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Benchmarking the post-accreditation patient safety culture at King Abdulaziz University Hospital

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BACKGROUND AND OBJECTIVES: Accreditation is an internationally recognized evaluation process used to assess, promote, and guarantee efficient and effective patient care and safety. Saudi Arabia is one of the first countries in the eastern Mediterranean region to implement health care accreditation standards. This study provides valuable information pertaining to the impact of accreditation in the unique multicultural, multilingual competitive environment at King Abdulaziz University Hospital in Saudi Arabia. The objective of this study was to perform an unbiased assessment of the impact of accreditation on patient safety culture.

DESIGN AND SETTING: Cross-sectional retrospective and prospective study post-accreditation at King Abdulaziz University Hospital in Jeddah, Saudi Arabia from January 1, 2006 to December 31, 2009.

PATIENTS AND METHODS: A total of 870 registered nurses from eight different cultural backgrounds working at 22 hospital units were given electronic access to the survey. A 5-point Likert scale was used, ranging from 1 for "Strongly disagree" to 5 for "Strongly agree." The survey results were matched with the international benchmarks from the Hospital Survey on Patient Safety Culture, 2005.

RESULTS: A total of 605 nurses answered the survey questionnaire. The comparison between the percentages of nurses at King Abdulaziz University Hospital (KAUH) and those at international hospitals who answered "Agree" and "Strongly agree" showed a post-accreditation improved perception of the culture of patient safety.

CONCLUSIONS: Accreditation has an overall statistically significant improvement in the perception of the culture of patient safety.

With an increased worldwide interest in health care evaluation among governments, health care providers, and consumers, the quality of patient care provided through the health care delivery system has become an important point of focus for many countries. Initiatives to deliver quality health care have become a worldwide phenomenon. Accreditation is a learning and continuous quality-improvement process that has attracted great interest in recent years as a comprehensive approach to improve and maintain the quality of health care. However, little is known of the impact of accreditation on the quality of patient care and safety.

Health care accreditation is a method to review the quality of health care organizations using external surveyors and published standards. It is frequently compared with internal review processes in which members of an organization develop their own methods and standards to assess quality. Little evidence is available to verify which of these two forms of review has an impact on clinical outcomes and patient care. The accreditation process focuses more on risk management and patient safety rather than previous measures to ascertain the degree of compliance to standards. In 1999, the Institute of Medicine released a pivotal report on safety in the health care system, which identified systemic gaps

in patient safety systems, leading to the widespread development of new safety practices.[1,2]

King Abdulaziz University Hospital (KAUH) is one of the largest hospitals in Saudi Arabia with a total bed capacity of 878. With its size and multicultural patient population, it provides a challenge for any accreditation organization and is considered to have a valuable and unique multicultural, multi-language competitive environment for this type of study. This environment applies to all who are in direct or indirect contact with the hospital, and likewise to the society as a whole, to various degrees. The nursing staff that participated in this study were from eight different national cultural backgrounds.

The Canadian accreditation process was conducted at KAUH during 2007 and 2008. Throughout the process, the hospital was exposed to a challenging self-assessment of present standards, meeting the required standards and data collection. This included many different clinical indicators. At that time, we decided that the optimum time for assessing the impact of such a process would be 12 months post-accreditation.

The objective of this study was to evaluate the perception of the KAUH nursing staff about patient safety after the application of the Canadian accreditation process and the contributing factors that could explain any changes in the hospital's safety culture.

PATIENTS AND METHODS

The KAUH nursing staff was surveyed in an effort to assess their perception of patient safety culture after the application of the Canadian accreditation process. The survey results were compared with the international benchmarks from the Hospital Survey on Patient Safety Culture, 2005.[3] The results were statistiaclly analyzed using the z test and the significance of differences were noted.

This study followed a cross-sectional survey design using a 5-point Likert scale (ranging from 1 for "Strongly disagree" to 5 for "Strongly agree"). A total of 870 registered nurses from eight different cultural backgrounds working at 22 hospital units were given electronic access to the survey questionnaire. Nurses of Indian (44.5%) and Filipino (41.0%) origin were the most predominant among this group. The next largest group belonged to different Arabic cultures (11.73%), of which 78.6% were Saudi nationals. The remaining cultural minorities came from Western and other Asian cultures (2.74%). A total of 605 nurses answered the survey (response rate, 69.5%), and the responses of only those who answered "Agree" and "Strongly agree" to questions related to the post-accreditation items were used for statistical analysis.

The survey instrument consisted of 12 major scales and 40 subscales, rated on a 5-point Likert scale. A section on demographics, e.g., nationality, gender, age, educational qualifications, occupational category, and years of experience, was also included. Before proceeding with the study, ethical approval was obtained from the KAUH administrators and written consent from the participating nurses.

RESULTS

The results of the present study are shown in **Tables 1-5**, with each table presenting the scores of answers to the components of the study questionnaire. Despite the noted agreement between almost all the various aspects of patient safety culture at KAUH and the corresponding international benchmarks, as determined by the answers to almost all the questioned items, we found that the reported KAUH values were either higher or lower than the international benchmarks.

Table 1 shows the 4 items relating to the "Overall perception of the nursing staff about patient safety culture." The differences between overall perceptions and the international benchmarks were statistically significant, to various degrees ($P<.01$ to $P<.001$), for all items, except for the item "Our procedures and systems are good at preventing errors from happening," which was not significantly different.

Table 2 includes the perceptions of the nursing on managerial items, including three regarding the "Frequency of events reported." The overall perceptions were highly significant after accreditation in comparison with the international benchmarks for all items ($P<.001$). The items regarding "Supervisor/Manager expectations and actions promoting patient safety" show that the overall perceptions of nurses in comparison with the international benchmarks were statistically significantly different, to various degrees ($P<.05$ to $P<.001$), for all items. However, the data presented in Table 3 are relevant to the relationship between the nursing staff and the hospital management; hence the table shows 3 items relating to the "Feedback and communication about error." The perceptions of the nursing staff were highly significantly different for all items ($P<.001$) in comparison with the international benchmarks. The perceptions of nursing staff regarding the "Nonpunitive response to error," also reported in **Table 3**, show a highly significant impact of accreditation ($P<.001$) in comparison with the international benchmarks for all items, despite being highly recognized in the international benchmarks. Results related to the "Hospital management support for patient safety" (**Table 3**) also clearly show that the overall perceptions

Table 1. Overall perception of the nursing staff about patient safety culture.

Hospital survey on patient safety culture: Survey items	KAUH: strongly agree and agree n=605	%	International hospitals: strongly agree and agree n=1400	%	KAUH vs. international benchmarks *z* test
Overall perceptions of safety					
Patient safety is never sacrificed to get more work done	338	56↑	700	50	*P*<.01
Our procedures and systems are good at preventing errors from happening	412	68↑	938	67	NS
It is just by chance that more serious mistakes do not happen around here[a]	140	23↓	784	56	*P*<.001
We have patient safety problems in this unit[a]	205	34↓	742	53	*P*<.001
Average		45↓		57	*P*<.001

KAUH: King Abdulaziz University Hospital, NS: not significant. [a]Negatively worded items: For these items, the percentages of respondents who answered negatively (combined percentage of "Strongly Disagree" and "Disagree" responses or "Never" and "Rarely" responses) were calculated.

Table 2. Nursing staff perceptions of Frequency of Events Reported, Supervisor/Manager Expectations, and Actions Promoting Patient Safety.

Hospital survey on patient safety culture: Survey items	KAUH: strongly agree and agree n=605	%	International hospitals: strongly agree and agree n=1400	%	KAUH vs. international benchmarks *z* test
Frequency of events reported					
When a mistake is made, but is caught and corrected before affecting the patients; how often is this reported?	329	54↑	602	43	*P*<.001
When a mistake is made, but has no potential to harm the patient; how often is this reported?	326	54↑	588	42	*P*<.001
When a mistake is made that could harm the patient, but does not; how often is this reported?	381	63↓	994	71	*P*<.001
Average		57↑		52	*P*<.05
Supervisor/Manager expectations and actions promoting patient safety					
My supervisor/manager says a good word when he/she sees a job done according to the established patient safety procedures	352	58↓	882	63	*P*<.05
My supervisor/manager seriously considers staff suggestions for improving patient safety	366	61↓	952	68	*P*<.001
Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts[a]	315	52↓	1,008	72	*P*<.001
My supervisor/manager overlooks patient safety problems that happen over and over	198	33↓	1078	77	*P*<.001
Average		51↓		70	*P*<.001

KAUH: King Abdulaziz University Hospital. [a]Negatively worded items: For these items, the percentages of respondents who answered negatively (combined percentage of "Strongly Disagree" and "Disagree" responses or "Never" and "Rarely" responses) were calculated.

of the nursing staff were statistically significantly different, to various degrees ($P<.05$ to $P<.001$), for all items in comparison with the international benchmarks.

The results presented in **Tables 4 and 5** are more relevant to the nursing staff themselves. In **Table 4**, the perceptions of the nursing staff about the "Organizational learning and continuous improvement" were statistically significantly different, to various degrees ($P<.05$ to $P<.005$), for all items in comparison with the international benchmarks; except for the item "Mistakes have led to positive changes here," which was not significantly different, indicating an agreement on this matter. It also clearly shows that the overall perceptions of the nursing staff about the "Teamwork within units" were statistically significantly different after accreditation to various degrees ($P<.05$ to $P<.001$), for all items in comparison with the international benchmarks, except for the item "When one area in this unit gets really busy, others help out," which was not significantly different, indicating an agreement on this matter.

The results for the "Communication openness" (see **Table 4**) also clearly indicate that the overall perceptions of the nursing staff in comparison with the international benchmarks were highly significantly different after accreditation for all items ($P<.001$). The results concerning the perceptions of the nursing staff about the "Staffing" (**Table 5**) show the highly significant impact of accreditation on all items ($P<.001$). This is in complete agreement with the international bench-

Table 3. Hospital management support for nonpunitive attitude toward nursing staff.

Hospital survey on patient safety culture: Survey items	KAUH: strongly agree and agree n=605	%	International hospitals: strongly agree and agree n=1400	%	KAUH vs. international benchmarks *z* test
Feedback and communication about error					
We are given feedback about changes put into place based on event reports	242	40↓	672	48	*P*<.001
We are informed about errors that happen in this unit	404	67↑	728	52	*P*<.001
In this unit, we discuss ways to prevent errors from happening again	413	68↑	812	58	*P*<.001
Average		58↑		53	*P*<.05
Nonpunitive response to error					
Staff feels like their mistakes are held against them[a]	123	20↓	658	47	*P*<.001
When an event is reported, it feels like the person is being written up, not the problem[a]	115	19↓	658	47	*P*<.001
Staff worry that mistakes they make are recorded in their personnel files[a]	62	10↓	462	33	*P*<.001
Average		16↓		42	*P*<.001
Hospital management support for patient safety					
The hospital management provides a work climate that promotes patient safety	403	67↓	1,008	72	*P*<.05
The actions of the hospital management show that patient safety is a top priority	443	73↑	840	60	*P*<.001
The hospital management seems interested in patient safety only after an adverse event happens[a]	261	43↓	686	49	*P*<.01
Average		61↑		60	NS

KAUH: King Abdulaziz University Hospital, NS : not significant. [a]Negatively worded items: For these items, the percentages of respondents who answered negatively (combined percentage of "Strongly Disagree" and "Disagree" responses or "Never" and "Rarely" responses) were calculated. Arrows indicate whether higher or lower than international hospitals.

marks, although it was highly conceivable in the international benchmarks.

The results for "Teamwork across hospital units" are reported in **Table 5** as well and show that the overall perceptions of the nursing staff were highly significantly different for all items in comparison with the international benchmarks. Highly relevant to these results are the data for the overall perceptions of the nursing staff about the "Hospital handoffs and transitions." These data were highly significantly different for all items post-accreditation in comparison with the international benchmarks, except for the item "Important patient care information is often lost during shift changes," which was not significantly different, indicating equal perceptions about the impact of hospital handoffs and transitions on patient safety procedures in comparison with the international benchmarks.

DISCUSSION

Saudi Arabia was one of the first countries in the eastern Mediterranean region to implement health care accreditation standards; however, little or no data is reported describing its impact on the quality of patient care and patient safety culture. It is not possible to draw direct comparisons between the outcomes of such a process in different countries due to multiple variations

Table 4. Nursing staff perceptions of Organizational Learning, Teamwork within Units, and Communication Openness.

Hospital survey on patient safety culture: Survey items	KAUH: strongly agree and agree n= 605	%	International hospitals: strongly agree and agree n=1400	%	KAUH vs. international benchmarks *z* test
Organizational learning and continuous improvement					
We are actively doing things to improve patient safety	494	82↑	1,092	78	*P*<.05
Mistakes have led to positive changes here	393	65↓	952	68	NS
After we make changes to improve patient safety, we evaluate their effectiveness	448	74↑	952	68	*P*<.005
Average		74↑		71	NS
Teamwork within units					
People support one another in this unit	428	71↓	1,176	84	*P*<.001
When a lot of work needs to be done quickly, we work together as a team to accomplish the tasks	434	72↓	1,134	81	*P*<.001
In this unit, people treat each other with respect	410	68↓	1,008	72	*P*<.05
When one area in this unit gets really busy, others help out	369	61↑	826	59	NS
Average		68↓		74	*P*<.005
Communication openness					
The staff freely speaks up if they see something that may negatively affect the patient care	302	50↓	1,008	72	*P*<.001
The staff feels free to question the decisions or actions of those with more authority	164	27↓	602	43	*P*<.001
The staff is afraid to ask questions when something does not seem right[a]	188	31↓	910	65	*P*<.001
Average		36↓		60	*P*<.001

KAUH: King Abdulaziz University Hospital, NS: not significant. [a]Negatively worded items: For these items, the percentages of respondents who answered negatively (combined percentage of "Strongly Disagree" and "Disagree" responses or "Never" and "Rarely" responses) were calculated. Arrows indicate whether higher or lower than international hospitals.

in the accreditation processes, local/regional legislation, and cultural factors.

This study focused on the nursing staff because it constitutes the most critical group of personnel in determining the nature of patient outcomes. Nurses spend approximately 90% of their time caring for patients, so they are obviously in an ideal position to assess the impact of accreditation on patient safety culture as they perceive it to be post-accreditation. Accordingly, the present study included a total of 870 registered nurses, holding at least a bachelor of science degree in nursing and who had been a part of the accreditation survey at KAUH, wherein exists a unique multicultural, multilanguage competitive environment.

The nursing staff who participated in the present study came from eight different cultural backgrounds. Indian and Filipino nurses constituted the majority of this group, followed by nurses from different Arabic cultures, including Saudi nationals. Although the latter group formed a significantly lower percentage of the overall cultural mix, they might have a considerable effect on the outcome of the study as they are deeply rooted in the local society and, consequently, might have exerted dominant cultural effects. The remaining cultural minorities were represented by Western and Asian cultures other than Filipino and Indian. This unique nursing environment afforded an unprecedented opportunity for an unbiased assessment of the impact

Table 5. Nursing staff perceptions of Staffing, Teamwork Across Hospital Units, and Hospital Handoffs and Transitions.

Hospital survey on patient safety culture: Survey items	KAUH: strongly agree and agree n=605	%	International hospitals: strongly agree and agree n=1400	%	KAUH vs. international benchmarks *z* test
Staffing					
We have enough staff to handle the workload	131	22↓	560	40	*P*<.001
The staff in this unit works longer hours, which is best for the patient care*	76	13↓	756	54	*P*<.001
We work in the "crisis mode" trying to do too much, too quickly*	69	11↓	518	37	*P*<.001
Average		15↓		44	*P*<.001
Teamwork across hospital units					
Hospital units that need to work together maintain good cooperation with each other	273	45↓	756	54	*P*<.001
Hospital units work well together to provide the best care for patients	425	70↑	826	59	*P*<.001
Hospital units coordinate well with each other	309	51↓	574	41	*P*<.001
It is often unpleasant to work with the staff from other hospital units*	232	38↓	798	57	*P*<.001
Average		51↓		53	NS
Hospital handoffs and transitions					
Important patient care information is often lost during shift changes*	333	55↓	812	58	NS
Problems often occur in the exchange of information across hospital units*	169	28↓	532	38	*P*<.001
Shift changes are problematic for patients in this hospital*	352	58↑	588	42	*P*<.001
Average		47↑		46	NS

KAUH: King Abdulaziz University Hospital, NS = not significant. *Negatively worded items: For these items, the percentages of respondents who answered negatively (combined percentage of "Strongly Disagree" and "Disagree" responses or "Never" and "Rarely" responses) were calculated. Arrows indicate whether higher or lower than international hospitals.

of the Canadian accreditation process on patient safety culture as perceived by the KAUH nursing staff in comparison to the international benchmarks established by the Hospital Survey on Patient Safety Culture, 2005.[3]

Of 870 nurses, 605 answered the survey questionnaire. The comparison between the responses of nurses at KAUH and those at international hospitals to questions on various items related to patient safety culture showed an improved perception of patient safety culture post-accreditation. The evaluation of the perception of the KAUH nursing staff about patient safety culture after the implementation of the Canadian accreditation process points to an overall significant post-accreditation improvement in safety, both locally and in comparison to the international benchmarks established by the Hospital Survey on Patient Safety Culture, 2005.[3]

Of particular interest are some observations that may reflect specific factors relevant to the multicultural, multi-language environment of KAUH. The first of these observations concerns the "Overall perceptions of safety" (**Table 1**): "Our procedures and systems are good at preventing errors from happening," which was not significantly different, indicating an agreement with the international benchmarks. On the other hand, under the perception on "Organizational learning and continuous improvement" (**Table 4**), the item "Mistakes have led to positive changes here" was not significantly different from the international benchmark, reflecting a midpoint competitive conflict in a local multicultural, multi-language environment. Another relevant opinion that was not significantly different from the international benchmarks was the perception on the item under "Teamwork within units" (**Table 4**), viz., "When one area in this unit gets really busy, others help out."

The same "unsurprising" low percentages of those who answered "Strongly agree" and "Agree," both locally and internationally, appear in **Tables 3 and 5** for the perceptions of the nursing staff about "Nonpunitive response to error" and "Staffing," respectively, where the local percentages were significantly lower than the international benchmarks. Nursing staff perceptions of "Teamwork across hospital units" (**Table 5**) demonstrated that the local opinion on the item "Hospital units coordinate well with each other" did not significantly change post-accreditation. However, the overall perceptions of the nursing staff about "Hospital handoffs and transitions" (**Table 5**) were not significantly different for the item "Important patient care information is often lost during shift changes" in comparison with the international benchmarks, indicating equal perceptions on this item.

The results concerning the perceptions of nursing staff presented in **Table 2** about "Frequency of events reported" and "Supervisors/Manager expectations and actions promoting patient safety" and **Table 3** about "Feedback and communication about error" and "Hospital management support for patient safety" indicate that all were in agreement with the corresponding international benchmarks.

Since a few uncertainties persisted on the impact of the accreditation process on the quality of patient care and safety, Shortell et al[1] and Pomey et al[5] provided conceptual guidance to our study. Pomey et al[5] assessed the organizational changes in France after accreditation and argued that accreditation can promote the implementation of quality-improvement programs in hospitals and thus can lead to better outcomes. Shortell et al[1] stated that the implementation of quality-improvement programs leads to better-perceived patient outcomes. In addition, it was found that large hospitals face some difficult challenges in terms of the implementation of quality-improvement programs, underlining the importance of assessing hospital size.

Accreditation is perceived as a key component in strengthening and encouraging quality improvement and then subsequently reducing harm to patients, thereby ensuring patient safety initiatives in organizations that participate in accreditation. By participating in an accreditation process, an organization is voluntarily confirming its commitment to quality improvement and increased efficiency in the implementation of patient safety strategies. Accountability is also declared when an organization considers accreditation. This statement is in itself a powerful message to key decision makers in today's dynamic health care environment. This statement also describes how the leadership and KAUH staff felt during the process of accreditation. It became clear that the atmosphere of enthusiasm toward change and improvement may well be the key to success, whether the organization is accredited or not. During the process of our accreditation, we discovered that the true value of accreditation may lie in its ability to generate discussion and stimulate change in general, and the organizational support was certainly evident.

A supportive safety culture stimulates individuals to create the necessary platform for extending improvements in patient safety throughout the organization. To create a culture of patient safety and achieve a reduction in errors, published medical reports continually point to the role of leadership in instilling a clear, supportive culture that nurtures individual efforts[6] and is nonpunitive, just, and supportive of those who have erred.[7] However, the reports also suggest that only a few chief executive

officers of hospitals have made safety a top priority or devoted the necessary resources to patient safety initiatives.[8] At KAUH, the key to improvement post-accreditation in patient safety culture was the commitment and support of the hospital's top leadership.

The statistical analyses of the post-accreditation survey on the impact of accreditation on patient safety culture presented in this study were significantly aligned with the international benchmarks. The perceived patient safety culture at KAUH was of a good level. In conclusion, despite all the barriers created by the multicultural, multi-language environment in which we provide patient care, the Canadian accreditation process conducted at KAUH has generated a positive impact on the majority of the patient safety indicators assessed in this study.

The authors strongly recommend that for further improvement in patient outcomes, investigators should evaluate more indicators and conduct further unbiased assessments of the impact of accreditation on patient safety culture as perceived by the nursing staff. The assessments presented in this study should be repeated on a yearly basis in the hospital, using the survey format presented in this study and altered to meet any new strategic changes in our hospital environment.

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