Streamlining Nursing Audit Process Through Digital Transformation



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Introduction

Nursing audit is an integral part of healthcare quality management. It ensures compliance with standards, identifies areas for improvement, and provides safe, effective, and patient-centered care. It involves the systematic collection, analysis, and interpretation of data to inform decision-making and drive positive changes in nursing care delivery.

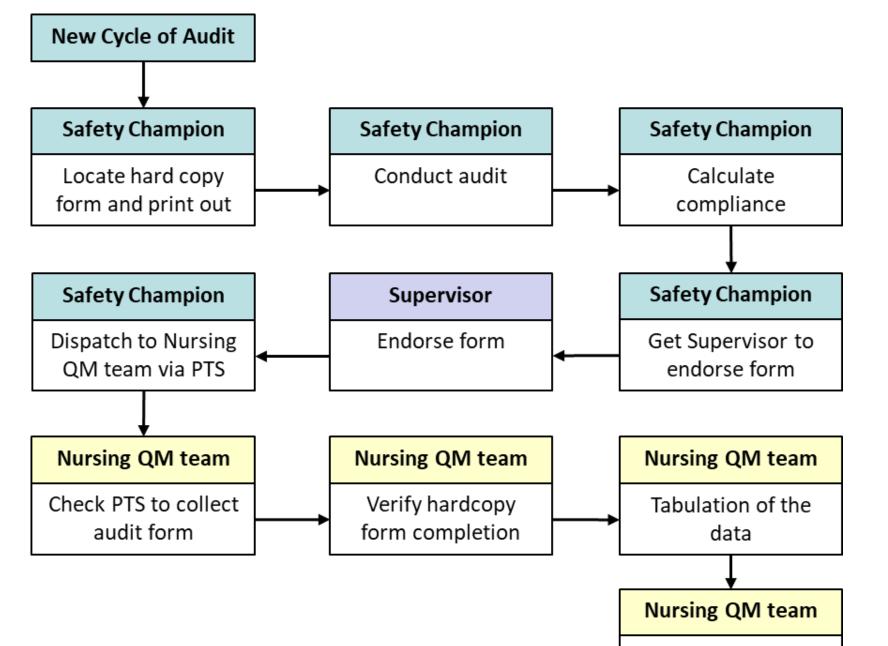


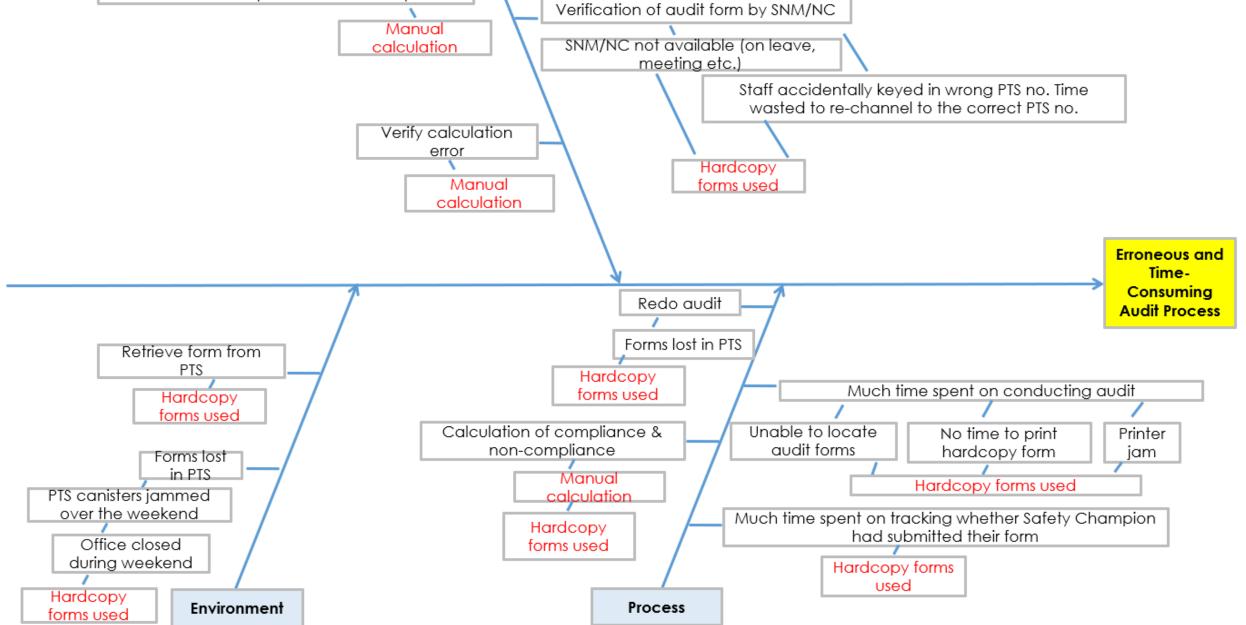
A Cause-and-Effect diagram was created to identify the steps in the workflow:

	People
Calculation of compliance & non-compl	iance

Internal Nursing Audits are conducted monthly by the unit/department Safety Champions, and the Nursing QM Team provides data validation and quality assessment to improve data abstraction and reliability.

The data are then used by Nursing Supervisors to monitor, evaluate, and improve the quality and appropriateness of nursing care provided. Nursing Supervisors communicate quality results and improvement strategies to all levels of staff through departmental meetings. The chart below shows the previous workflow.





Audit forms were reviewed and translated into FormSG. After creating the forms in FormSG, a pilot was conducted for two of the audit categories. Form validation and feedback were gathered from the Safety Champions and Nursing Supervisors. Following the successful pilot, most nursing audit forms were converted to FormSG.

Audit data is collected via FormSG to streamline the audit process and eliminate errors in data collection. This is achieved by eliminating and replacing the following steps in the workflow:

- 1. Eliminate hardcopy forms and replace with FormSG.
- 2. Replace obtaining physical acknowledgements from Nursing Supervisors with acknowledgement of accurate data via email from Nursing QM team.

File hardcopy forms

Previously, 80–90 hardcopy audit forms were filled out manually by the Safety Champions. Upon completion, the forms were sent to the Nursing QM Team for collation and verification of the data. The data were manually collated, which was time-consuming and prone to errors due to manual collation and calculation. Additionally, the hardcopy forms required physical storage space, which was limited. The previous audit cycle took about 110 minutes for each unit/department and had an average error rate of up to 20% during manual calculation, as shown in *Table 1* and *Table 2*. The aim of the project was to streamline the internal nursing audits data collection process and reduce error rates by 100% over six months.

<u>Table 1 – Audit Type</u>

Audit Type	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Average Error Rate
Fall	23%	14%	8%	NA	NA	NA	0%	11%
IV Medication	0%	0%	0%	0%	6%	0%	0%	1%
Oral Medication	0%	0%	0%	0%	6%	0%	0%	1%
Phlebitis	18%	31%	28%	4%	14%	9%	0%	15%
Pressure Injury	21%	20%	0%	13%	47%	36%	14%	22%
CSSU/OT	0%	0%	0%	0%	0%	0%	0%	0%
Average Error Rate	10%	11%	6%	4%	15%	9%	2%	8%

Sample Hardcopy Form	

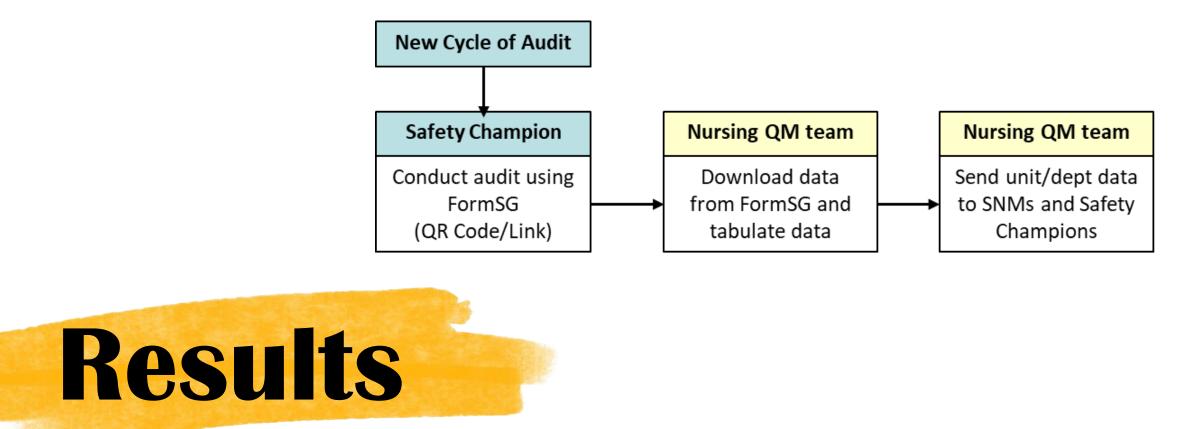
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Date of insertion documented Date indicated at insertion s

Restricted, Sensitive (Normal) <u>NURSING AUDIT</u> PHLEBITIS PREVENTION	Doc / Ver No: NU-FM-318/5 Date Revised: 12 Sep 2022

								 			 		 	<u> </u>
5	Administration set replaced within 24 hours	Observation												
6	Cannula inserted using aseptic technique	Observation												
7	Cannula accessed using aseptic technique	Observation												
	% Compliance =			Nun	nber of	Yes			x 10	= 00		%		
			т	otal Nur	nber of	Yes + No	D				 			
	Ward Audited:				Na	me of A	uditor :					Date :		
	Acknowledgement By:													

- 3. Eliminate the need for manual transcribing of data into excel by Nursing QM team and replace it with data collation via FormSG.
- 4. Eliminate the need of filing hardcopy forms.
- 5. Embed formulas in the excel file for auto calculation.



A run chart was created to trend the error rate for each audit cycle for six months before and after the implementation of FormSG. After the implementation of the FormSG audit forms in January 2023, the error rate was reduced to 0%. This reduction continued in the subsequent months following the implementation.

Post-Implementation Error Rate

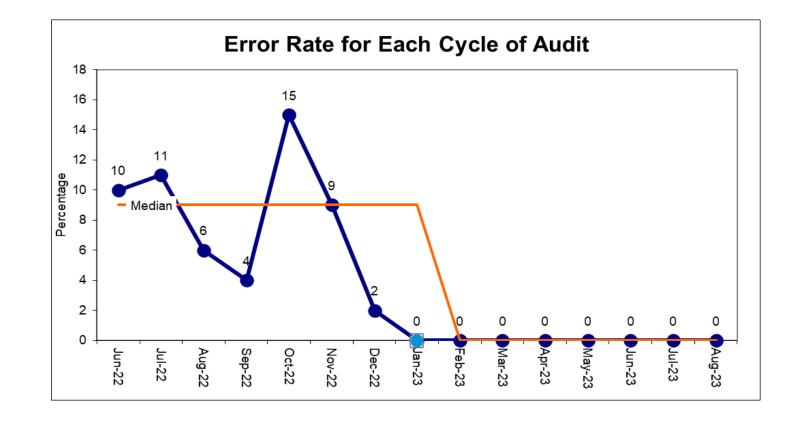
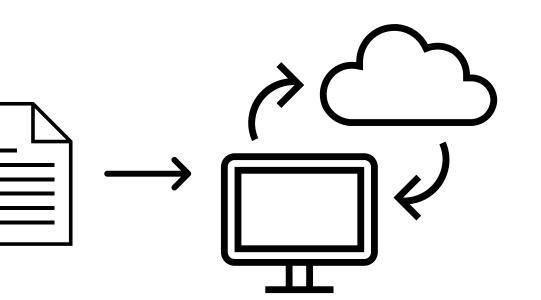


Table 2 – Pre and Post Implementation Comparison

Audit Process	Hardcopy (mins)	FormSG (mins)			
Audit Preparation (Locate & Print Hardcopy Form)	10	1			
Conduct Audit	50	50			
Verification & Acknowledge by Supervisor	5	1			
Dispatch to Nursing QM Team	5	0			
Check PTS to Collect Audit Forms	5	0			
Verify Hardcopy Completion	15	5			
Calculate and enter audit data into Excel	15	5			
Filing of Hardcopy Forms	5	0			
Total time (minutes)	110	62			
Total time (hours) - Hardcopy / Total time savings (hours) - FormSG	1.83	0.80			
Average of 7 indicators per department	12.83	5.60			
Total of 49 departments	628.83	274.40			
Time Spent (hours) / Year	7546	3292.8			
FTE Savings: 1940.4 hours	3.89	1.70			
Savings (RN Average Income: S\$60420)	\$ 234,966.67	\$ 102,530.9			





The total time taken for the entire audit process per unit/department was reduced by 44% with the implementation of FormSG. This resulted in 2.19 FTE savings, approximately S\$130,000 annually. There was also positive feedback from the stakeholders involved. Resources required for hard copy audits (i.e., paper, ink for printing, files, storage space) and the time taken for filing were also eliminated.



The adoption of digital tools for the internal Nursing Audits significantly enhances data accuracy and operational efficiency. Through FormSG data collation, the Nursing QM team was also able to perform deeper analysis of data with the time saved from manual data collation.