



USE THE NURSING INNOVATION TOOL “ INFUSION TUBE SEPARATION FIXER” IN PATIENT SAFETY CARE

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INTRODUCTION

In Taiwan Patient-safety Reporting system in 2021, about 34% of reports were medication events and 16% were tubing events. Among the former events, the stage of medication administration by nursing staff occurred second most (26.2%). Nurses are responsible for high-frequency treatment operations on a daily basis and also the final gatekeepers for patient medication safety; among the latter events, tubing slippage accounted for 93.7%, among which central venous catheter (CVC) is one of the common types of slipping tubing, which may increase the risk of infection, resulting in prolonged hospitalization, increased medical costs.

Medication and tubing care is a crucial issue in current clinical patient safety concerns. Patients after gastrointestinal surgery often require CVC to handle multiple lines, and frequent intravenous medication. Therefore, nurses must identify the correct infusion tube before administering medication, unknot the tangled infusion tube to reduce the risk of medication errors.

In accidents, human factors and equipment account for more than 50% of the events. Accordingly, changing the way of medical care is one of the preventive measures.

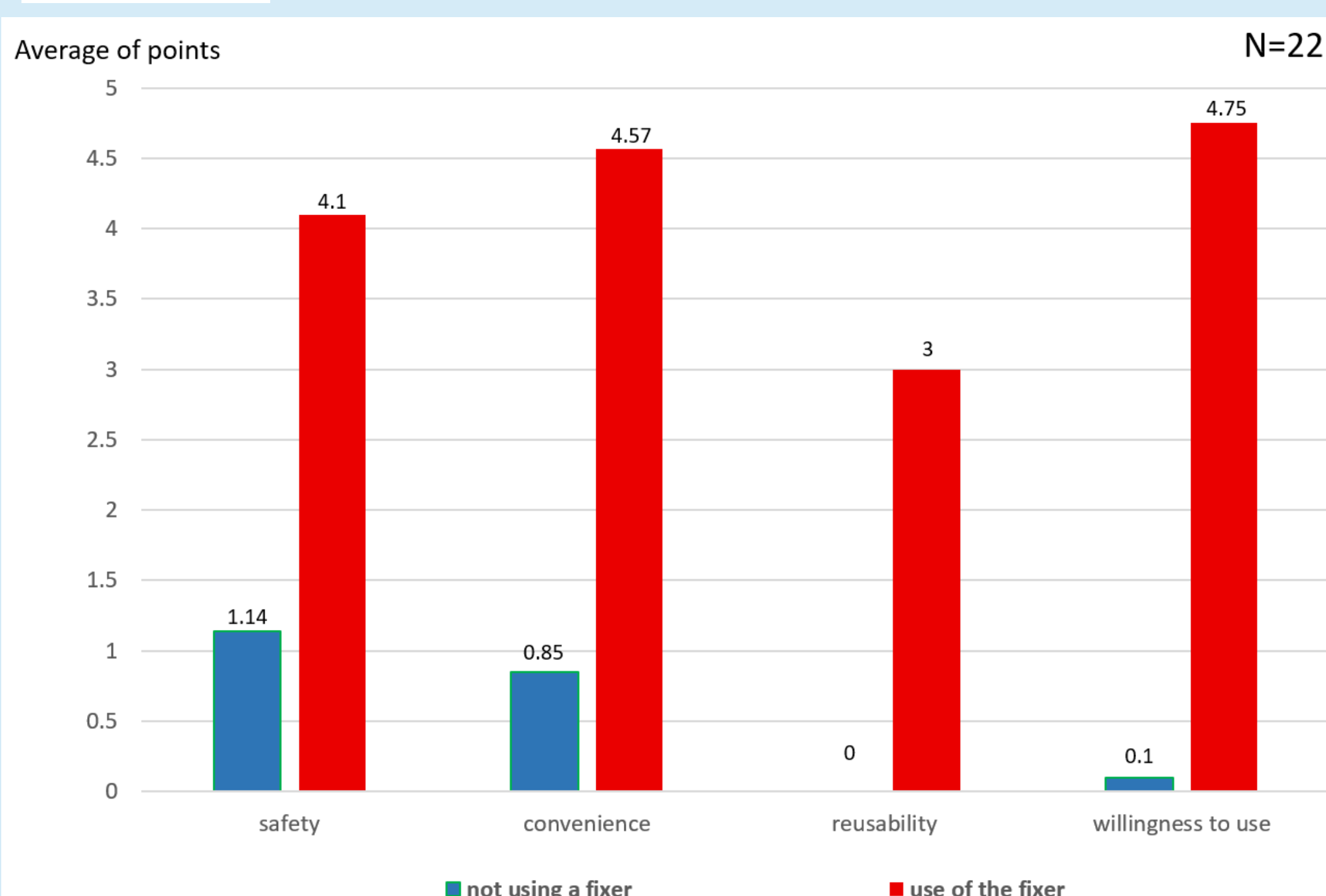
PURPOSE

Reduce medication errors and maintain the safety of the tubing, and enhance the quality of nursing care.

RUSULTS

The "infusion tube separation fixer" scored an average of 4.1 points for safety, 4.57 points for convenience, 3 points for reusability, and 4.75 points for willingness to use. 22 people were satisfied with the use of the fixer more than not using a fixer. (fig.4)

(figure 4)



METHOD

Tools: infusion tube separation fixer (fig.1) (fig.2)

This tool including four parts:

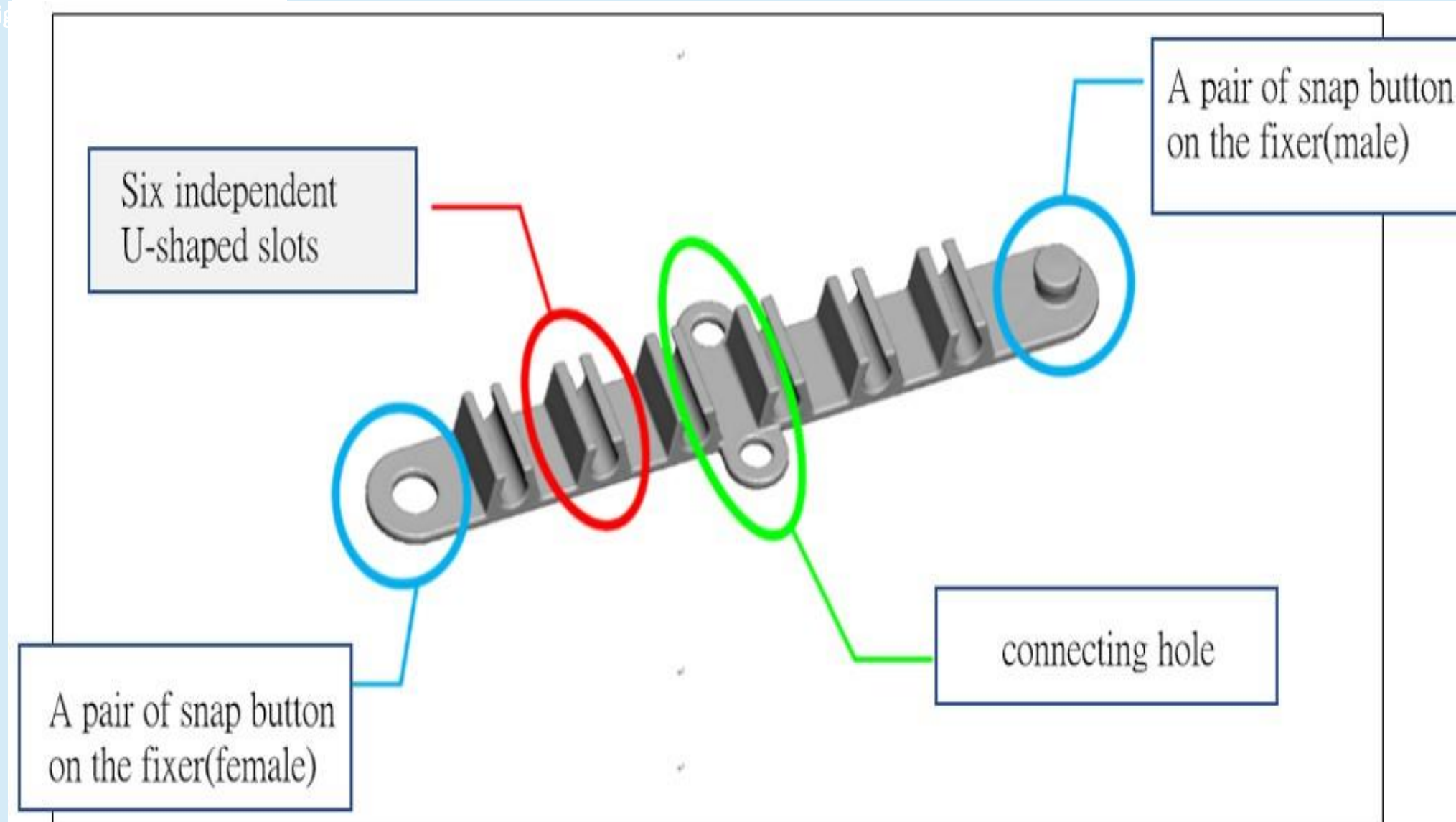
1. TPU material fixing device consisting of a ring-shaped main body.
2. Six independent U-shaped slots embedded in the fixer: allowing the tubes to be fixed separately, facilitating identification and solving the entanglement.
3. A pair of snap button on the fixer: Unbuckle the button for clear visualization and to select the desired tube; buckle up to fix it, and quickly gather the tubes.
4. The fixer has a connecting hole on the top and one on the bottom: (fig.3)
 - (1) the top hole can be matched with a connecting piece (ex: pin etc.) to fix the fixer on clothes, to prevent the tubing from being pulled and slipped
 - (2) the bottom hole can be connected to another fixer for expansion when there are more tubing.

Intervention delivered time: March-April 2022.

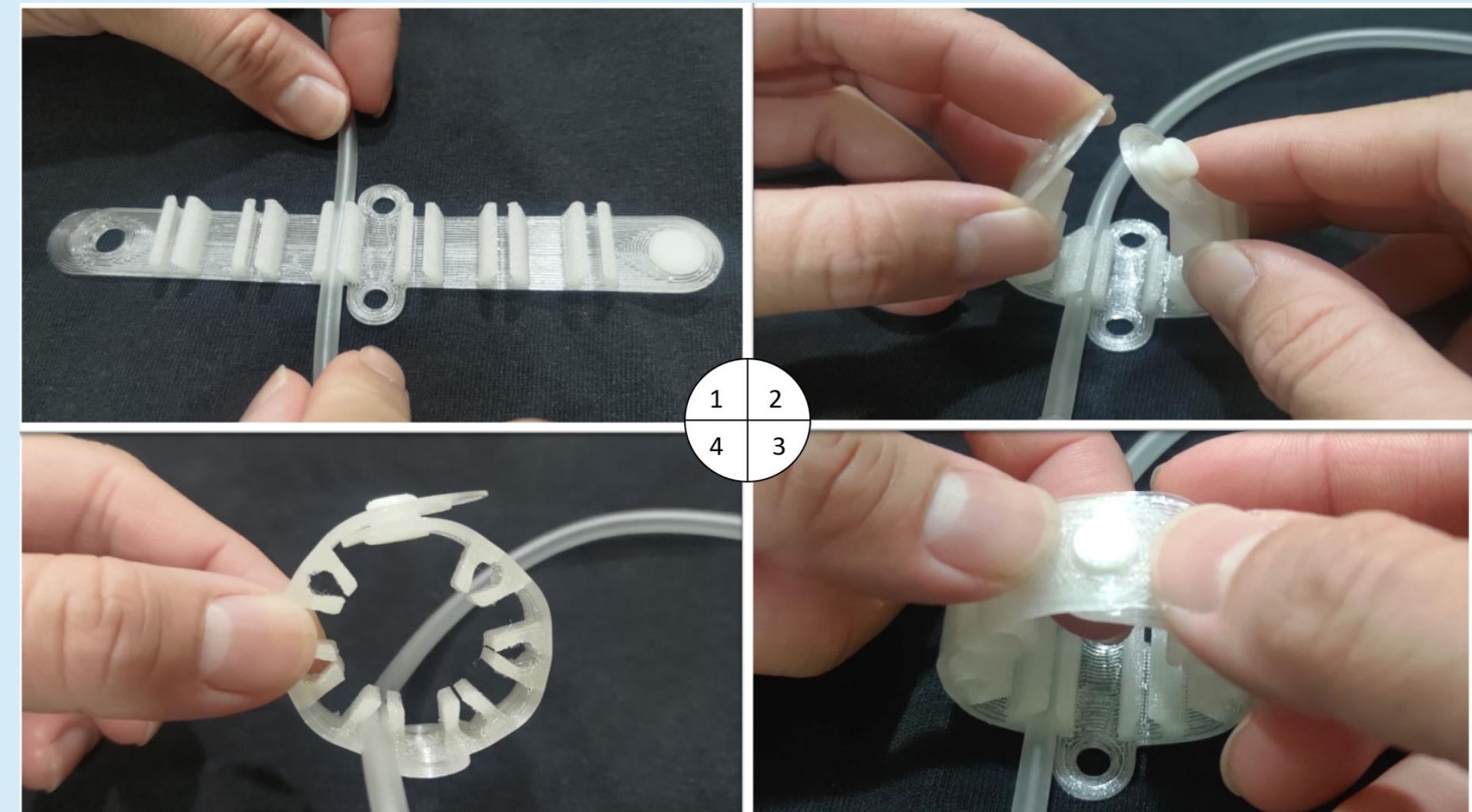
Subjects: 6 patients with CVC and more than two infusion tubes, and 16 nurses.

Based on the experiences of "not using a fixer" and "using a fixer", a questionnaire survey was conducted on the safety, convenience, reusability, and willingness of patients and nurses to use the device. The survey used a Likert scale, a total of 22 copies were distributed, and 22 copies were collected, reaching 100%.

(figure 1)



(figure 2)



(figure 3)

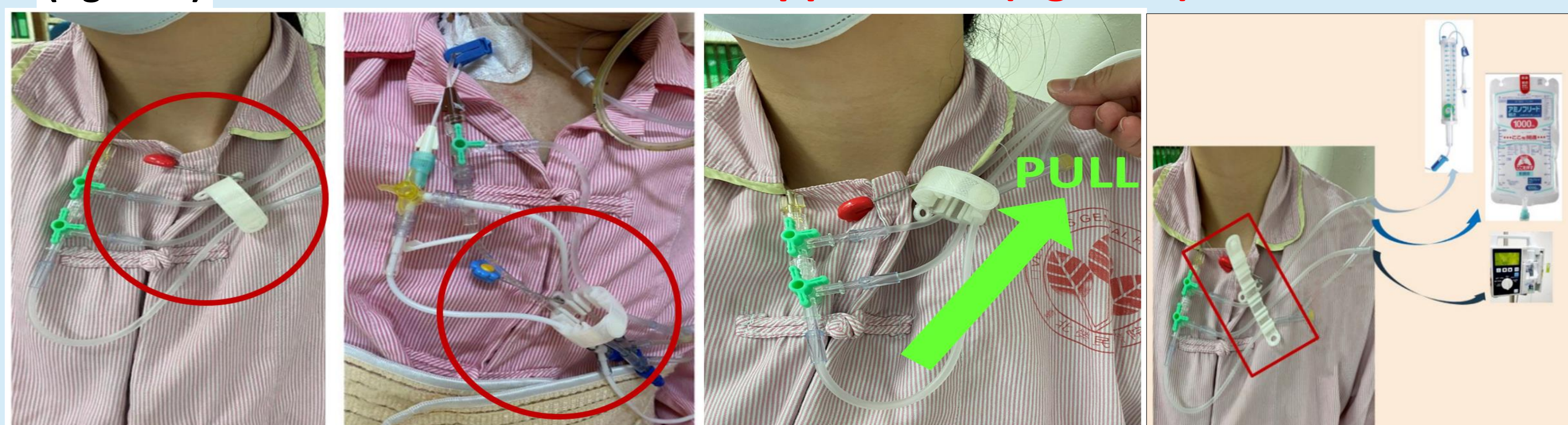


CONCLUSIONS

This product improves the safety and convenience of patient mobility, while also improving the accuracy of medication administration by nursing staff. It's easy to operate and can reduce work hours and increase efficiency. The product has obtained a national patent in 2022 and can be used as a reference for future medication safety research. We hope to apply this innovative assistive tool in clinical settings, reducing medication and tubing hazards caused by human and equipment error, to provide optimized care quality.

(figure 5)

clinical application (figure 5)



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