

Improving Nursing Documentation of STAT Medication Orders: A Quasi-Experimental Study in a Tertiary Care Hospital



Atiq Ur Rehman, Samina Iqbal Kanji, Rufina Soomro, Laila Aziz Rahimi, Mehtab Khan, Surriya Lazar, Khurram Wilson, Ali Muhammad, Anwar Ali Khan and Syed Mustansir Hussain Zaidi

Liaquat National Hospital and Medical College, Karachi, Pakistan

**Primary author: Atiq Ur Rehman Liaquat National Hospital, stadium Road, Karachi, Pakistan.*

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***Corresponding author:** Rufina Soomro Liaquat National Hospital, stadium Road. Karachi. Pakistan.

Abstract

Background: This study investigates inconsistencies in STAT medication documentation in a paper-based system, despite the timely availability of drugs, and identifies barriers to accurate record-keeping. Non-compliance with guidelines among medical and nursing teams highlights obstacles to accurate documentation.

Objective: To assess nursing documentation practices for STAT orders in a tertiary care hospital, one of the largest private healthcare facilities in Karachi, Pakistan, and evaluate the impact of an educational intervention.

Method: A quasi-experimental study was conducted to analyze nursing documentation practices before and after an educational intervention. Documentation was categorized as complete (all steps followed) or incomplete (at least one step missing).

Results: Among 200 nurses, 173 (86.5%) were diploma holders (GN), with 109 (54.5%) having ≤5 years of experience. Pre-intervention documentation accuracy was 69.1%, improving to 97% post-intervention. Completeness increased from 90% to 99%, with signature, date, and time documentation reaching 100%. Incorrect records (30.9%) were fully corrected ($p < 0.001$). GN nurses improved from 69.1% to 100%, while BScN and BSN nurses maintained high accuracy.

Conclusion: Educational interventions significantly improved STAT medication documentation accuracy in paper-based systems, benefiting healthcare organizations. Future research should explore long-term effects and broader applicability in various healthcare settings.

Keywords: STAT medication orders, nursing documentation, quasi-experimental study, paper-based systems, patient safety.

Introduction:

Healthcare delivery is akin to a well-coordinated performance, where every aspect plays a crucial role in patient care. A medication order may be verbal, written, or electronic, directing the dispensing and administration of medication for specific medical indications. , , , STAT orders, derived from the Latin “statim,” meaning “immediately,” require urgent administration in response to acute symptoms and address urgent patient needs. Unlike scheduled or PRN orders, STAT orders demand immediate documentation to ensure patient safety and compliance with legal and regulatory standards.

However, the documentation of these orders often faces challenges, such as inaccuracies or delays, posing risks to patient

safety and treatment efficacy. , , Understanding the significance of addressing these challenges, there is a critical need to examine stat order documentation practices, particularly among nursing staff. This exploration is vital for improving documentation accuracy, facilitating seamless communication, and ultimately enhancing patient care outcomes.

In the study setting, STAT medications are available in ward floor stock, eliminating delays in administration. However, a critical issue remains incomplete and inconsistent documentation. Nursing staff are required to document essential parameters—status (administered/done), date, time, and signature. Despite established guidelines, frequent deviations occur, posing risks to patient safety. , ,

Table 01: Distribution of Nurses' Qualification and Experience

Qualification	
GN	173(86.5)
BScN	18(9)
BSN	9(4.5)
Experience	
≤5 years	109(54.5)
>5 years	91(45.5)

Table 02: Status of Correct Documentation of Stat Order

	Pre intervention	Post intervention
Proper documentation of stat order	134(67)	194(97)
Status	180(90)	198(99)
Signature	193(96.5)	200(100)
Date	185(92.5)	200(100)
Time	175(87.5)	196(98)

Table 03: Pre versus Post Comparison of Stat Order

Pre-Results	Post Results		P-value
	Positive	Negative	
Positive	134(69.1)	0(0)	<0.001*
Negative	60(30.9)	6(100)	

McNemar test was applied.

*Statistically Significant at $p < 0.05$

Table 04: Association of the Experience and Qualifications of Nurses Before and After Intervention.

	Post intervention									
	Qualification						Experience			
	BScN		BSN		GN		≤5 years		≥5 years	
Pre intervention	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Positive	11(73.3)	0(0)	9(100)	0(0)	114(67.1)	0(0)	87(79.8)	0(0)	47(55.3)	0(0)
Negative	4(26.7)	3(100)	0(0)	0(0)	56(32.9)	3(100)	22(20.2)	0(0)	38(44.7)	6(100)
P-value	0.125		-		<0.001*		-		<0.001*	
	Post intervention									
	Qualification						Experience			
	BScN		BSN		GN		≤5 years		≥5 years	
Pre intervention	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Positive	11(73.3)	0(0)	9(100)	0(0)	114(67.1)	0(0)	87(79.8)	0(0)	47(55.3)	0(0)
Negative	4(26.7)	3(100)	0(0)	0(0)	56(32.9)	3(100)	22(20.2)	0(0)	38(44.7)	6(100)
P-value	0.125		-		<0.001*		-		<0.001*	

Literature reviews, though limited, demonstrate the positive impact of certain interventions on improving the STAT ordering process. For instance, flagging STAT orders and establishing guidelines and even having a dedicated phone line between pharmacy and nursing stations for STAT orders.

Given limited literature on pre-and post-intervention documentation compliance, a pilot study was conducted.

The study aims to assess STAT order nursing documentation in a tertiary care hospital, identify documentation gaps, and propose corrective measures through an educational intervention.

Objective: To evaluate the impact of an educational intervention on the completeness of STAT medication order documentation by nursing staff, following a predefined guideline (Standard Operating Procedure).

Methodology:

This quasi-experimental study was conducted at a tertiary care hospital in Karachi, Pakistan, over several months. Approval was obtained from the research ethics committee. Due to the lack of available literature regarding the pre-and post-educational intervention of stat order documentation, a pilot study of 19 subjects was conducted and based on pilot study findings (pre-intervention compliance of 57% and post-intervention 78%), a sample size of 106 STAT orders was determined using WHO software (95% confidence level, power = 90%).

Inclusion Criteria:

- Registered nursing staff from non-critical care areas.

Exclusion Criteria:

- Intensive care units and emergency departments.
- Non-registered nursing staff, including aides and technicians.

A STAT order was defined as “an urgent medication order requiring immediate administration. The documentation was evaluated based on adherence to four key parameters: status, date, time, and nurse’s signature. Data was collected from patient treatment sheets before and after the intervention using a standardized tool. SPSS version 25 was used for analysis, with McNemar’s test applied to compare pre- and post-intervention results (p -value ≤ 0.05).

Results:

Among the 200 participating nurses, 86.5% were General Nurses (GN), 9% held a Bachelor of Science in Nursing (BScN), and 4.5% had a BSN degree. Regarding experience, 54.5% had ≤ 5 years of experience, while 45.5% had > 5 years.

Post-intervention, documentation accuracy significantly improved from 67% to 97%. Status documentation improved

from 90% to 99%, signatures from 96.5% to 100%, dates from 92.5% to 100%, and times from 87.5% to 98% ($p < 0.001$).

GN nurses improved from 67.1% to 100% ($p < 0.001$), while BScN and BSN nurses showed high initial compliance with minor increases. Nurses with ≤ 5 years of experience improved from 79.8% to 100%, and those with > 5 years from 55.3% to 100% ($p < 0.001$).

Discussion:

The importance of structured documentation and training is well established, and our findings align with previous research emphasizing structured training in improving medication safety Abdelaziz et al [1] and Maulana emphasized enhanced documentation along with incident reporting increases patient safety. Similar improvement has been observed with automated dispensing machines and computerized order systems Shulman et al [2], yet this study demonstrates that training alone can significantly improve compliance in paper-based systems improving accuracy from 67% to 97%.[3]

Verbal STAT orders remain a source of error and potential to compromise patient safety and their complexity increases the risk of miscommunication but this study shows that standardization mitigates risks. Although electronic documentation has shown some advantages [4], but there are challenges in adaptation and training, and one has to decide which system is better. Our study demonstrates that with proper training paper-based documentation can achieve a comparable level of accuracy [5]. Our results also align with Ross [6], who emphasized the role of clear standing orders in reducing documentation errors.

Our study also supports the need for clear protocols for “as-needed” or urgent medication documentation. Gordon identified risks related to PRN orders, and emphasized the importance of precise opioid documentation [7], reflects similar to our structured SOP-based format. Sarki et al highlighted that standard protocols can reduce insulin-related errors through systematic documentation that is supported our study. Reduced turnaround time for STAT medications improves therapeutic outcomes and staff satisfaction findings echoes with our findings [8]. Patients’ safety and quality is important and drug administration protocols should be practiced and monitored. For this proper guideline should be implemented to improve nursing documentation Continuous monitoring is critical, as compliance improves with real-time data tracking. A principle our study embraced of increasing patient safety by proper documentation and monitoring of STAT orders [9],

While electronic documentation may be an ideal long-term goal, this research highlights the effectiveness of structured training within resource-limited, paper-based systems. [10] Future research should examine the sustainability of these improvements across multiple institutions and investigate the transition to electronic documentation to further optimize compliance.

Conclusion & Recommendations:

A structured educational intervention significantly improved STAT medication documentation, with compliance rising from 67% to 97%. Healthcare institutions relying on paper-based documentation should implement similar training strategies to enhance accuracy and patient safety.

Future Research:

- Long-term impact analysis of educational interventions.
- Feasibility of transitioning from paper-based to electronic documentation.

Ethical Considerations:

- Participant confidentiality was maintained.
- Informed consent was obtained from all nursing staff.
- Data was securely stored and accessible only to authorized researchers.

Significance of the Study: This study contributes to improving nursing documentation practices, ultimately enhancing patient care, legal compliance, and communication within healthcare teams.

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