

Improving Patient Safety and Satisfaction through ASTER Rounds: A Prospective Interventional Study in a Saudi Hospital

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ABSTRACT:

Background: Patient safety remains a fundamental priority in healthcare systems globally. Delays in nursing response times have been identified as a significant contributor to adverse events such as hospital-acquired pressure injuries (HAPI), IV infiltrations, and patient dissatisfaction. Hourly rounding, particularly when adapted to local needs, is a promising intervention to address these concerns.

Objective: This study aimed to evaluate the effectiveness of the ASTER Rounds protocol a structured, culturally tailored hourly rounding model in improving patient safety outcomes and satisfaction at ASTER Sanad Hospital in Riyadh, Saudi Arabia.

Methods: A prospective, audit-based interventional study was conducted over seven months (November 2024 to May 2025), including 350 patients across inpatient departments. The intervention comprised structured hourly rounding guided by the ASTER framework (Anticipate Needs, Sensitivity & Safety, Tact, Elimination, Repositioning). Data were collected using three validated tools: the ASTER Audit Checklist, an Hourly Rounding Compliance Form, and the Nursing PREM Survey. Clinical outcomes such as HAPI, IV infiltrations, patient complaints, and expressions of appreciation were tracked monthly.

Results: The implementation of ASTER Rounds led to a marked increase in rounding compliance from 72% to 91.5%. HAPI cases declined from 6 in November 2024 to zero by March 2025, while IV infiltrations reduced from 15 to 2 cases. Patient complaints fell from 25 to 2, whereas appreciation notes rose from 120 to 276. Nursing PREM survey scores indicated significant improvements in patient-perceived nurse responsiveness, communication, and clinical competence.

Conclusion: ASTER Rounds significantly enhanced patient safety and satisfaction outcomes, demonstrating the efficacy of structured hourly rounding in a Middle Eastern context. The intervention proved adaptable, culturally sensitive, and effective in promoting standardized nursing care.

KEYWORDS: Hourly rounding, ASTER Rounds, patient safety, pressure injuries, IV infiltration, nursing satisfaction, Saudi Arabia, quality improvement

INTRODUCTION

Patient safety has become a key component of high-quality healthcare in recent years, necessitating methodical measures to reduce harm while providing treatment (1). Patient safety, as defined by the World Health Organization (2020), is "the absence of preventable harm to a patient during the process of health care and reduction of risk of unnecessary harm." (2). This calls for proactive approaches that encourage attentiveness, responsiveness, and standard operating procedures. An analysis of incident data from the previous 12 months at our hospital has shown that adverse events like patient falls, pressure injuries acquired in the hospital, and delays in attending to patient calls occur frequently. In addition to endangering patient safety, these problems have raised stress levels among nursing staff and exacerbated patient dissatisfaction, with patient feedback data indicating a 35% dissatisfaction rate with nursing care. A crucial area for system improvement was highlighted by the analysis of occurrence reports, which showed that delayed nursing responses to patient needs were directly responsible for about 78% of reported incidents.

Hourly rounding, sometimes known as intentional or purposeful rounding, is one evidence-based tactic that has been extensively used to address such issues. By conducting routine checks at predetermined intervals, usually every two hours at night and once an hour during the day, hourly rounding is a proactive, structured, nurse-led intervention that aims to anticipate and meet patient needs (3). This method improves outcomes like pain management, toileting, repositioning, and emotional support by emphasizing patient-centered communication between medical professionals, patients, and their families (4). Hourly rounding has been shown in numerous studies to improve patient satisfaction and perceptions of nurse responsiveness while reducing the use of call lights, falls, and pressure injuries. Additionally, hourly rounding improves team accountability, lowers preventable harm, and has a positive impact on nurse-patient relationships, according to a 2023 integrative review published in *Nursing Open* (5).

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Even with this expanding corpus of research, there are still unanswered questions about the effectiveness of hourly rounding interventions in particular institutional settings, especially in areas like ours where implementation may be impacted by structural and cultural variations (6). Global rounding models share fundamental principles with the ASTER Rounds protocol, which stands for Anticipating Needs, Sensitivity and Safety, Tact, Elimination, and Repositioning. However, its practical implementation and effect on patient safety outcomes in our hospital have not been thoroughly examined. Prior studies have mostly concentrated on Western healthcare systems, with little information coming from Middle Eastern or comparable healthcare infrastructures. Furthermore, there is a dearth of empirical data evaluating the adaptability of rounding protocols to local patient expectations, workflow patterns, and institutional priorities (7).

It is imperative and timely to fill this research gap. The implementation of a structured intervention like ASTER Rounds holds promise for substantial improvement, as there is a direct correlation between the increase in patient complaints and adverse events in our facility and delayed nursing care. It provides a standardized but flexible framework for encouraging a culture of safety, improving communication, and raising nurse vigilance. Therefore, the pressing need to assess ASTER Rounds' efficacy as a patient safety initiative in our inpatient wards is what motivates this study. The study specifically intends to investigate whether the implementation of ASTER Rounds will result in quantifiable enhancements in patient safety outcomes and satisfaction levels, contributing to evidence-based nursing practice and improved healthcare delivery.

SUBJECT AND METHODS

Study Design

This study utilized a prospective, audit-based interventional design to evaluate the effectiveness of the ASTER Rounds protocol in enhancing patient safety and satisfaction. The study applied a pre-post implementation model, measuring compliance with structured hourly rounding alongside several patient-related outcome metrics.

Setting

The study was conducted at ASTER Sanad Hospital, Riyadh Saudi Arabia, a multi-specialty healthcare facility that serves a diverse inpatient population. The intervention was applied across inpatient departments over a period of seven months.

Study Duration

The data collection period extended from November 2024 to May 2025. Each month was treated as a separate audit cycle with 50 admitted patients included for ASTER Rounds implementation and follow-up.

Sample Size and Sampling

A total of 350 patients participated in the study (50 per month over seven months). A convenience sampling technique was used to include eligible participants based on their admission during each audit cycle. The sample included male, female, adult, and pediatric patients admitted for various medical or surgical reasons.

Inclusion and exclusion Criteria

The inclusion criteria for this study encompassed patients who were admitted to the hospital during the designated monthly audit cycle and remained hospitalized for a minimum of 24 hours. Eligible participants included both adult and pediatric patients, regardless of gender, who were capable of understanding or responding to nurse interactions, either independently or with the support of a caregiver.

In contrast, patients were excluded from the study if they were admitted to critical care areas such as the emergency departments (EDs) and intensive care unit (ICU), or placed in isolation where regular hourly rounding could not be consistently applied. Additional exclusion criteria included patients who were discharged or transferred within 24 hours of admission, as well as those under deep sedation or experiencing altered levels of consciousness that prevented meaningful interaction with nursing staff.

TOOLS OF DATA COLLECTION

Data was gathered using multiple tools:

ASTER Round Implementation Audit Tool

The ASTER Rounds protocol is a structured, evidence-based framework designed to guide nurses in delivering consistent, comprehensive, and patient-centered care through five core domains. The first domain, Anticipate Needs, focuses on identifying and meeting the patient's immediate personal needs while ensuring that essential items such as water, the call bell, or mobility aids are placed within the patient's reach to reduce dependency and anxiety. The second domain, Sensitivity & Safety, involves practices that uphold the patient's dignity and reinforce a safe care environment. This includes promoting independence, performing hand hygiene and using personal protective equipment (PPE), activating alarms, and assessing the room for potential hazards. Nurses are also instructed to remind patients to use the call bell if assistance is needed, inform them of the next rounding time, ask whether their needs are met, and pose the comforting question: "Is there anything I can do before I go? I have time." The third domain, Tact, centers on assessing patient comfort and pain, offering PRN (as needed) medications when appropriate, and evaluating the effectiveness of the current plan of care to ensure its continued relevance. The Elimination domain requires nurses to inquire about

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the patient's toileting needs and assist accordingly, preventing discomfort or complications due to delayed care. Finally, Repositioning addresses patient mobility and safety by ensuring the patient is comfortably and correctly positioned, repositioned as needed, and that all medical devices

To ensure the validity and reliability of the ASTER Rounds audit tool, it was reviewed by a panel of three nursing experts with advanced clinical and academic backgrounds in quality improvement and patient safety. The tool's content validity was confirmed using the Content Validity Index (CVI), achieving a CVI score of 0.91, indicating high agreement among raters. Reliability was assessed through inter-rater consistency across nurse supervisors, yielding a Cohen's kappa of 0.88, reflecting strong agreement. A pilot study was conducted over one week in October 2024 in two inpatient units not included in the main study. Ten patients were observed using the ASTER checklist during routine hourly rounding. The pilot helped refine checklist language for clarity and improve nurse documentation compliance. Feedback from nurses during this phase also led to minor procedural adjustments, such as incorporating visual reminder cards in patient rooms and reinforcing education on repositioning protocols. The finalized tool was then used for data collection throughout the main study period from November 2024 to May 2025.

Hourly Rounds Checklist

The second tool used in this study was the Hourly Rounds Checklist, a structured observational and documentation form designed based on extensive reading of books and recent literature review to ensure consistent nurse-patient engagement during hourly rounding. This checklist was adapted from established hourly rounding frameworks and aligned with evidence-based practices in patient safety and nursing care standards. It encompasses eight essential behaviors such as introducing yourself to the patient and family, accomplishing scheduled tasks, addressing the 4 P's (pain, potty, positioning, prevention of fall), addressing additional personal needs, conducting environmental assessment (bed alarms, IV pumps, hats, urinals), asking "Is there anything else I can do for you before I go? I have time.", telling each patient when you will be back, and documenting the round. to be completed and documented by nursing staff during each round, ensuring the delivery of holistic and anticipatory care (8).

Each of these steps on the checklist is linked with expected patient outcomes, such as enhanced satisfaction, reduced anxiety, improved safety, and streamlined care delivery. The checklist was piloted during the preparatory phase of the project to assess its usability, with adjustments made based on nurse feedback. Its validity was supported by expert review (Content Validity Index = 0.91), and reliability was confirmed through inter-rater agreement (Cohen's kappa = 0.88). As a real-time documentation tool, the Hourly Rounds Checklist served both as a guide for nursing practice and as a data collection instrument to evaluate adherence to rounding protocols throughout the study period.

Nursing PREM Survey (Patient-Reported Experience Measures)

The third data collection tool utilized in this study was the Nursing PREM Survey, a structured patient-reported experience measure adopted to assess the perceived quality of nursing care from the patient's perspective. This tool evaluates key domains of nurse-patient interaction, responsiveness, clinical competence, communication, and patient-centeredness. It reflects the principles of compassionate and safe nursing care and was administered upon discharge or completion of inpatient care. The survey consisted of 13 items, each phrased as a positively worded statement that patients were asked to rate based on their experiences during hospitalization. The items addressed the following nursing care behaviors: providing clear explanations about tests and treatments, answering patient questions willingly, involving the patient and family in care decisions, demonstrating courtesy and respect, performing regular hourly checks, inquiring about patient preferences, being flexible in meeting patient needs, responding promptly to calls, demonstrating technical competence in IV insertion and medication administration, performing hand hygiene, coordinating care with the wider team, and maintaining patient privacy. Each item in the survey was rated using a 5-point Likert scale, where responses were scored as follows: Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, and Strongly Disagree = 1 (9)

Description of the Intervention Program

The intervention implemented in this study was the ASTER Rounds Program, a structured, evidence-based nursing protocol designed to enhance patient safety and satisfaction through proactive and intentional hourly rounding. ASTER is an acronym representing five essential nursing care domains: Anticipate Needs, Sensitivity & Safety, Tact, Elimination, and Repositioning. These domains reflect the core responsibilities of nurses during each patient interaction and were embedded into a systematic rounding process conducted by nursing staff across inpatient units.

The program commenced with a preparatory phase during September and October 2024, which included the development of support materials such as welcome cards for patients, nurse cue cards, and bedside clocks tools aimed at reinforcing rounding awareness and consistency. Staff engagement was fostered through education and training sessions delivered by nurse leaders and educators, focusing on the purpose, standards, and proper documentation procedures of ASTER Rounds.

The structured hourly rounding was formally launched in November 2024. During the first two months (November and December 2024), data were collected to establish baseline (pre-test) performance, without enforcing strict intervention compliance, allowing observation of existing rounding practices. The post-test phase, reflecting the full implementation of the ASTER Rounds protocol, ran from January through May 2025, during which the intervention was actively applied and monitored.

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Nurses were required to perform structured hourly visits during the day and every two hours at night, following the ASTER domains and documenting each round using the ASTER Rounding Checklist. To ensure consistency, rounds were reinforced through overhead announcements, and nurses were instructed to follow eight essential rounding behaviors, including introducing themselves, checking the 4 Ps (pain, potty, positioning, prevention of falls), conducting environmental assessments, and informing patients of the next visit. A total of 50 patients were enrolled monthly, and each month functioned as a separate audit cycle with outcomes continuously monitored for improvement feedback.

Data Collection Process

Data collection was conducted prospectively over a seven-month period from November 2024 to May 2025 in various inpatient departments of ASTER Sanad Hospital. November and December 2024 served as the pre-test (baseline) phase, during which standard care practices were assessed prior to full ASTER Rounds enforcement. The post-test phase occurred from January to May 2025, representing the intervention period. Fifty patients were selected per month using a convenience sampling method, totaling 350 patients. Eligible patients were oriented to the ASTER Rounds process and received care aligned with the structured intervention. Three validated tools were used throughout data collection. In addition to tool-based data, key clinical outcome metrics such as hospital-acquired pressure injury (HAPI) rates, IV infiltration incidents, and patient complaints were extracted from the hospital’s incident reporting system and quality dashboards. Monthly quality meetings were held to review progress, validate data through head nurses and quality officers, and implement timely feedback or procedural refinements. At the conclusion of the study, a comprehensive pre-post comparative analysis was performed to assess the overall effectiveness of the ASTER Rounds program.

Statistical Analysis

Data analysis for this study was conducted using IBM SPSS Statistics Version 26.0. Descriptive and inferential statistical methods were used to evaluate the effectiveness of the ASTER Rounds intervention on patient safety and satisfaction outcomes. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize participant characteristics, monthly ASTER rounding compliance rates, and individual item responses from the Nursing PREM survey. Monthly trends in key clinical indicators such as pressure injury rates, IV infiltration incidents and patient complaints were also analyzed descriptively to visualize changes over the course of the intervention period. For pre-post comparisons, differences in clinical outcome variables and patient experience scores before and after ASTER Rounds implementation were examined. Continuous variables such as Nursing PREM scores and monthly compliance percentages were compared using paired t-tests or repeated-measures ANOVA when appropriate, to determine statistically significant improvements over time. Chi-square tests were used for categorical variables (e.g., presence or absence of pressure injuries, IV infiltration events, or complaints), comparing proportions across monthly audit cycles. Trend analysis was conducted across the six-month period to identify patterns in rounding compliance, clinical indicators, and patient satisfaction scores. Graphical representations, such as line graphs and bar charts, were generated to illustrate month-by-month improvements. A significance level (alpha) of $p < 0.05$ was set for all inferential tests. Reliability of the data collection tools (e.g., Nursing PREM survey) was previously established using Cronbach’s alpha, and content validity was confirmed by expert review as part of tool development.

Ethical Approval and Ethics Considerations

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and relevant national and institutional guidelines for research involving human subjects. Ethical approval for the implementation and evaluation of the ASTER Rounds program was obtained from the ASTER Sanad Hospital, Riyadh, Saudi Arabia (Approval Number: ARC-90.00.00, Date: 22/06/2025. Before data collection, all participating patients were informed about the nature, purpose, and procedures of the study. Participation was entirely voluntary, and patients were assured that their decision to participate or withdraw would not affect the quality of care they received. Informed consent was obtained from each participant upon admission, and confidentiality was maintained throughout the study. All data collected, whether through audit tools, checklists, or patient experience surveys, were anonymized and de-identified prior to analysis. Access to the data was restricted to the research team and securely stored in a password-protected system.

RESULTS

Table 1: Monthly Compliance with ASTER Rounds Components: Pre- and Post-Intervention Performance by Number and Percentage (Nov 2024 – May 2025)

Month	Phase	Anticipated Needs		Sensitivity & Safety		Tact		Elimination		Repositioning		Introduce ASTER Card		Provide Pillow Card		Conduct Hourly Rounds	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%

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Nov-24	Pre	34	68%	39	78%	37	74%	36	72%	21	87.5%	30	60%	18	69%	34	68%
Dec-24	Pre	36	72%	40	80%	39	78%	30	60%	13	20	29	58%	15	30%	37	74%
Feb-25	post	42	84%	40	80%	41	82%	35	70%	26	50%	35	70%	34	68%	42	84%
Mar-25	post	43	86%	43	86%	40	80%	40	80%	28	56%	38	76%	41	82%	43	86%
Apr-25	post	48	96%	43	86%	48	96%	44	88%	44	88%	37	74%	39	78%	49	98%
May-25	post	48	96%	46	92%	46	92%	42	84%	46	92%	45	90%	46	92%	47	94%

Table 1 illustrates monthly compliance with the ASTER Rounds components during the pre- and post-intervention phases from November 2024 to May 2025. In the pre-intervention period (Nov–Dec 2024), compliance rates across most domains were moderate, with several components showing notably low adherence such as “Repositioning” (20%) and “Provide Pillow Card” (30%). However, following the implementation of the intervention program, a consistent and significant improvement was observed across all domains. By May 2025, most elements including “Anticipated Needs,” “Sensitivity & Safety,” “Tact,” “Repositioning,” and “Conduct Hourly Rounds” achieved compliance levels exceeding 90%, indicating a strong positive impact of the intervention. These results suggest enhanced adherence to the ASTER Rounds protocol and improved consistency in delivering structured patient care.

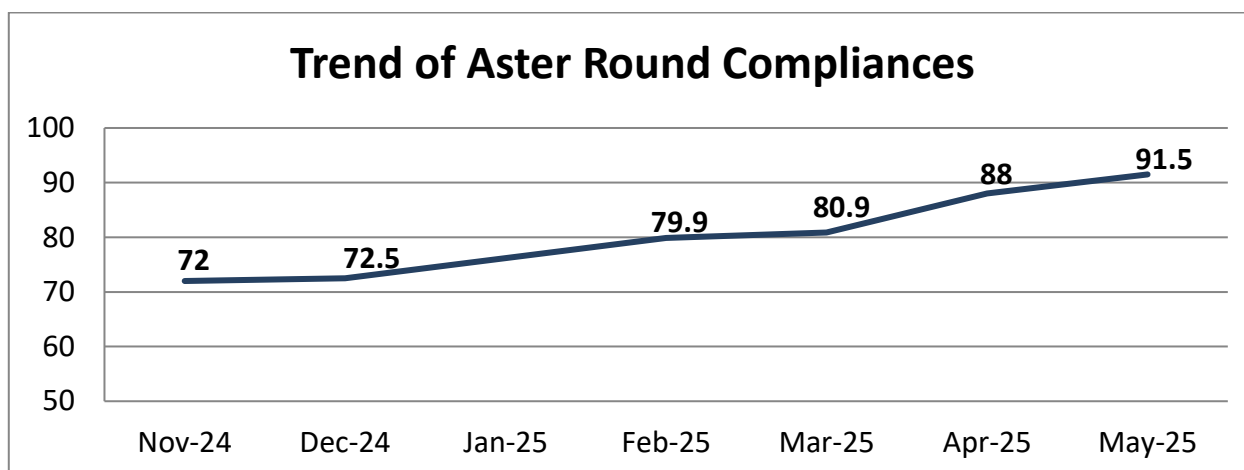


Figure (1): - Monthly Trend of ASTER Round Compliance Rates from November 2024 to May 2025

Figure one demonstrates the progressive improvement in compliance with ASTER Round protocols over a seven-month period, encompassing both pre- and post-intervention phases. Starting from a baseline compliance rate of 72% in November 2024, the trend shows a slight increase in December (72.5%), followed by a marked upward trajectory beginning in February 2025. Compliance reached 79.9% in February, then continued to rise steadily to 80.9% in March, and significantly jumped to 88% in April. By May 2025, the compliance rate peaked at 91.5%, reflecting the effectiveness of the intervention in standardizing and enhancing hourly rounding practices. This trend demonstrates sustained improvement in the implementation of the ASTER rounding model, likely contributing to better patient care delivery and staff adherence.

Table 2: Monthly Incidence of Hospital Acquired Pressure Injuries and IV Infiltrations Before and After ASTER Rounding Implementation (Nov 2024 – May 2025)

Month	HAPI (No. of Cases)	IV Infiltration (No. of Cases)
Nov-24	6	15
Dec-24	5	14
Jan-25	3	10
Feb-25	1	3
Mar-25	0	3
Apr-25	0	2
May-25	0	2

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Table 2 presents the monthly incidence of Hospital Acquired Pressure Injuries (HAPI) and IV Infiltrations before and after the implementation of the ASTER rounding program. The data demonstrate a clear downward trend in both indicators. HAPI cases decreased from 6 in November 2024 to zero by March 2025 and remained at zero through May. Similarly, IV infiltration incidents dropped from 15 in November to only 2 cases by May 2025. This consistent reduction suggests that the ASTER rounding intervention had a positive impact on enhancing patient safety and care quality by preventing common hospital-acquired complications.

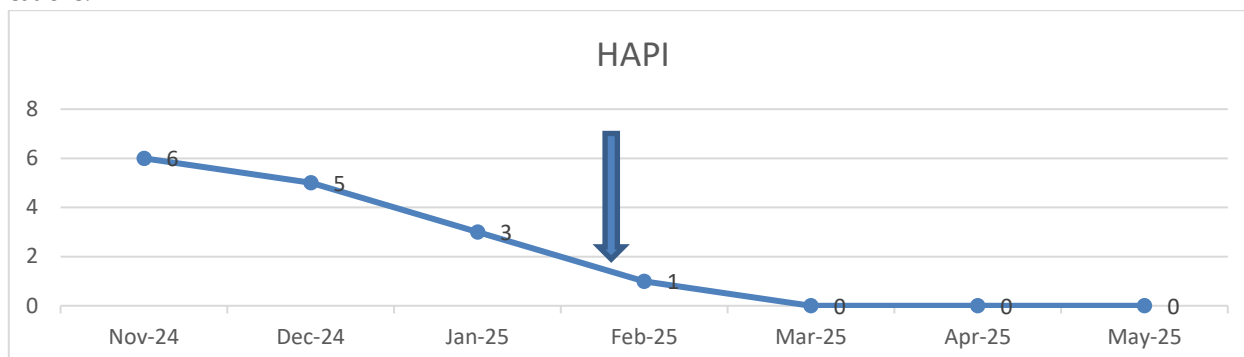


Figure (2): - Monthly Trend in Hospital Acquired Pressure Injuries (HAPI) Before and After ASTER Rounding Implementation"

Figure two demonstrates a significant downward trend in the number of Hospital Acquired Pressure Injuries (HAPI) from November 2024 to May 2025. Initially, HAPI cases were recorded at 6 in November and gradually declined to 5 in December, 3 in January, and notably dropped to 1 in February coinciding with the initiation of the ASTER rounding intervention. From March through May 2025, there were zero reported cases of HAPI, indicating the potential effectiveness of the ASTER rounding strategy in preventing pressure injuries through enhanced patient care and regular monitoring.

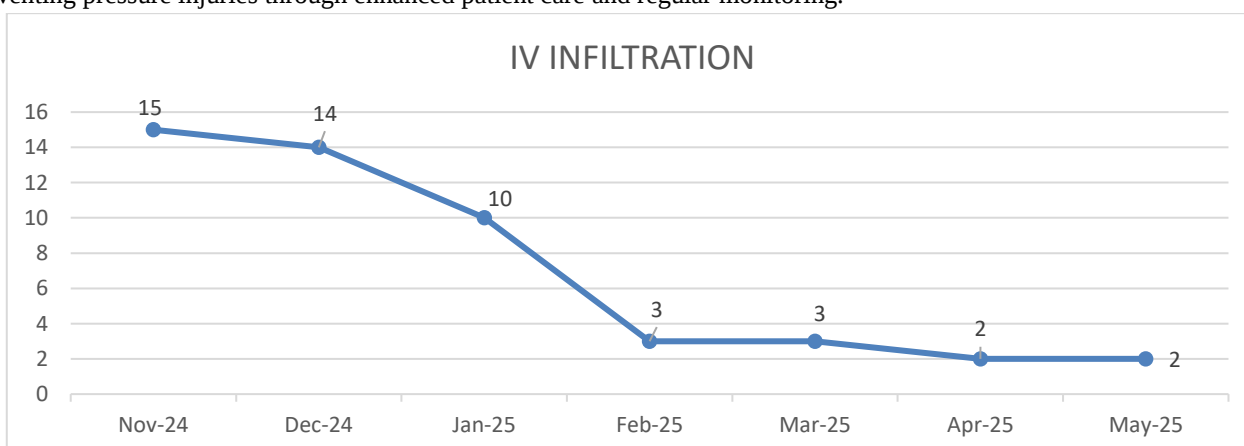


Figure (3): Monthly Trend in IV Infiltration Before and After ASTER Rounding Implementation"

Figure three shows a marked reduction in IV infiltration incidents from November 2024 to May 2025, highlighting the positive impact of the ASTER rounding program. Initially, IV infiltration cases were high, with 15 cases in November and 14 in December. However, after the introduction of the intervention in February, there was a significant decline to just 3 cases, and the trend remained consistently low through May, with only 2 cases in both April and May. This sustained improvement suggests enhanced clinical monitoring and nursing practices as a result of the ASTER rounding strategy.

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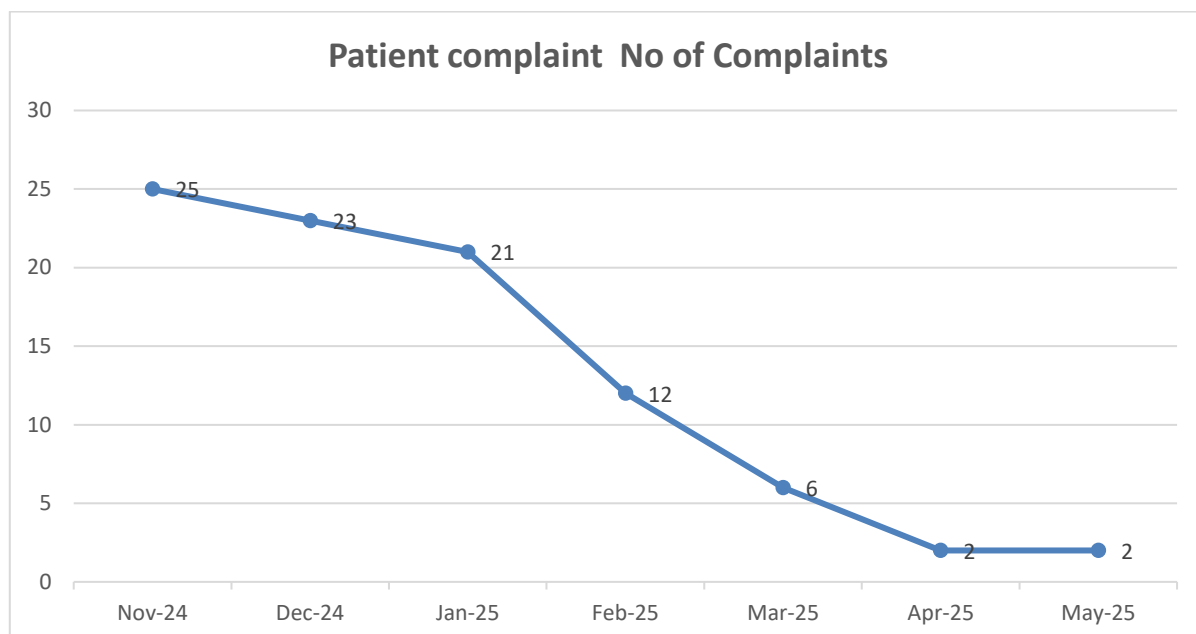


Figure (4): Monthly Trend in Patient Complaints Before and After ASTER Rounding Implementation (Nov 2024 – May 2025)

The figure demonstrates a substantial and continuous decline in patient complaints over the seven-month period surrounding the implementation of ASTER rounding. Starting with 25 complaints in November 2024, the number gradually decreased to 21 by January 2025. A sharp decline followed post-intervention in February, with complaints dropping to 12 and then to just 2 by April, where the level remained stable through May. This trend strongly indicates that the ASTER rounding program contributed to improved patient satisfaction, communication, and responsiveness, effectively addressing concerns and reducing dissatisfaction.

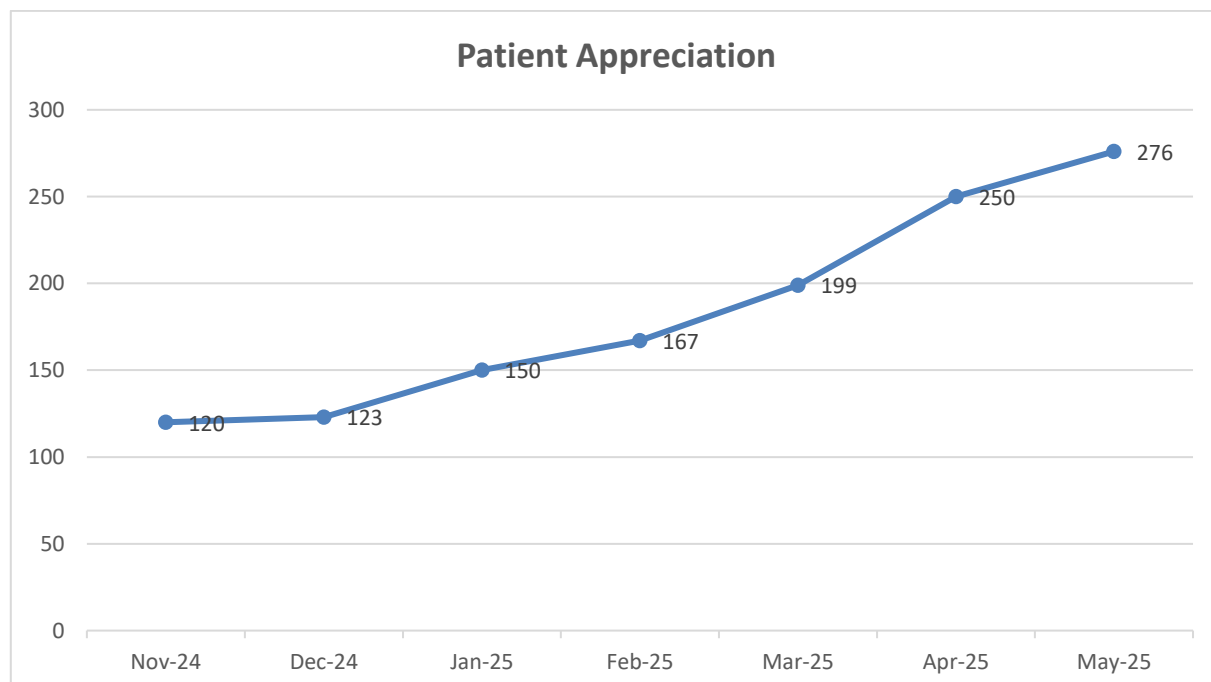


Figure (5): Monthly Trend in Patient Appreciation Before and After ASTER Rounding Implementation (Nov 2024 – May 2025)

Figure 5 illustrates a consistent upward trend in patient appreciation following the implementation of ASTER rounding. Starting with 120 instances of appreciation in November 2024, the number increased gradually each month, reaching 199 by March 2025. A more pronounced rise occurred in the subsequent months, with appreciation peaking at 276 in May 2025. This positive trend

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reflects enhanced patient satisfaction and engagement, suggesting that the ASTER rounding initiative significantly improved patient experiences and perceptions of nursing care quality.

DISCUSSION

Patient safety and quality of nursing care have become global priorities, emphasizing the need for proactive systems that mitigate preventable harm and foster a culture of responsiveness and accountability. Hourly rounding, as an evidence-based nursing strategy, has demonstrated success in improving key care outcomes such as reducing falls, enhancing communication, and strengthening nurse-patient relationships. According to Halm (2009), structured rounding improves not only patient safety indicators but also staff satisfaction and workflow efficiency by allowing nurses to anticipate and address needs proactively rather than reactively. These benefits have positioned hourly rounding as a foundational practice in many quality improvement initiatives (10).

The current study assessed the impact of ASTER Rounds a structured, culturally adapted hourly rounding protocol on patient safety indicators and satisfaction at ASTER Sanad Hospital in Riyadh, Saudi Arabia. The intervention resulted in notable improvements across all monitored domains. Compliance with ASTER Rounds increased from 72% in November 2024 to 91.5% by May 2025. Simultaneously, hospital-acquired pressure injuries (HAPI) and IV infiltration incidents declined to zero and two cases respectively. Patient complaints dropped from 25 to just 2, while expressions of appreciation rose significantly. These findings confirm the effectiveness of ASTER Rounds in strengthening patient safety, communication, and nurse responsiveness.

In line with earlier findings, the reduction in HAPI in our study is consistent with prior research showing that regular patient repositioning during rounding can effectively prevent pressure ulcers. A study by Roderman et al. (2024) demonstrated that hourly rounding reduced pressure injuries by over 50% in a medical-surgical unit, emphasizing the importance of consistent nursing assessments. Our results, with HAPI rates falling to zero post-intervention, support these findings and extend them to a Middle Eastern healthcare setting, reinforcing the universal value of structured rounding (11).

Similarly, the marked decline in IV infiltration events from 15 to 2 aligns with existing evidence. As shown in the study by Gibian et al. (2020), that intentional rounding protocols contributed to improved vigilance over IV site assessments, significantly reducing complications. The ASTER framework's emphasis on environmental safety and device checks likely contributed to this outcome, illustrating that targeted, protocol-driven interventions can mitigate routine clinical risks (12).

The decrease in patient complaints and the concurrent rise in appreciation reflect improvements in patient-centered communication and satisfaction, both widely reported outcomes of hourly rounding programs. As noted by Allari and Hamdan (2023), that hourly rounding reduced call light use and patient complaints while improving satisfaction scores. Our study's nearly tenfold reduction in complaints and doubling of appreciation reinforces these results, indicating strong patient approval of structured nurse-patient engagement. (13).

Nursing PREM survey responses further confirmed these results, showing high satisfaction with nursing courtesy, responsiveness, and technical competence. These findings mirror results by Maria and Dedi (2024), those of, who emphasized the role of hourly rounding in improving patient perceptions of attentiveness and clinical care. The consistently high agreement rates across all 13 PREM items suggest that ASTER Rounds effectively enhanced both interpersonal and procedural aspects of nursing practice (14). This research contributes novel evidence on the implementation and efficacy of a culturally tailored rounding model in a non-Western context, addressing a gap identified by Murray et al. (2024), who noted the lack of localized adaptations of patient safety interventions. By adapting the rounding protocol to suit the hospital's cultural and operational dynamics, this study demonstrates that globally recognized patient safety strategies can be successfully localized without compromising effectiveness (15)

Among the strengths of this study is its robust interventional design, structured monthly audits, and use of validated tools such as the PREM survey and ASTER Rounds checklist. The use of both qualitative (patient feedback) and quantitative data (clinical outcome trends) provided a comprehensive evaluation of the intervention's impact. Furthermore, the implementation process emphasized staff training and continuous feedback loops, contributing to the sustainability of improvements observed.

Nevertheless, the study has some limitations. It used a convenience sampling technique, which may introduce selection bias and limit generalizability. The absence of a control group prevents the isolation of ASTER Rounds as the sole contributor to improvements, as other concurrent quality initiatives may have influenced outcomes. Additionally, the relatively short study period (seven months) limits the assessment of long-term sustainability. Future studies may benefit from randomized designs and longer follow-up periods to validate and expand on these findings.

CONCLUSION

This study provides compelling evidence that the implementation of the ASTER Rounds protocol significantly improved patient safety outcomes and satisfaction within a tertiary hospital setting in Riyadh, Saudi Arabia. Structured hourly rounding, guided by the ASTER framework, led to a marked reduction in hospital-acquired pressure injuries, IV infiltration incidents, and patient complaints, while simultaneously enhancing patient appreciation and satisfaction as measured by the Nursing PREM survey. The consistent increase in compliance with rounding components from an average of 72% pre-intervention to over 91% by the end of

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the study reflects successful integration of the protocol into daily nursing routines. The zero incidence of pressure injuries and the near elimination of IV infiltrations by May 2025 underline the program's clinical effectiveness. Moreover, the dramatic decrease in patient complaints and the rise in appreciation highlight the protocol's value in strengthening nurse-patient communication and responsiveness. The findings not only validate the efficacy of ASTER Rounds in a non-Western healthcare context but also demonstrate the adaptability of structured rounding frameworks when tailored to local workflows and cultural expectations.

RECOMMENDATIONS

In light of the positive outcomes observed, it is recommended that the ASTER Rounds protocol be formally adopted as a standard practice in all inpatient units at ASTER Sanad Hospital. The structured rounding approach demonstrated strong potential in enhancing patient safety, satisfaction, and overall nursing performance. To ensure sustainability, regular monitoring through monthly audits and performance reviews should be maintained, alongside the integration of ASTER Rounds documentation into the hospital's electronic health record system to enhance compliance and streamline workflow. Moreover, the protocol's success in this setting suggests its applicability in other healthcare institutions; thus, expanding the program to additional hospitals within the network or region, with adjustments tailored to local needs, is advisable. Continuous staff education and onboarding are essential to preserve the consistency and fidelity of implementation, particularly through training modules and simulations. Patient and family engagement should also be encouraged during rounding to foster shared responsibility and reinforce transparency in care delivery. Finally, further research is warranted to evaluate the long-term sustainability and cost-effectiveness of the intervention, and to explore its impact on other clinical outcomes such as fall prevention, nurse workload, and organizational efficiency.

CONFLICT OF INTEREST

The authors have declared no conflict of interest

FUNDING STATEMENT

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ACKNOWLEDGEMENTS

We acknowledge the experts who participated in the study.

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