

FROM REPEATED ACCESS TO VASCULAR EXHAUSTION: THE IMPACT OF MULTIPLE PUNCTURES IN PEDIATRICS

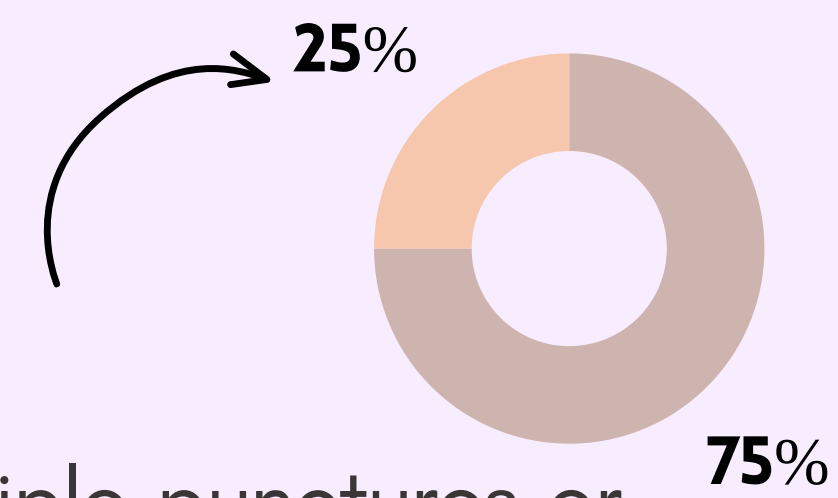
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INTRODUCTION

Vascular access cannulation is one of the most traumatic events for hospitalized children. In pediatrics, venous cannulation is often more complex due to risk factors present in up to 25% of patients.

RISK FACTORS

- < 3 years
- < 5Kg
- < 10th percentile
- Prematurity
- Obesity
- Skin lesions
- Dehydration
- Previous multiple punctures or repeated hospitalizations



Lines placed under stress have shorter dwell times due to complications, contributing to vascular exhaustion.

AIM

Perform a retrospective observational analysis of vascular access cannulations in pediatric patients from December 2021 to December 2024, to identify the most frequent complications and evaluate discrepancies between the latest vascular access algorithms and clinical practice.

miniMAGIC GaveCeLT Flebitis Zero
INCATIV Guide SECIP Algorithm

METHODOLOGY

A retrospective analysis was conducted on 2308 medical records of pediatric patients requiring at least one vascular catheter.

INCLUSION CRITERIA

Patients aged 28 days to 14 years hospitalized during the study period and having a peripheral vascular access, midline catheter, or peripherally inserted central catheter (PICC).

EXCLUSION CRITERIA

Cannulations performed outside the pediatric department were excluded.

Statistical analysis was performed using the IBM SPSS v29 statistical package.

RESULTS

2621 hospital admissions → 3464 catheters → 2422 active treatments

Most of the catheters were peripheral intravenous catheters (PIVCs), which also had the shortest dwell time among the vascular access devices studied.

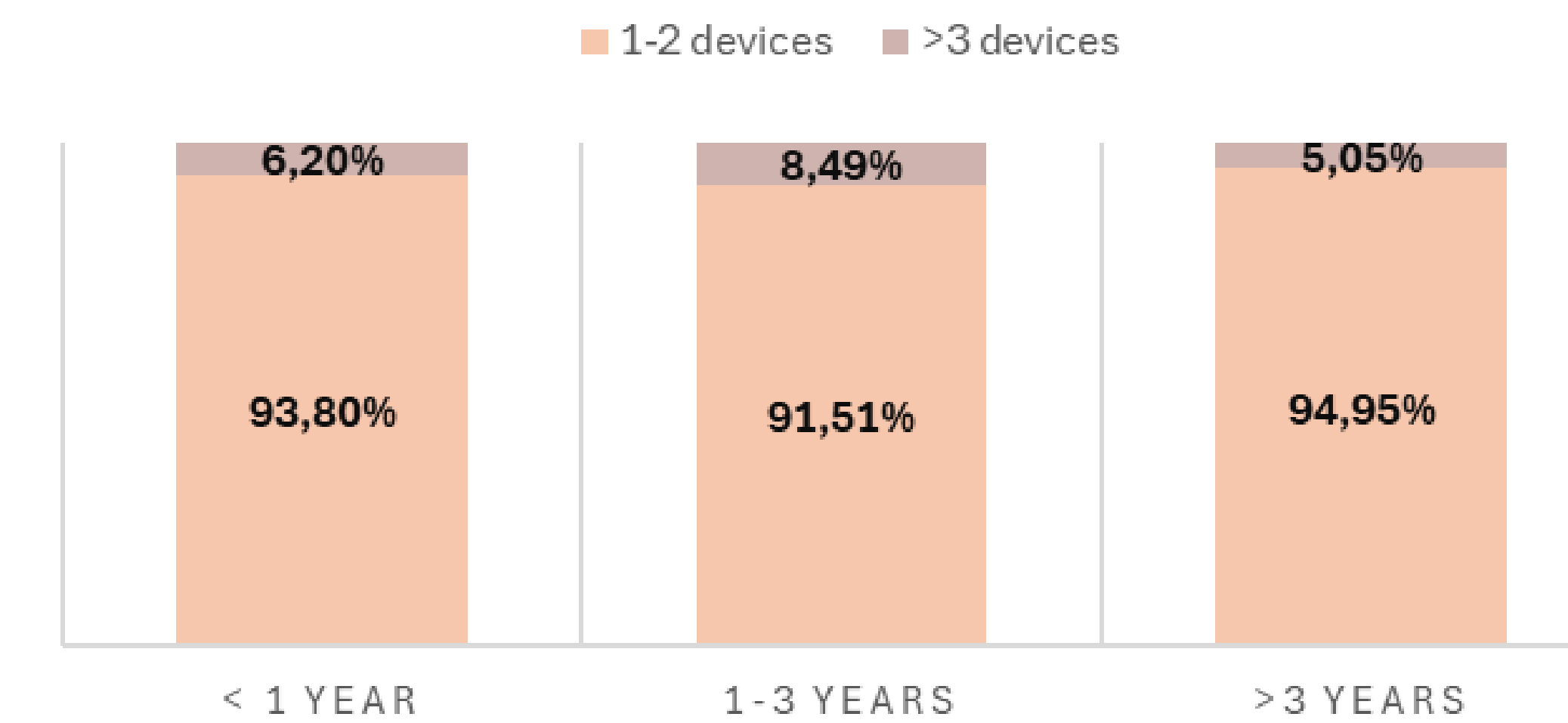
98.3% → **PIVCs** → 2.02 days
1.2% → **Midline catheters** → 6.76 days
0.5% → **PICCs** → 4.83 days

DIVA PATIENTS

those who require more than three catheter placement attempts or are younger than three years of age.

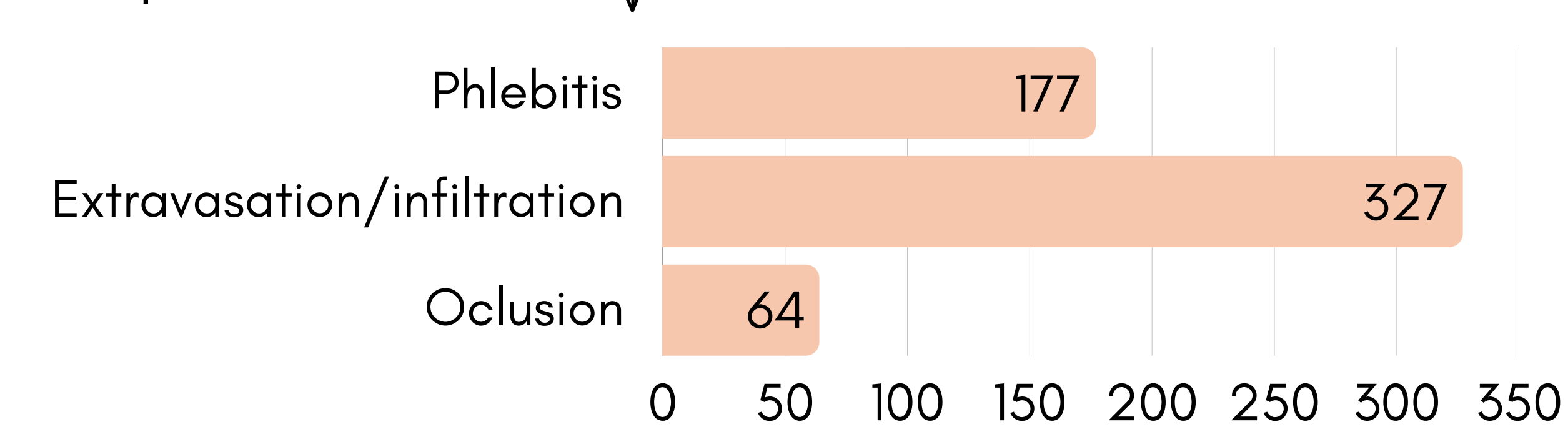
MULTIPLE PUNCTURES

Most admissions required one or two vascular access devices, while 154 admissions involved the placement of three or more catheters.



REASONS FOR CATHETER REMOVAL

The majority of catheters were removed at the end of treatment; however, 22.5% were removed due to complications



38.19% of the sample → DIVA patients

These patients showed a higher mean number of vascular access devices compared to non-DIVA patients (1.56 vs. 1.16).

TREATMENT

Additionally, 34.7% of treatments (n = 847) consisted of vesicant and/or irritant therapies not suitable for PIVCs.

At least 811 treatments were likely administered through an inappropriate vascular access device.

CONCLUSIONS

PIVCs were clearly **predominant**.

A considerable number of treatments were administered through vascular access devices that, according to current recommendations, **were not appropriate for therapy delivered**.

Catheter-related **complications** remain a **significant clinical concern**.

Early assessment of vascular access needs and **appropriate device selection may reduce complications, improve catheter dwell time, and enhance safety in pediatric patients**.

REFERENCES

