

# Epidemiological Survey of the Applications of the Peripheral Venous Cannula

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## Introduction

Peripheral venous cannula (PVC) is one of the most commonly used medical devices for patients of any age, with varying diagnoses and differing disease severity. According to numerous studies, anywhere between 18% and 80% of patients receive intravenous therapy. However, there is still an ongoing debate about patient safety in relation to the methods of venous cannula application, and the potential risk of local and systemic infectious complications and the transmission of blood-borne pathogens such as HBV, HCV, and HIV.

## Aim and Methods

The objective of this study is to evaluate and analyze PVC insertion and manipulation methods (use of gloves, hand disinfection, sterile dressings application, and so forth).

A questionnaire comprising 16 questions (5 open-ended and 11 multiple choice) was administered to assess the application of PVC. The anonymous survey was conducted in 2012 among 426 participants from six different hospital units: therapeutic clinic (109), surgical clinic (162), ICU (61), infectious ward (23), oncology clinic (8), obstetrics and gynecology clinic (63). Data analysis was performed using analytical and descriptive statistical methods (SPSS v.19).

## Results and Discussion

Analyzed data revealed that 7.5% of respondents do not use, or rarely use gloves, while only 24.4% use them always, regardless of the procedure. Change of gloves after each patient was reported by 92.7% of the participants, which is alarming and inconsistent with the good medical practice guidelines. The correlation between the number of gloves used and the average daily number of cannula insertions was statistically significant ( $Z=-15.540$ ,  $P=0,000$ ). We prove a strong association between gloves insufficiency and the frequency of their use ( $Z=101.270$ ,  $P=0.011$ ;  $V=0.588$ ).

### Do you follow the guideline for the use of medical gloves?



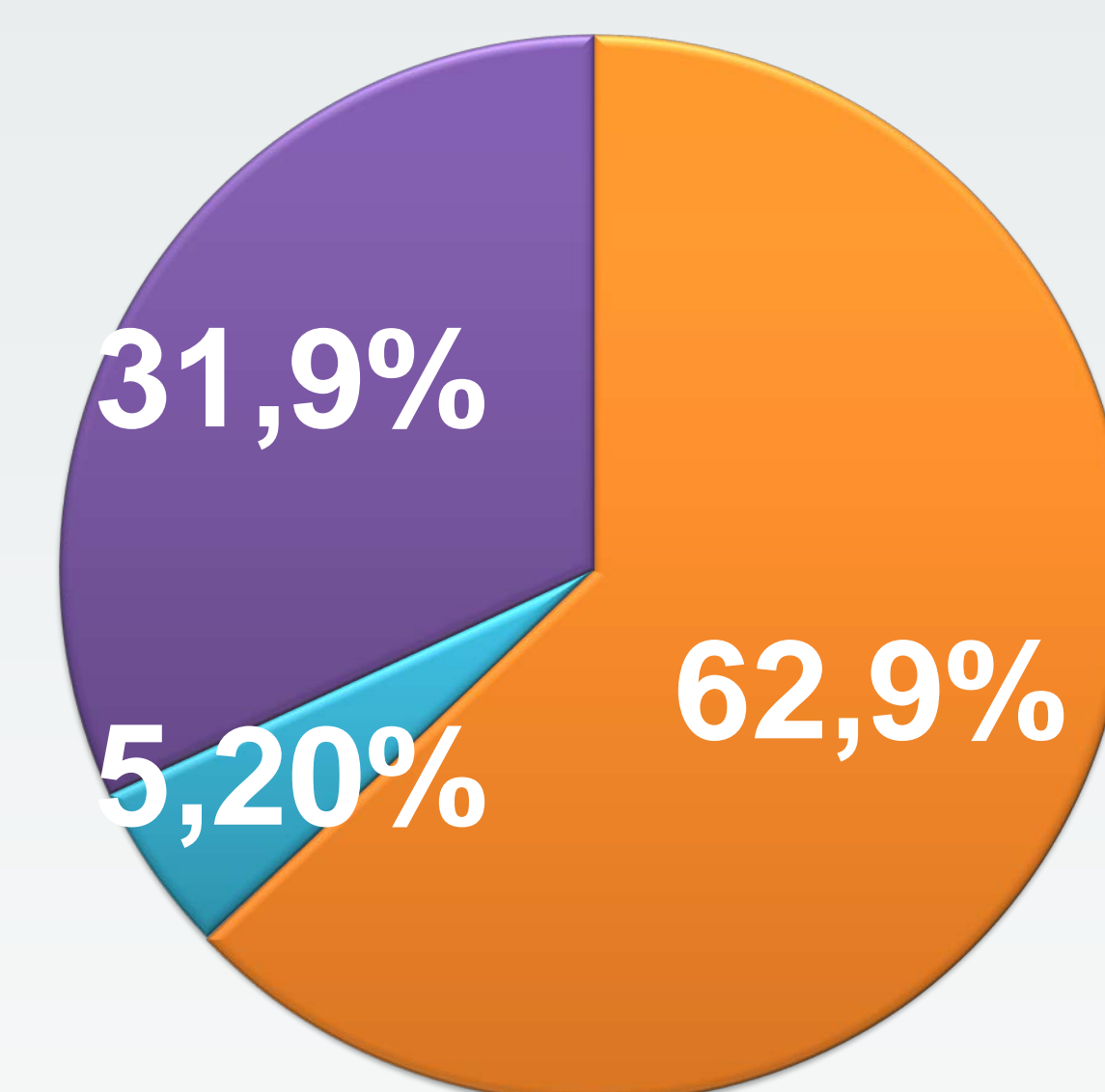
- always during intravenous manipulations
- sometimes during intravenous manipulations
- always, regardless of the medical procedure
- I do not use or rarely use medical gloves

Disinfecting hands before administering prescribed procedures was reported by 96.5% of the respondents. This optimistic result, however, does not correlate with our direct observations on the mode of working and analysis of data from a multicenter study conducted in Bulgaria in 2014 for the use of alcohol-containing disinfectants.

The majority (77.9%) of the medical staff maintain the patency of the cannula by sterile saline solution, while 14.8% continue to prepare a heparin solution; the remaining 7.3% do not flush the cannula.

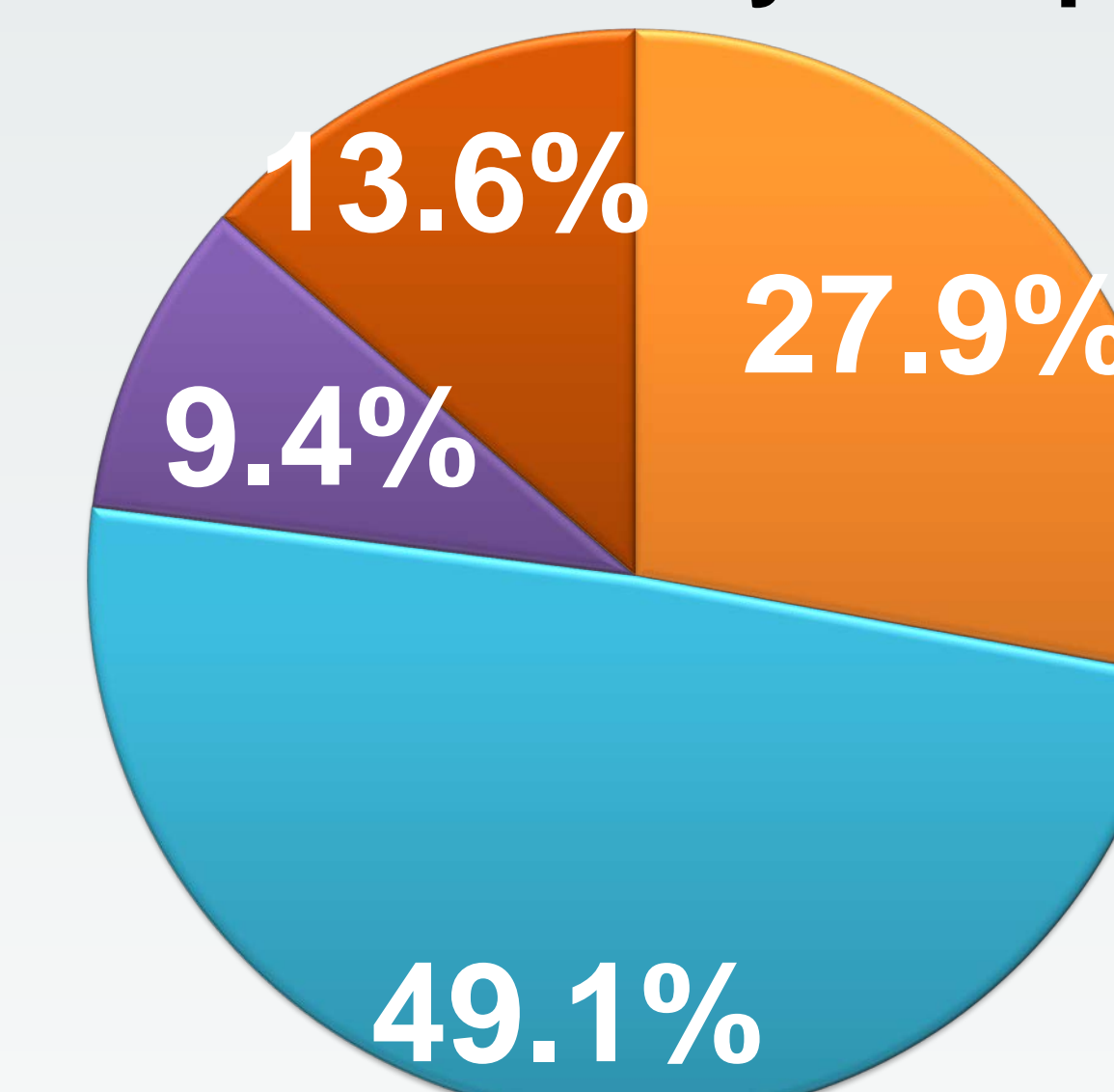
The date on which the venous cannula was inserted is always documented by 90.1% of respondents; 82.6% of them used ready-to-use sterile dressings for fixing PVC.

### How was the intravenous cannula heparinized?



- a single heparin dose was prepared for each patient
- pre-prepared heparin saline from a bank was used within 12 hours period
- different methods for heparinisation was used

### How often do you replace PVC?



- every 24 hours
- every 48 hours
- after more than 48 hours
- only if the cannula become blocked or inflammation of vein occurred

## Conclusions

- The necessity of using personal protective equipment (medical gloves) in daily work manipulations is highly underestimated.
- The alarming fact is that the minority of respondents did not change gloves after each medical procedure.
- Various but correct practices were established to maintain PVC patency, which however must be standardized as a general policy / algorithm for each hospital.
- The respondents are not aware about the changes in the "Standard for Prevention and Control of Healthcare-associated infections (HAIs)" regarding the lack of fixed duration period for PVC replacement.

## References

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