briefly describe when your patients can have visitors.

_____

In your facility, do any of the following departments have Visitor Policies?

Please select all that apply.

☐ Emergency department
☐ In-patient surgical units
☐ Intensive care units (may include neonatal intensive care)
☐ Obstetric units
☐ Outpatient units
☐ Psychiatric care/ behavioral care units
☐ None of the above
☐ Don't know

Please estimate your facility's total security call volume in the past 12 months.

For the purpose of this survey, a security call is any type of call, page, radio transmission, etc., that required a security response.

○ Fewer than 250 calls
○ 250 calls or more, but fewer than 1,000
○ 1,000 calls or more, but fewer than 3,500 calls
○ 3,500 calls or more, but fewer than 10,000 calls
○ 10,000 calls or more, but fewer than 17,500 calls
○ 17,500 calls or more, but fewer than 30,000 calls
○ 30,000 calls or more, but fewer than 50,000 calls
○ 50,000 calls or more

In the past 12 months, what was the volume of each of the following categories of security calls?

	Fewer than 20 calls	20 calls or more, but fewer than 50 calls	50 calls or more, but fewer than 100 calls	100 calls or more, but fewer than 500 calls	500 calls or more	Don't know
Disorderly conduct	○	○	○	○	○	○
Assault (including assault and aggravated assault)	○	○	○	○	○	○
Battery	○	○	○	○	○	○
Theft	○	○	○	○	○	○
Robbery	○	○	○	○	○	○
Vandalism	○	○	○	○	○	○

Over the past 12 months, have your facility's visitor-related security issues become more challenging, remained about the same, or become less challenging?

○ More challenging
○ Remained about the same
○ Less challenging

For the next few questions, the term "open visitation" will be used to refer to open or unrestricted visitation policies that allow patient visitation around the clock.

When did your facility introduce open visitation?

○ 2018
○ 2017
○ 2016
○ 2015
○ 2014
○ Prior to 2014
○ Don't know

Although your facility has a policy of open visitation, is visitation allowed to be restricted based on any of the following?

Please select all that apply.

☐ Visitation restrictions based on the unit/ department
☐ Visitation restrictions based on visitor age
☐ Visitation restrictions during consultations or procedures
☐ Limitations on the number of visitors in a room/ area
☐ None of the above
☐ Don't know

We would like to better understand how open visitation has impacted your facility's security environment. The following questions ask about your facility's volume of total security calls as well as several specific types of security calls before open visitation was implemented.

For the 12 months prior to implementing open visitation, please estimate your facility's total security call volume.

For the purpose of this survey, a security call is any type of call, page, radio transmission, etc., that required a security response.

○ Fewer than 250 calls
○ 250 calls or more, but fewer than 1,000
○ 1,000 calls or more, but fewer than 3,500 calls
○ 3,500 calls or more, but fewer than 10,000 calls
○ 10,000 calls or more, but fewer than 17,500 calls
○ 17,500 calls or more, but fewer than 30,000 calls
○ 30,000 calls or more, but fewer than 50,000 calls
○ 50,000 calls or more
○ Don't know

In the 12 months prior to implementing open visitation, what was the volume of each of the following categories of security calls?

	Fewer than 20 calls	20 calls or more, but fewer than 50 calls	50 calls or more, but fewer than 100 calls	100 calls or more, but fewer than 500 calls	500 calls or more	Don't know
Disorderly conduct	○	○	○	○	○	○
Assault (including assault and aggravated assault)	○	○	○	○	○	○
Battery	○	○	○	○	○	○
Theft	○	○	○	○	○	○
Robbery	○	○	○	○	○	○
Vandalism	○	○	○	○	○	○

Since implementing open visitation, have your facility's visitor-related security issues become more challenging, remained about the same, or become less challenging?

○ More challenging
○ Remained about the same
○ Less challenging

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Visitor Management Program

Next, we would like to learn more about the day-to-day management of your facility's patient visitors.

Do you use an electronic visitor management system? This may be a stand-alone system, a third-party system, or one your organization developed.

○ Yes
○ No, but we plan to implement a system in the next 12 months
○ No, and we do not plan to implement a system in the next 12 months

Is your visitor management system an "off the shelf" system (such as Quantum Secure SAFE Visitor Identity Manager, AMAG Symmetry Guest, or HID EasyLobby)?

○ Yes
○ No

Which of the following are included in or required by your visitor management system for patient visitors?

Select all that apply.

☐ Sign-in or registration
☐ Collect driver's license information
☐ Collect information other than driver's license information (such as the purpose of their visit or their anticipated length of the visit)
☐ Electronic screening (such as for sex offenders or background checks)
☐ Photograph visitor
☐ Issue visitor badges, wristbands, stickers, or paper passes
☐ None of the above

In addition to your electronic visitor management system, do you utilize any of the following with patient visitors?

Select all that apply.

☐ Hand-searches of bags or packages
☐ Metal detectors
☐ Security-related signage (such as the visitation or weapons policy)
☐ Found weapons lockers
☐ Distribution of written guidelines for visitation
☐ Lists of individuals provided by patients naming individuals whom they do not wish to have visit
☐ Lists of former employees provided by human resources
☐ None of the above

In addition to patient visitors, do you also use your visitor management system with any of the following facility visitors?

Select all that apply.

☐ In-patients
☐ Out-patients
☐ Contractors
☐ Vendors
☐ Volunteers
☐ None of the above

Is your visitor management program integrated with any of your other healthcare information management systems, such as your electronic medical records system?

○ Yes
○ No

When did your organization implement its electronic visitor management system?

○ 2018
○ 2017
○ 2016
○ 2015
○ 2014
○ Prior to 2014
○ Don't know

www.projectredcap.org   REDCap

Why did your organization implement this system?

Select all that apply.

☐ To increase the perception of safety among the staff, patients, and facility
☐ To increase opportunities for screening visitors
☐ To improve the efficiency of visitor registration
☐ To improve the overall visitor experience
☐ To maintain a competitive advantage
☐ In response to an event or a set of events
☐ None of the above

Compared to the 12 months prior to implementing your visitor management program, how would you describe the rate of crime or security incidents?

○ Increased
○ Stayed about the same
○ Decreased

Why do you plan to implement this system?

Select all that apply.

☐ To increase the perception of safety among the staff, patients, and facility
☐ To increase opportunities for screening visitors
☐ To improve the efficiency of visitor registration
☐ To improve the overall visitor experience
☐ To maintain a competitive advantage
☐ In response to an event or a set of events
☐ None of the above

Which of the following do you currently use to manage your facility's patient visitors?

Select all that apply.

☐ Sign-in or registration
☐ Collect driver's license information
☐ Collect information other than driver's license information (such as the purpose of their visit or their anticipated length of the visit)
☐ Electronic screening (such as for sex offenders or background checks)
☐ Photograph visitor
☐ Issue visitor badges, wristbands, stickers, or paper passes
☐ Hand-searches of bags or packages
☐ Metal detectors
☐ Security-related signage (such as the visitation or weapons policy)
☐ Found weapons lockers
☐ Distribution of written guidelines for visitation
☐ Lists of individuals provided by patients naming individuals whom they do not wish to have visit
☐ Lists of former employees provided by human resources
☐ None of the above

Next, we would like to better understand the costs associated with implementing and maintaining your current visitor management program.

What was the approximate total cost to implement your current visitor management program?

Please include expenses related to visitor screening and access control, video surveillance, or visitor management systems and hardware as well as security personnel dedicated to visitor management.

_____

What is the approximate total cost of maintaining your current visitor management system per year?

Please include expenses related to visitor screening and access control, video surveillance, or visitor management systems and hardware as well as security personnel dedicated to visitor management.

_____

What is your annual security budget?

○ Less than $100,000
○ $100,000 or more, but less than $500,000
○ $500,000 or more, but less than $1.5 million
○ $1.5 million or more

We would like to learn a little bit about you, including your experience in healthcare safety and security.

How many years have you worked in healthcare safety/ security?

○ Less than 2 years
○ 2-4 years
○ 5-10 years
○ 11-20 years
○ More than 20 years

How many years have you worked for your current organization?

○ Less than 2 years
○ 2-4 years
○ 5-10 years
○ 11-20 years
○ More than 20 years

How many years have you held your current role?

○ Less than 2 years
○ 2-4 years
○ 5-10 years
○ 11-20 years
○ More than 20 years

What is your current age?

○ < 30 years old
○ 30-39 years old
○ 40-49 years old
○ 50-59 years old
○ ≥60 years old

What is your gender?

○ Male
○ Female

Which of the following best describes your race?

○ White
○ African-American/ Black
○ Asian, Asian-American, or Pacific Islander
○ American Indian or Alaskan Native
○ Other

Do you consider yourself Hispanic/ Latino?

○ Yes
○ No

Would you be willing to participating in a brief telephone interview regarding patient visitation management best practices?

○ Yes
○ No

All information collected in the interview will remain anonymous.

Please provide your email address so that we may contact you to participate in a telephone interview.

_____

Your email address will not be used for any other purpose.

APPENDIX B.

Initial Email Invitation:

Dear IAHSS Members,

The frequency and severity of violent and criminal incidents in healthcare settings is a growing public health concern and an industry priority. In response, some healthcare facilities have changed their visitation scheduling or visitor management programs with the goal of reducing crime.

We are asking you to take part in a brief, 15-minute survey about how your healthcare facility manages its visitors. This short survey asks questions about your facility's patient visitation scheduling policies, visitor management practices, and overall safety and security metrics.

The purpose of this study is to learn more about facilities' visitor management programs and how they influence security. This study is being funded by the IAHSS Foundation and is being conducted by the University of Texas School of Public Health. What we learn about visitor management best practices will be shared with the IAHSS Foundation and membership, but no identifying information will be shared.

Your participation in this survey is strictly voluntary. This survey is anonymous. No individual survey details will be shared or reported. We will only report information in a summary format.

If you have any questions about the survey, please contact the study's lead investigator, Dr. Sadie Conway, at 713-500-9262 or by email at sadie.conway@uth.tmc.edu.

By participating in this survey, you will help us identify which visitor management practices impact safety and security, and we will share this knowledge with you. Our goal is to work together to improve facility security and to enhance the well-being of our patients, visitors, and staff.

Thank you for choosing to participate in our brief online survey. This should take no longer than 15 minutes to complete.

To complete the survey, please click on the link provided below.

Your Anonymous Survey Link:
https://is.gd/visitor_management

Sincerely,

Constance L. Packard, CHPA
President

International Association for Healthcare Security and Safety BEAT/ Pulse Reminder:

Please take a moment to complete our short survey about how your healthcare facility manages its visitors.

If you have already submitted a survey – thank you!

If you began a survey but did not complete it, please take the time to complete it today. If you did not request a link to return to the survey when you logged out of it, please begin a new survey.

If you have not begun a survey, please do so!

Thank you for your help!

Your Anonymous Survey Link:
https://is.gd/visitor_management

APPENDIX C.

Patient Visitation Scheduling and Visitor Management:
Interview Guide for Hospital Safety and Security Professionals

[Prior to interview, review survey responses for participant. Identify applicable portions of sentences with underlined options.]

Opening Statement:

Thank you for agreeing to participate in this study. As you know, my name is Sadie Conway, and I am part of a research team from the University of Texas School of Public Health. This interview is part of a larger initiative, which is being funded by the International Association for Healthcare Security and Safety Foundation and led by the University of Texas School of Public Health.

We are conducting research to learn about the different approaches healthcare facilities use for patient visitation scheduling. We would also like to determine what visitor management practices facilities use with visitors, in general, which includes patients, patient visitors, contractors, vendors, and volunteers. As part of this study, we will try to identify how visitation scheduling and visitor management practices influence facility security.

During this interview, I'll be asking you a series of questions about your facility's approach to visitor management. Please know that the information that you share here today will not be shared with your employer. If any part of your information is included in the final reports, it will be provided anonymously, and neither your name or any identifying information nor that of your organization will appear in the reports.

The interview will take approximately 60 minutes. You are under no obligation to complete the interview and can stop at any time. We will be recording this interview so that we can review and transcribe your responses later. Is it okay with you that we record this interview?

[If YES, start recorder and begin interview; if NO, terminate]

I'd like to start by talking about your facility's approach to managing patient visitors.

I took a moment to review your responses to the online survey. I see that your facility:
[Identify applicable portion of underlined sections prior to interview.]
- Has/ does not have a facility-wide visitor policy. Is that correct?
- Allows/ does not allow departments to set their own patient visitation policies. Do I have that right?
- Allows patients to have visitors during regularly scheduled hours/ at any time except shift changes/ around the clock/ [other with description of visitation pattern]. Does that sound correct? What are the specific hours of visitation?

Great! Thanks for going over that with me.

So, in terms of your current approach:
- How would you describe the purpose of the <u>policy/ approach</u> you have in place?
- Would you say it's effective? Does it meet your current needs?
- Let's say you have an unruly patient visitor in a patient room, what does the policy say that workers should do?
  - Is that response effective?
- Do you see any gaps in your current visitation policy?
- What would you change about it, if you could?
- What are the barriers to changing it?
- If you wanted to change the current <u>policy/ approach</u>, what's the process for that?

More generally, then, in your facility:
- Who sets the policies for your organization in terms of patient visitation?
- Are departments able to customize or write their own policies?

[If YES, proceed with the following questions.]
  - Is that done independently, or does a cross-functional team generate the policy?
  - Does the new policy require approval from a higher authority?
  - To your knowledge, are workers in those departments compliant with department-specific policies?
- Is visitation ever restricted in the absence of an official policy, such as when there is a public health event, such as a widespread flu event like the recent H1N1 virus?

It's important to us to know more about how security personnel perceive your visitor management approach.
- In terms of your security personnel, what do they think of the current approach to visitor management?

[Probe to learn more about perception of impacts/ benefits.]
  - Do you think they would say it is effective?
  - Do you think they would say it is easy to execute?
  - Would they have suggestions for improvement?

We'd also like to know more about how visitors perceive your visitor management system.
- In terms of the visitors themselves, what do you think is their overall perception of the current approach to visitor management?

[Probe to learn more about perception of impacts/ benefits.]
  - Are you aware of any concerns that are consistently pointed out by visitors?
  - Other study participants have told us that visitor searches can be an issue. What is your approach to visitor searches? In other words, under what

circumstances could visitors be searched?

Next, I'd like to better understand how you manage facility visitors beyond patient visitors.
- How do your visitor management procedures differ for:

[Probe to learn more about how procedures for each are implemented/ enforced as well as impacts/ benefits for each group.]
  - In-patients vs. out-patients?
  - Contractors?
  - Vendors?
  - Volunteers?

Finally, we're interested in understanding how your facility pays for its visitor management program.
- Is it part of the security budget?
- Who and/or what department is responsible for the budget for the visitor management system?

Well, we are about out of time, so I would like to stop here with my specific questions. Is there anything else you would like to say that relates to your experience with your visitor management program that has not yet been discussed?

Thank you very much for your time and thoughtful input into our discussion today.

[Turn off the recorder.]

Are there any questions you have of me at this time?

Let me close by saying thank you for taking the time to participate in this study. We in the academic community rely on the support of safety and security professionals such as yourself to better understand what's going on in healthcare settings. Thank you so much for sharing your experiences with me. We really appreciate your time!