

# “Effectiveness Of Structured Teaching Program On Prevention Of Surgical Site Infections Among Nurses At Apollo Speciality Hospitals Madurai”

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## **Abstract:**

Surgical site infections (SSIs) are a significant cause of morbidity, prolonged hospital stays, and increased healthcare costs. Nurses, as frontline healthcare providers, play a critical role in preventing SSIs through their direct involvement in patient care, hygiene practices, and infection control protocols. This paper explores the essential strategies and interventions that nurses can employ to prevent SSIs, focusing on preoperative, intraoperative, and postoperative care phases. Key prevention measures include adherence to hand hygiene, proper sterile technique during surgical procedures, appropriate antimicrobial prophylaxis, patient education, and surveillance for early signs of infection. The paper also highlights the importance of training, ongoing education, and evidence-based practices to ensure the consistent application of these prevention strategies. Furthermore, the role of nurses in collaboration with the multidisciplinary healthcare team is emphasized to ensure comprehensive patient care. By fostering a culture of infection prevention, nurses can significantly reduce the incidence of SSIs, improving patient outcomes and reducing healthcare costs. This abstract aims to provide a comprehensive overview of the multifaceted approach needed for effective SSI prevention, underscoring the pivotal role nurses play in achieving optimal patient safety and care quality.

**Background:** Surgical site infections (SSIs) are a leading cause of postoperative complications, affecting millions of patients worldwide. They are associated with increased morbidity, longer hospital stays, higher healthcare costs, and in some cases, patient mortality. SSIs can arise due to multiple factors, including microbial contamination during surgery, inadequate infection control practices, or patient-related risk factors such as poor nutrition, diabetes, or immunosuppression. Despite advances in surgical techniques and wound care, SSIs remain a persistent challenge within healthcare systems.

Nurses, as integral members of the surgical team, play a pivotal role in infection prevention. Their responsibilities extend across the continuum of care—from preoperative assessments to postoperative monitoring—and their actions directly impact infection control outcomes. Proper hygiene, wound care, aseptic techniques, and adherence to established infection prevention protocols are essential elements of their role in reducing the incidence of SSIs. Furthermore, nurses serve as educators, ensuring patients understand the importance of personal hygiene, post-surgical care, and the signs of potential infections.

Previous studies indicate that adherence to infection prevention guidelines among healthcare providers, including nurses, can significantly reduce the occurrence of SSIs. However, challenges remain, including gaps in training, inconsistent practices, and lack of reinforcement of infection control standards. A thorough understanding of the role nurses play in preventing SSIs, along with strategies to enhance their training and implementation of evidence-based practices, is crucial for improving patient outcomes.

**Materials and Methods:** This descriptive study was conducted among 150 staff nurses in Apollo Specialty Hospital, Madurai. Convenience sampling techniques was used to select the required staff. The data was collected through Self structured questionnaires and competency check list to assess the nurses knowledge and observe the competency check list for assess nurses practical skills.

**Results:** The post test mean score of knowledge was 34.47 with SD 1.96. In pre test level of practice regarding prevention of Surgical site infection among staff nurses were assessed majority 28 (90%) had good practice and 2(6%) had moderate guideline practice among staff nurses. In the post test practice 22(75%) had excellent practice and 8(26%) had good practice in Prevention techniques among staff nurses. Pre test the mean 34.47 with SD 1.96. In post test mean 38.93 with SD0.474.

**Keywords:** Surgical site infections, nurses, prevention, infection control, patient safety, evidence-based practice, healthcare team collaboration.

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## I. Methods

### Data Collection Tool

A study to assess the effectiveness of demonstration on knowledge and practice regarding Prevention of Surgical site infection among staff nurses. The study will be conducted by Apollo Speciality hospital, Madurai. We will select 150 staff nurses. The training involved a combination of different type of teaching methods like lecture cum demonstration.

Knowledge related pre and post test containing 20 questions. Each caring 4 options each question have one mark and maximum score is 20.

Practice related pre and post training contain 20 questions. Each questions have one mark maximum score is 20. Scoring methods of pre and post practice related training programme such as,

- 0-Not Followed
- 1-Parially Compliance
- 2-Full Compliance

**Section A** – Description of the demographic variables.

**Section B - Assessment** of knowledge and practice regarding various techniques regarding prevention of SSI among staff nurses working in Apollo specialty hospital, Madurai.

**Section C** - Effectiveness of Demonstration on techniques, knowledge, practice among staff nurses

**Section D** –Relationship between knowledge and practice regarding techniques among staff nurses.

**Procedure Methodology:** Ethical commission permission and formal consents from each respondent were obtained to conduct the study. Based on the inclusion criteria, convenience sampling was used to obtain the sample. Using the prepare tool the study was conducted in Apollo Speciality Hospital, Madurai among staff nurses.

### Data Analysis – Using descriptive and inferential statistic.

It consists of 20 Knowledge related MCQs and 20competency check lists.

## II. Result

### Frequency And Percentage Distribution Of Demographic Data Of The Staff

N=150

SAMPLE CHARACTERISTICS	FREQUENCY	PERCENTAGE (%)
AGE(In Years)		
21- 23	115	76.66
23-25	20	13.33
Above 25	15	10.00
GENDER		
Male		
Female	150	100
EDUCATIONAL STATUS		
GNM	30	20.00
B.Sc Nursing/Post basic B.Sc.(N)	120	80.00
WORKING AREA		
Critical Care Area	95	63.33
Ward	55	36.67
EXPERIENCE IN PRESESNT WORKING AREA		
Less than 6 month		
6 month to 1 year	55	36.67
1 year to 2 year	55	36.67
More than 2 year	20	13.33
	20	13.33

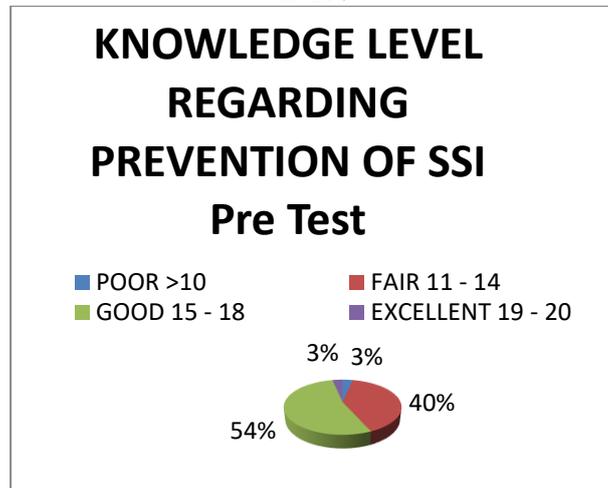
A nurses age group of 115 (70% ) were in the age group of 21-23 years. 20(10%) were in the age group of 23-25 years.15(5%) were in the age group of above 25 years of age. Regarding sex of the nurses majority 100% were female. The majority of the nurses completed in degree of nursing 120 (80%), 30(20%) were in diploma in nursing. The majority of the nurses were in critical care area 95(60%), 55(40%) nurses were in ward. The data showed Majority of the nurses were in 55(50%) less than 6 month experience, and 55 (50%) one year experience. Majority of the nurses were in 1 to 2 year 20(20%) and more than 2 year 20(20%).

**Section I: Findings related to Pre test Knowledge score of staff regarding Prevention of surgical site infection:**

					no=150
Variable	Range	Mean	median	Standard Deviation	
Knowledge	10-20	14.3	14	2.54	

The Knowledge score obtained by the staff Range From 10-20 out of the total score of 20 with a mean of 14.3and median 14.the standard deviation calculated was 2.54 which shows mild dispersion of knowledge score

**Graph 1: Chart and Graph shows the pre test assessment of staffs on knowledge of prevention of surgical site infection .**  
n=150



KNOWLEDGE LEVEL REGARDING prevention of SSI		
Pre Test		
SCALE	CRITERIA	PERCENTAGE
POOR	>10	3.40%
FAIR	11 - 14	40%
GOOD	15 - 18	53.20%
EXCELLENT	19 - 20	3.40%

The result depicted that of the pretest shows 3.4 % of excellent Knowledge, 53.2% with good knowledge, 40% of fair Knowledge and 3.4 % in poor Category

**Section II: Findings related to Post test Knowledge score of staff regarding Prevention of surgical site Infection :**

					No=150
Variable	Range	Mean	Median	Standard Deviation	
Knowledge	17-20	19.2	19.5	0.929	

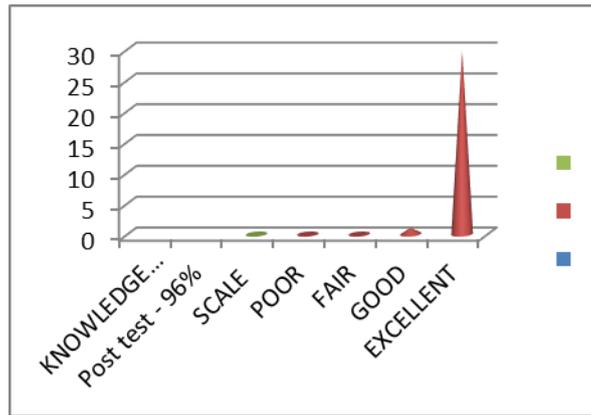
The Knowledge score obtained by the staff Range From 17-20 out of the total score of 20 with a mean of 19.2and median 19.5.the standard deviation calculated was 0.929 which shows very mild dispersion of knowledge score.

The findings clearly shows that there is a remarked change in knowledge of staffs regarding Prevention of SSI after a structured teaching program conducted.

**Graph 2: Chart and Graph shows the post test assessment of staffs on knowledge regarding Prevention of surgical site infection**  
n=150

Knowledge Level Regarding Prevention Of SSI		
Post Test		
Scale	Criteria	Percentage
Poor	>10	
Fair	11 - 14	
Good	15 - 18	5.00%

Excellent	19 - 20	95%
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The result depicted that of the post test shows 95% of excellent Knowledge 5% with good knowledge on knowledge regarding Prevention of SSI

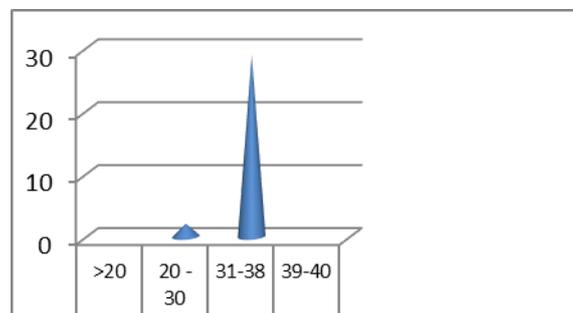
**Section III: Findings related to Pre test Knowledge score of staff regarding practice in prevention of SSI:**

Variable	Range	Mean	Median	Standard Deviation	No=150
Knowledge	30-40	34.47	34.5	1.96	

The Knowledge score obtained by the staff Range From 30-40 out of the total score of 40 with a mean of 34.47and median 34.5.the standard deviation calculated was 1.96 which shows mild dispersion of knowledge score

**Graph 3: Chart and Graph shows the pre test assessment of staffs on knowledge regarding Practices in prevention of SSI.**

Knowledge Of Practices In Prevention Of SSI			
Pre Test			
Scale	Criteria	No Of Staffs	Percentage
Poor	>20		
Fair	20 - 30	10	6.66%
Good	31-38	140	93.33%
Excellent	39-40		



The result depicted that of the pretest shows 93.33% with good knowledge ,6.66 % of fair Knowledge on practices in prevention of SSI.

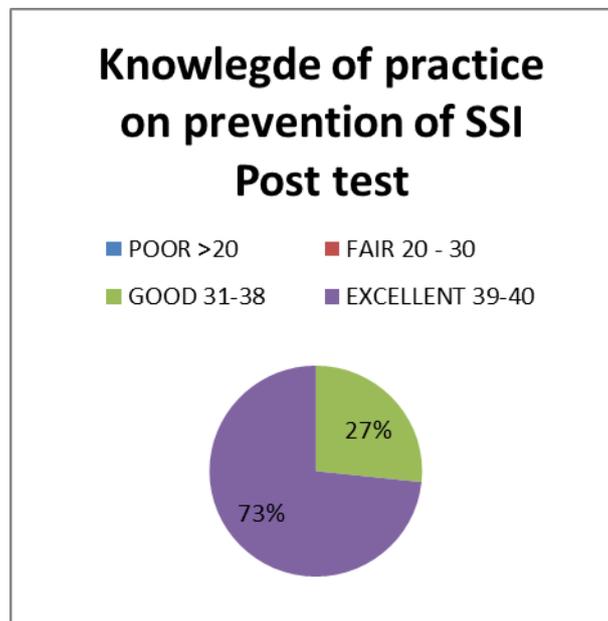
**Section IV: Findings related to Post test Knowledge score of staff regarding Prevention of SSI Practices**

Variable	Range	Mean	Median	Standard Deviation	No=150
Knowledge	38-40	38.93	39	0.474	

The Knowledge score obtained by the staff Range From 38-40 out of the total score of 40 with a mean of 38.93and median 39.the standard deviation calculated was 0.474 which shows very less dispersion of knowledge score when compared with pre test analysis.

**Graph 4 : Chart and Graph shows the posttest assessment of staffs on knowledge regarding Prevention of SSI Practices .**

Knowlegde Of Practice On Prevention Of SSI			
Post Test			
Scale	Criteria	No Of Staffs	Percentage
Poor	>20		
Fair	20 - 30		
Good	31-38	40	26.66%
Excellent	39-40	110	73%



The result depicted that of the post test 73.44 % with excellent knowledge, 26.66% with good knowledge on prevention of SSI practices.

**Pre-Findings Related To Knowledge On Various Techniques Among Staff Nurses In Prevention Of Ssi.**

In pretest level of knowledge regarding prevention of SSI among staff nurses were assessed majority 19-20(3%) had excellent, and 15-18(60%) had good and 11-14(40%) had fair, less than (3%)had poor knowledge, in post test 19-20(95%) had excellent, and 15 -18(5%) had good knowledge on Prevention of SSI .pre test the mean score of knowledge was 19.12 with SD 0. 929.The posttest mean score of knowledge was 34.47 with SD 1.96.

**Post Findings Related To Practice On Various Techniques Among Staff Nurses In Prevention Of Ssi**

In pre test level of practice regarding Prevention of SSI among staff nurses were assessed majority 140 (90%) had good practice and 10 (6%) had moderate practice regarding the practices. In the post test practice 22(75%) had excellent practice and 8(26%) had good practice on techniques in prevention of SSI among staff nurses. Pre test the mean 34.47 with SD 1.96.In post test mean 38.93 with SD0.474.

**III. Discussion**

The study intends to assess the effectiveness of structured teaching program on prevention of SSI among staff nurses. The knowledge related structured questionnaire and practice related competency check list was used to collect the data. The investigate used to descriptive and inferential statistic. Standard deviation used to test the difference between knowledge and practice related pre and post test.

**IV. Conclusion**

The risk and complications of surgical site infection could endanger the patient’s life. So in the clinical area nurses must be knowledgeable and competent in every aspect in prevention of SSI. The findings of the present study concluded majority of the staffs had excellent knowledge and majority of the staffs had good practical competent skills regarding of prevention of SSI. The knowledge related self-structured questionnaire and related training significantly increase the staff Nurses knowledge and practical skills. Therefore, further

interventions and re-interventions are highly required so as to adhere to the standardized process and prevent the surgical site infection.

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