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## **Confident to Cannulate: Educating the Nurses to be Confident in Cannulation**

**Capt. (Dr) Usha Banerjee<sup>1</sup>, Ms. Sundus Nishat<sup>2</sup>**

<sup>1</sup>Group Director Nursing, Apollo Hospitals Group, New Delhi (India)

<sup>2</sup>Administrative Assistant, Indraprastha Apollo Hospital, New Delhi (India)

**Abstract:** With respect to the importance of patient safety as a key component of healthcare, this study aims to identify competent nurses who can very well manage IV Cannulation insertion and its maintenance in each shift to enhance patient quality care and reduce the number of patient complaints caused by IV Cannulation by providing hands-on training to the nurses with simulation techniques. In view of the increased number of complaints, the campaign named “Confident to Cannulate” began which focused more on the complainant areas. A total of 1150 nurses were trained and were included in both pre and post-training practice check. Considering the study findings, it was observed that the campaign aids in reducing the number of patient complaints caused by IV Cannulation, the cannulation skills of Nurses improved from 20% to 87%, and also it helps in reducing phlebitis incidents in the hospital. Three nurses were found more efficient in IV cannulation and these three were selected and will be added to the IV Cannulation team.

**Keywords:** Patient Complaints, IV Cannulation, Hands-on training, Campaign and Intavenous Nurses.

### **Introduction**

A key component of nursing learning is learning practical nursing skills. However, many newly certified nurse’s lack the practical skill and competency needed to ensure safe patient care. Learning and mastering the invasive technique of intravenous (IV) cannulation is particularly challenging<sup>1</sup>. A tube is attached to a patient's vein during the insertion of an intravenous (IV) cannula so that infusions can be delivered directly into the patient's bloodstream<sup>2</sup>. To ensure the quality of patient care, registered nurses must be competent in performing practical skills. Up to 70 to 80 percent of hospitalized patients require medication supplied through a venous cannula, making IV cannulation one of the most commonly performed invasive techniques by nurses working in hospitals. Particularly the technical aspect of cannula insertion: how to place the cannula in the vein—IV cannulations are regarded as the skill that is hardest to learn. In order to complete other components of the skill and carry it out satisfactorily, it is crucial to master the technical aspect of IV cannulations. Concerns have been raised pertaining to the potential for patient damage brought on by registered nurses who lack skill competency. Phlebitis is an example which is a condition that results from improper IV cannulations.

Indraprastha Apollo Hospital is a tertiary care hospital with a complex setup covering various super specialties to provide the best in healthcare. The hospital is having 700 plus beds dealing with increasingly



complex and acute problems coupled with multiple co-morbidities. Indraprastha Apollo Hospitals have an IV team in place but due to the high demand of patients and increased number of patient complaints, it was decided to select more number of staff in the IV team to enhance the quality and delivery of patient care. Nearly 40% of the patients complained about a lack of nursing skills in IV Cannulation. The campaign was initiated to identify competent nurses who can very well manage IV Cannulation insertion and its maintenance in each shift to enhance the patient quality of care and reduce the number of patient complaints caused by IV Cannulation by providing hands-on training to the nurses with simulation techniques.

## II. Methodology

In view of the increased number of patient complaints from July 2021 to Jan 2022 regarding lack of nursing skills on intravenous Cannulation, the campaign named “Confident to Cannulate” began on 18<sup>th</sup> February 2022 and ended on 15<sup>th</sup> March 2022.

### Objectives of the Campaign

- To reduce the number of patient complaints based on a lack of nursing skills in IV Cannulation
- To enhance and strengthen the competency of Nurses in IV Cannulation by providing hands-on training with simulation technique
- To strengthen the IV Cannulation team of the hospital by identifying competent nurses who can very well manage IV Cannulation insertion and its maintenance.

This hospital-based study was a quantitative with one group had pre and post-research design. This campaign was to assess the skills and competency of nurses regarding intravenous cannulation pre and post-training. All wards and ICUs Nurses working in the hospital were trained in Intravenous Cannulation. The sample size was 1150 nurses who were trained and were included in both pre and post training practice check.

### Campaign Activities

Ward and ICU nurses were trained in IV Cannulation with simulation techniques.

A pre- and post- practice evaluation was done of all the nurses to assess their skills and competency in performing IV Cannulation. A structured observational checklist was used to assess the competency of nurses on IV Cannulation as described in Table 1.

**Table 1:** Practical Skills Checklist.

Skills Assessment	Performance criteria	Met	Not met
<b>IV Cannulation</b>	<ol style="list-style-type: none"> <li>1. Perform hand hygiene</li> <li>2. Gloving</li> <li>3. Select cannula appropriate for the vein</li> <li>4. Selection of site</li> <li>5. Cleaning of cannulation site</li> <li>6. Opening of cannula device</li> <li>7. Check the cannula</li> <li>8. Insert the cannula in right angle</li> <li>9. Removal of needle/stylet</li> <li>10. Flush with normal Saline</li> <li>11. Secure the cannula with tegaderm</li> <li>12. Communication with patients</li> <li>13. Discard the needle in a sharp container with proper technique</li> </ol>		



Fig 1: Glimpses of IV cannulation training provided by external resource Helmeir and BD to Ward and ICU Nurses.

### III. Results

The data collected was analyzed using descriptive statistics. The Campaign led to the following outcomes:

#### 1. Reduction in patient complaints based on lack of nursing skills in IV Cannulation

The campaign had an effective impact on reducing the number of patient complaints based on a lack of nursing skills in IV Cannulation. Nurses were trained in performing IV Cannulation through hands-on training by external personnel.

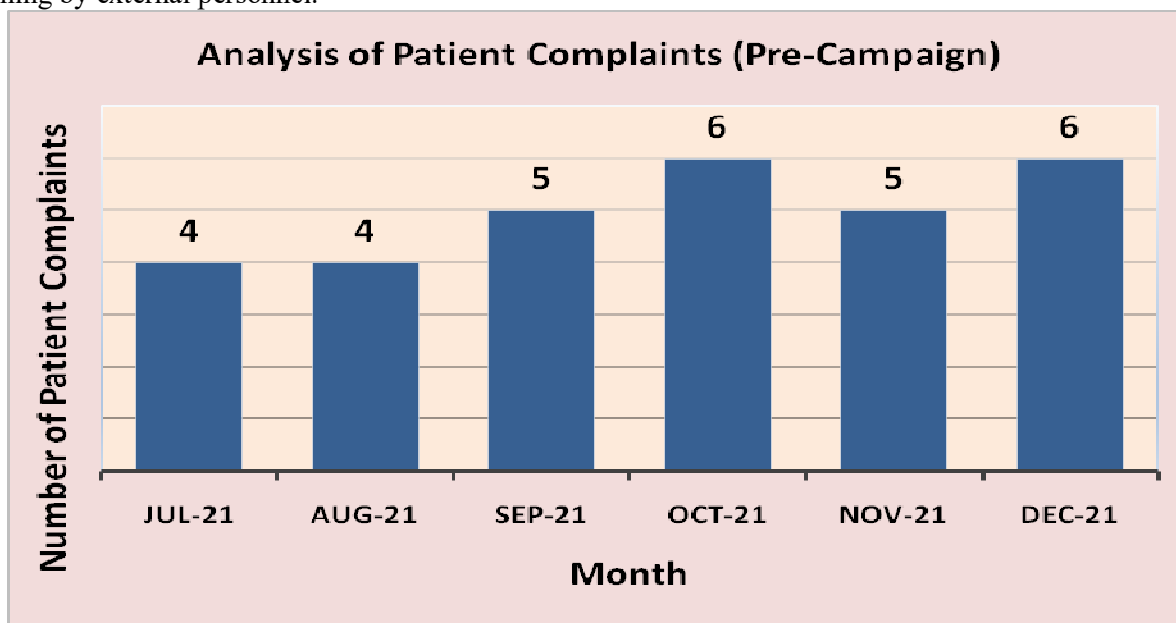


Fig 2: Analysis of Patient Complaints before the campaign.

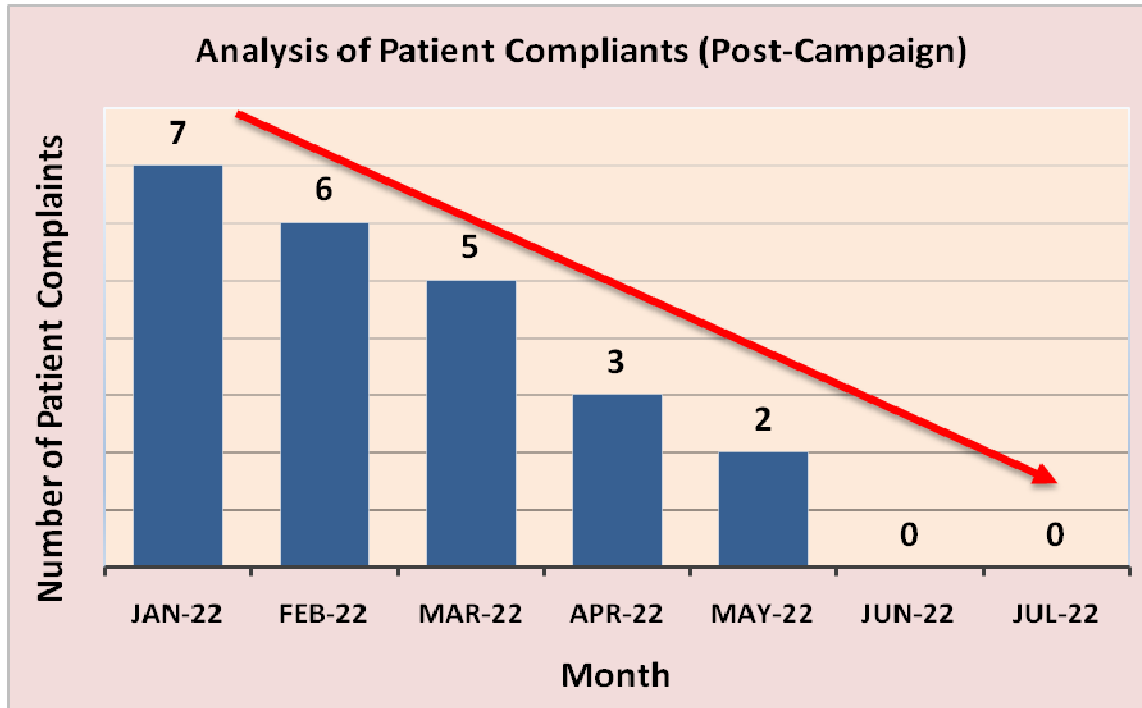


Fig 3: Analysis of Patient Compliants (Post-Campaign).

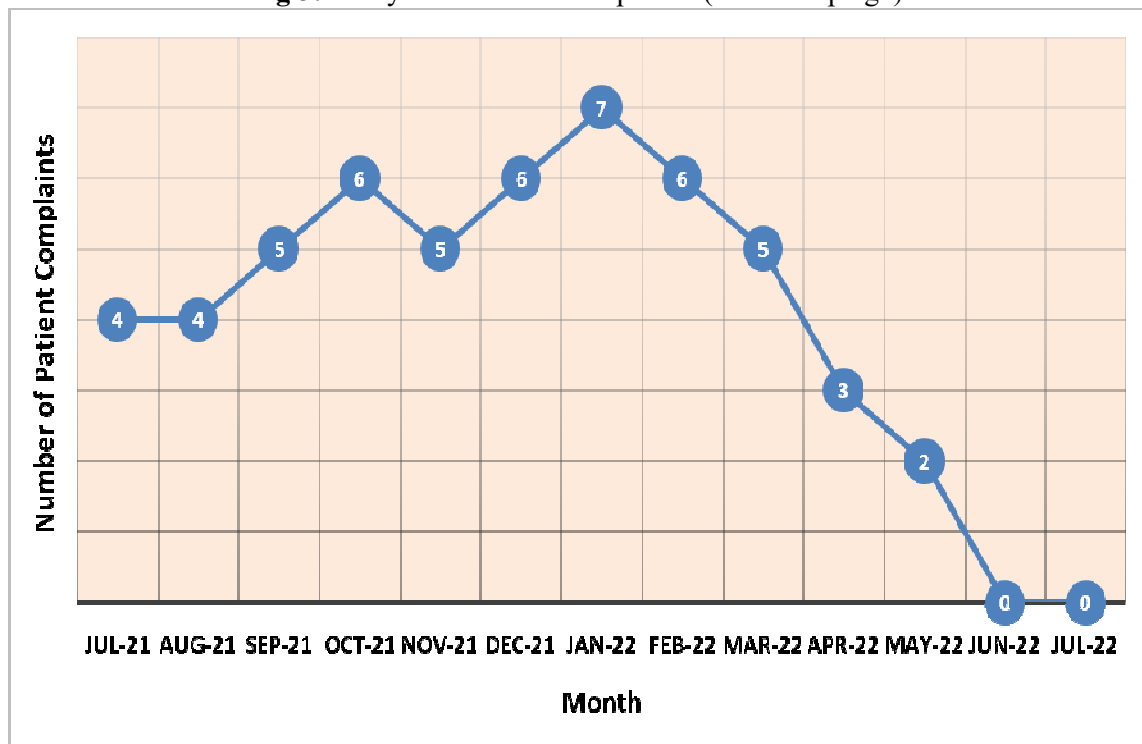


Fig 4: Reduction in Patient Compliants based onIV Cannulation (July'21-July'22).



## 2. Enhanced nursing skills and competency in IV Cannulation

Pre and post-test evaluations were conducted for the staff who participated in the campaign and the results are described in Fig 5 ,6 and 7.

The campaign helps the Nurses to become competent in performing cannulation safely and enhancing their skills and knowledge in IV Cannulation. Hence, being confident to Cannulate.

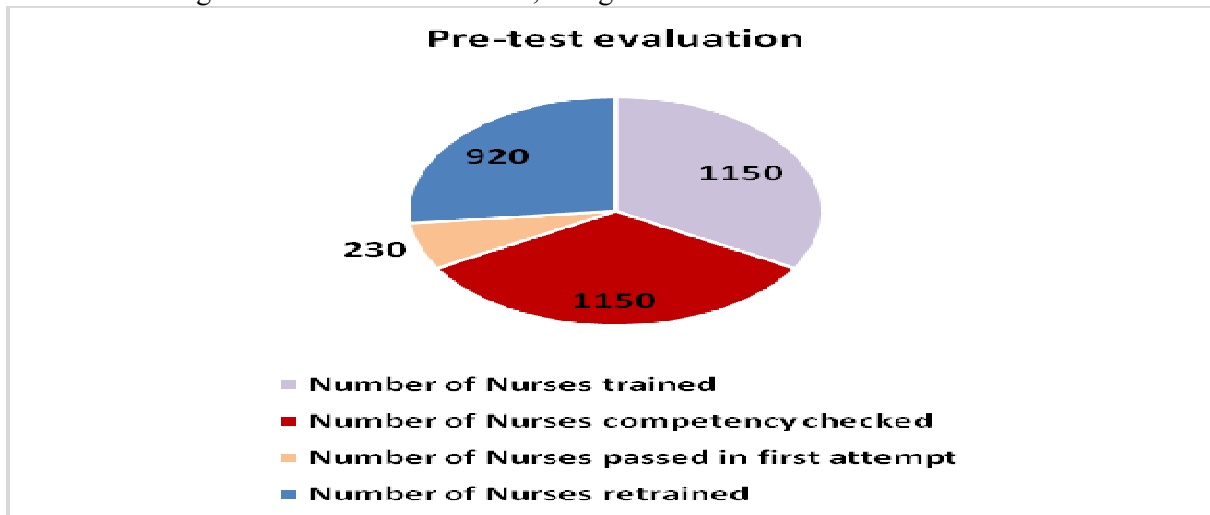


Fig 5: Pretest evaluation.

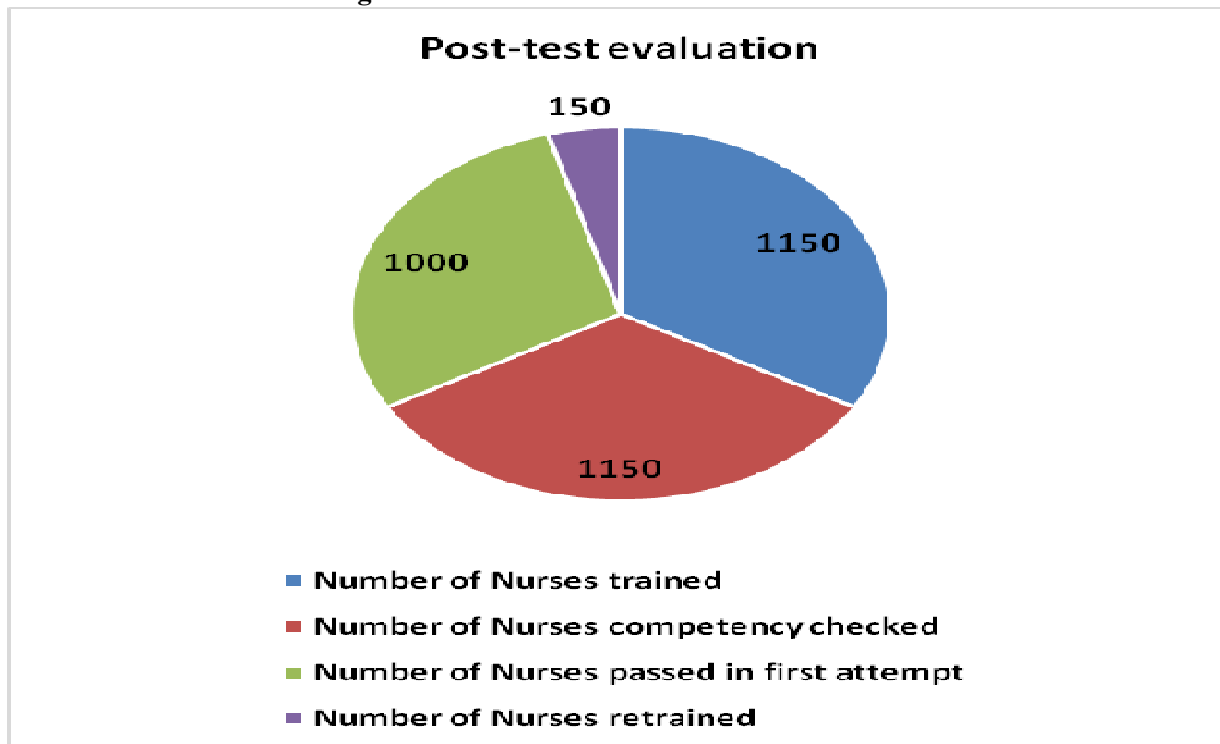


Fig 6: Post-test evaluation.

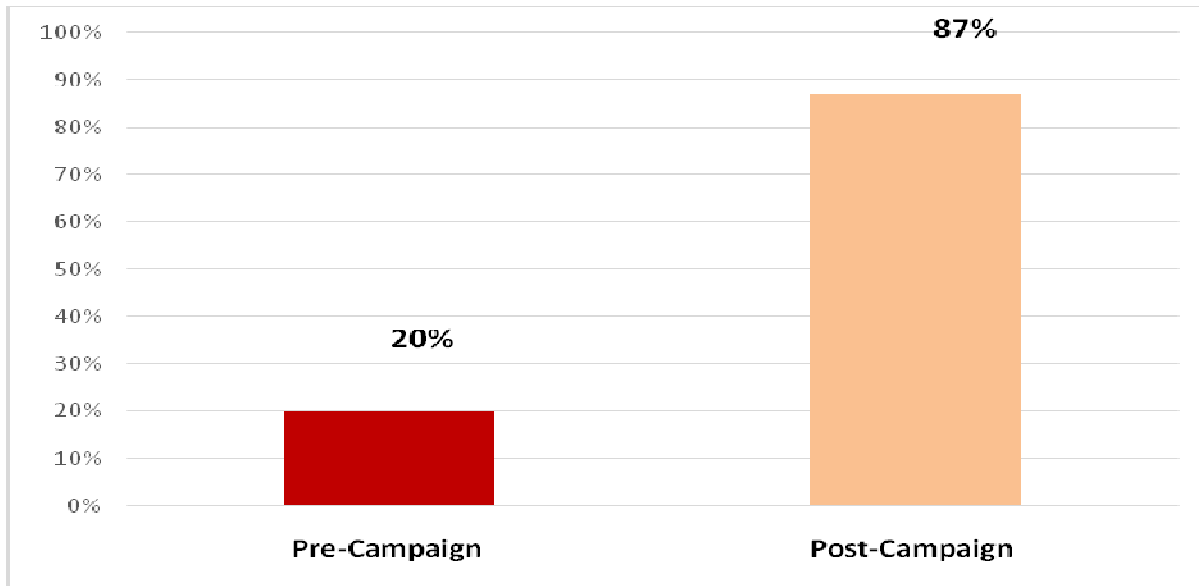


Fig 7: Practice score of the nurses Pre and Post training on IV cannulation.

### 3. Improved Patient satisfaction

Our Patient satisfaction scores (Net Promoting Score) improved with improved IV Cannulation by skilled nurses

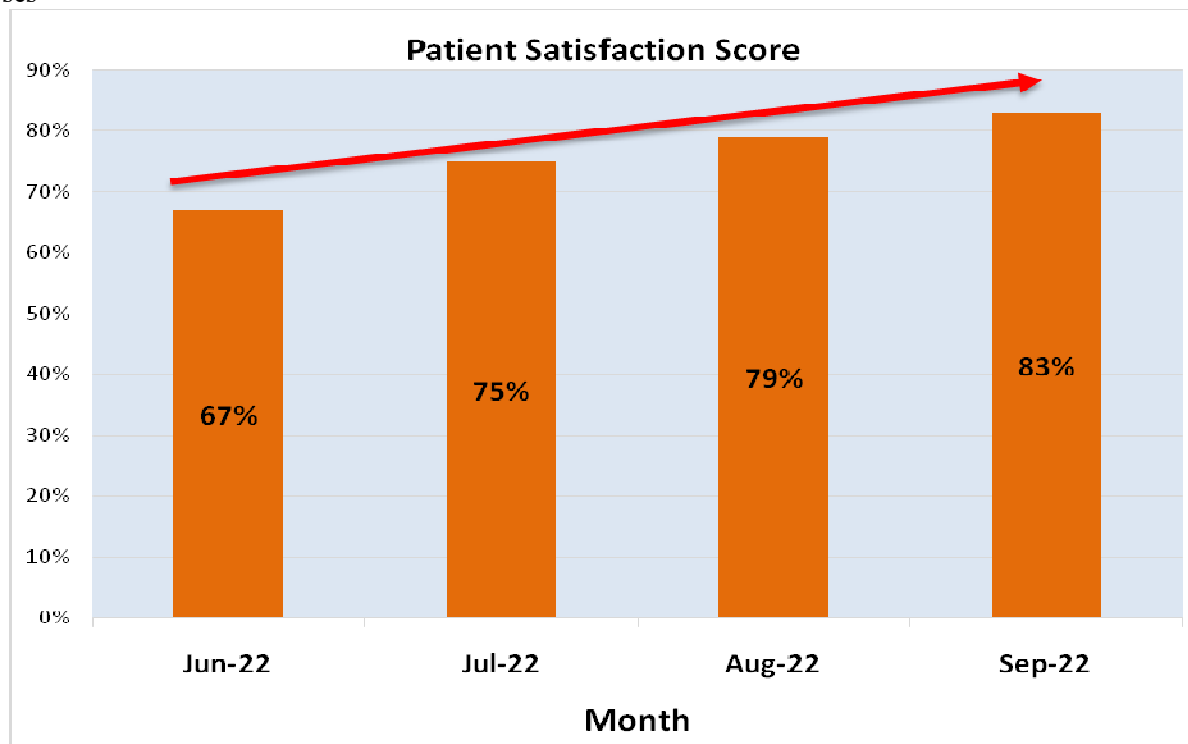


Fig 8: Improved Patient satisfaction score.



**4. Reduction in Phlebitis incidents**

Reduction in the incidents on Phlebitis after the campaign on confident to cannulate (February 2022 to July 2022).

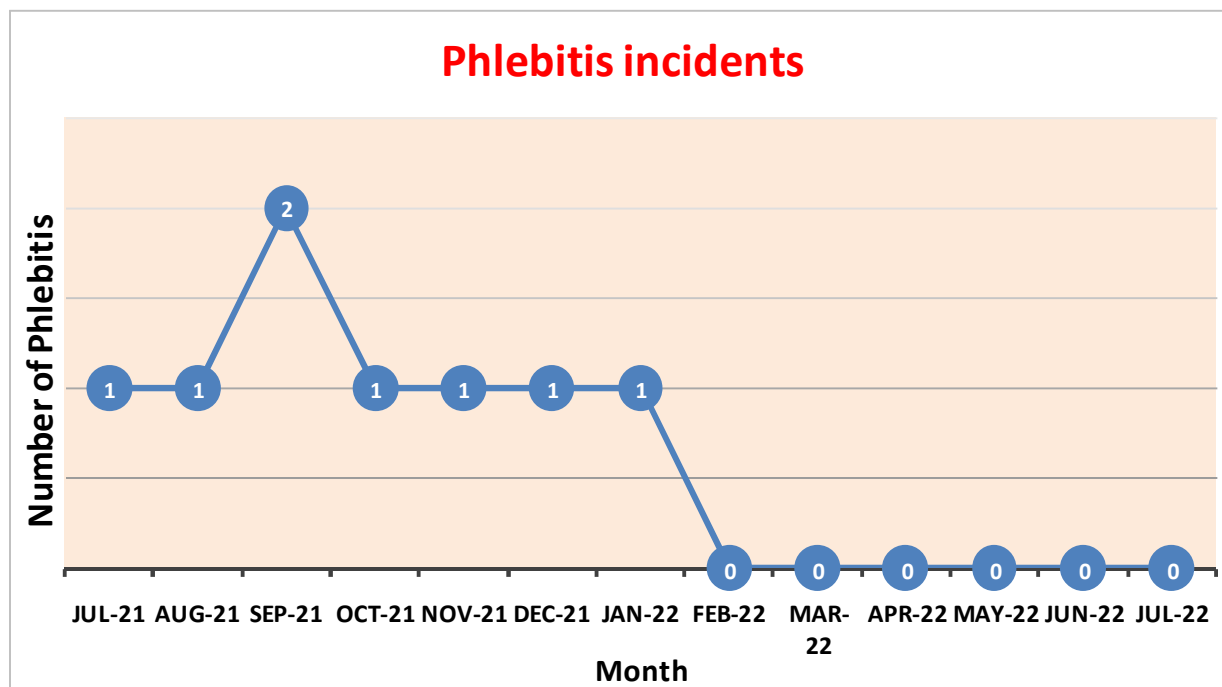


Fig 9: Phlebitis incidents.

**IV. Discussion**

Confident to Cannulate campaign has shown the importance of both theoretical and practical knowledge to learn and advance in vein cannulation and that Nurses should acquire the theoretical knowledge needed to gain skill proficiency. Hands-on training with simulation technique is effective for overall improvement and enhancement of Knowledge and skills among nurses from all departments irrespective of patient exposure/years of experience.<sup>4</sup>

Being skilled in various parameters such as the proper technique of insertion and fixation, appropriate cannula selection, adequate monitoring, and maintenance has a significant impact beyond the immediate clinical scenario.<sup>5</sup>

The campaign was initiated by the nursing department through the analysis of the patient complaints followed by conducting hands-on training for the Nursing staff with simulation techniques to enhance their competency in IV Cannulation and to strengthen the IV Cannulation team of the hospital by identifying competent Nurses.

The training showed improvement in the post-training score of intravenous cannulation skills of all wards and ICUs Nurses.

All the Nurses were evaluated on the basis of a practical skill checklist by assessing their skills and competency in IV Cannulation in which three nurses were found effective in performing IV Cannulation



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and these three were selected and will be added to the IV Cannulation team. Identified IV nurse/cannulation team will be undergoing training and get certification which is mostly done by BD company.

#### **V. Conclusion**

The “Confident to Cannulate” campaign concluded that the continuous and frequent training (hands-on) of the nursing staff on IV Cannulation (its insertion and maintenance) will help in making the nurses confident in cannulation and bring better outcomes to the patients and achieving patient satisfaction.

#### **References**

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