

# Strategies for effective monitoring and management of CLABSI

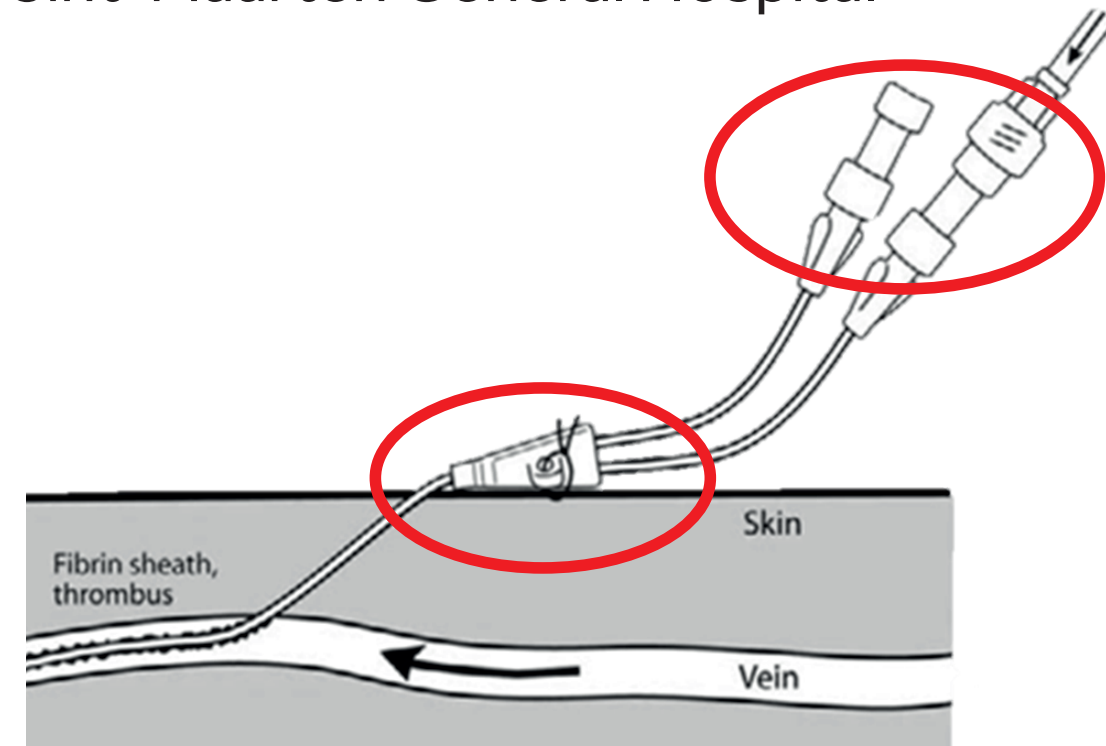
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## Introduction

**Central line-associated bloodstream infection (CLABSI)** is characterized by significant morbidity and mortality, and leads to prolonged hospital stay and additional costs.<sup>1-3</sup>

Between 2019 and 2021, the incidence of CLABSI in the Belgian hospitals increased with 30%, from 2.0 to 2.6 CLABSIs per 10,000 patient days.<sup>1</sup> The COVID-19 crisis was a plausible hypothesis to explain this increase.<sup>1</sup> Similar trends were observed in AZ Sint-Maarten General Hospital (3.1 CLABSIs per 10,000 patient days).<sup>1</sup>

CLABSI is largely preventable through proper hand hygiene and sterile catheter manipulation.<sup>1-4</sup>



In October 2021, the project "Monitoring and management of CLABSI" was initiated with the dual objective of monitoring CLABSI incidence and implementing targeted preventive actions.

## Results

**1** Hospital wide laboratory-confirmed CLABSI incidence decreased with 50% over three years (2021-2023), from 2.8 to 1.4 CLABSIs per 10,000 patient days.

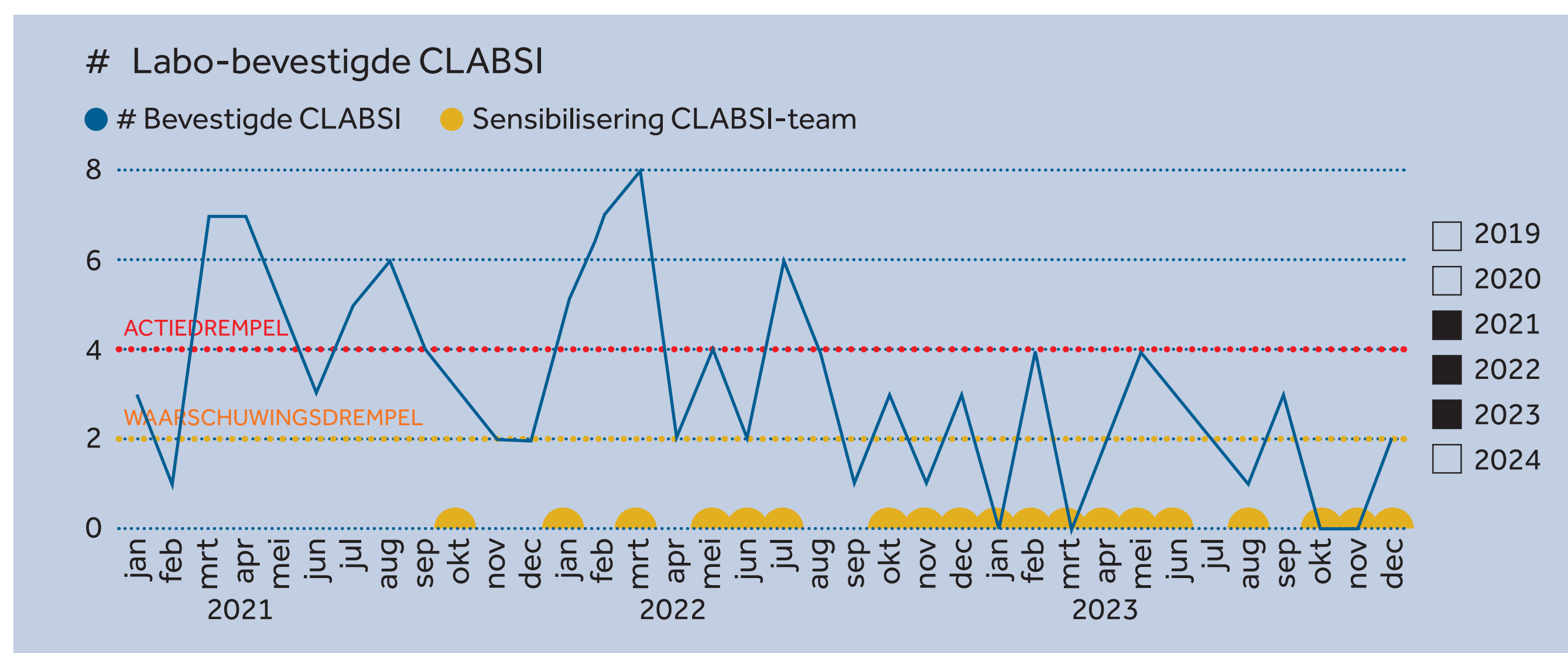


Figure 1. Absolute incidence of laboratory-confirmed CLABSI, 2021-2023. Source: Power BI report.

**2** Hospital wide incidence of suspected CLABSI in 2023 was 1.3 per 10,000 patient days.

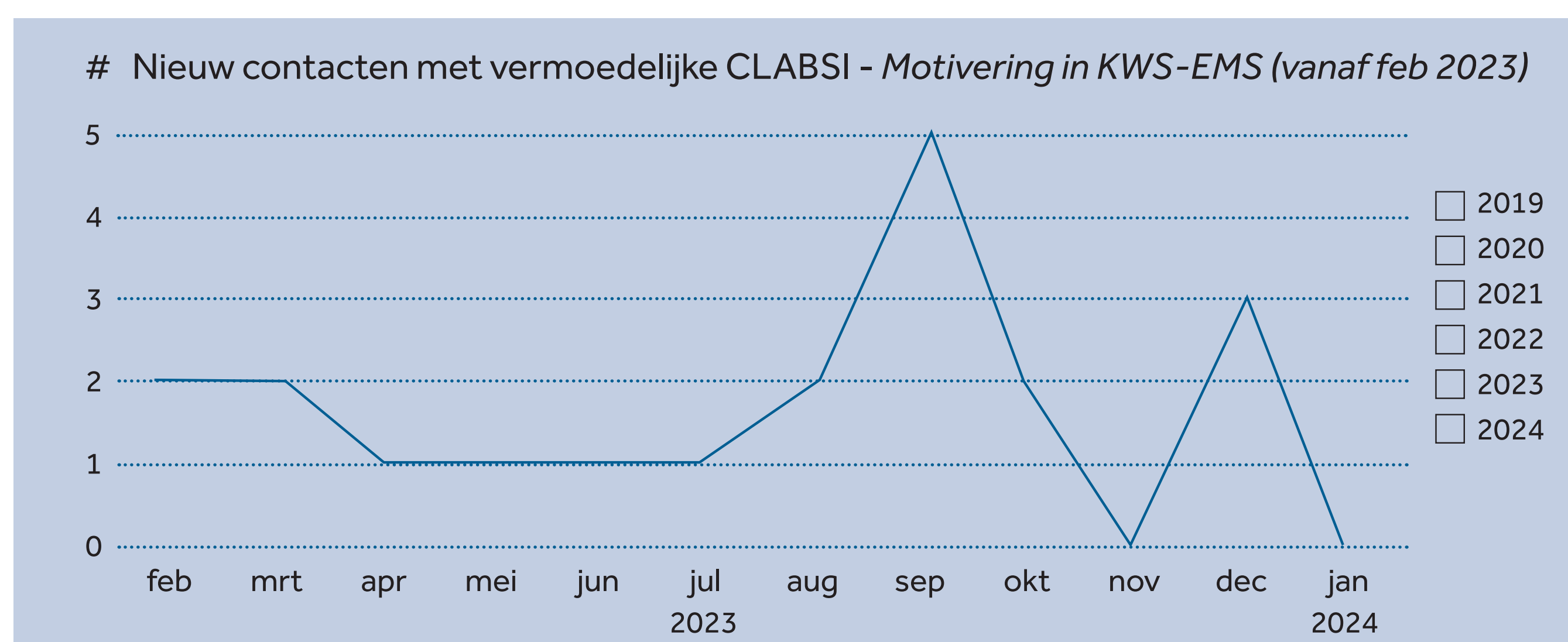


Figure 2. Absolute incidence of suspected CLABSI, 2023. Source: Power BI report.

## Discussion

The CLABSI incidence decreased since the project launch in 2021. The decline in CLABSI incidence is likely influenced by the weakening of the COVID waves.

Eight milestones were implemented, focusing on monitoring and preventing CLABSI. The project's bottom-up approach, led by clinicians, facilitated credibility and adoption of the interventions. Emphasizing a non-blame culture and providing rationale for best practices during training sessions contributed to the positive reception of the developed guidelines and actions.

Regular communication with stakeholders and ongoing evaluation of project timing are essential lessons learned.

## References

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## Methods

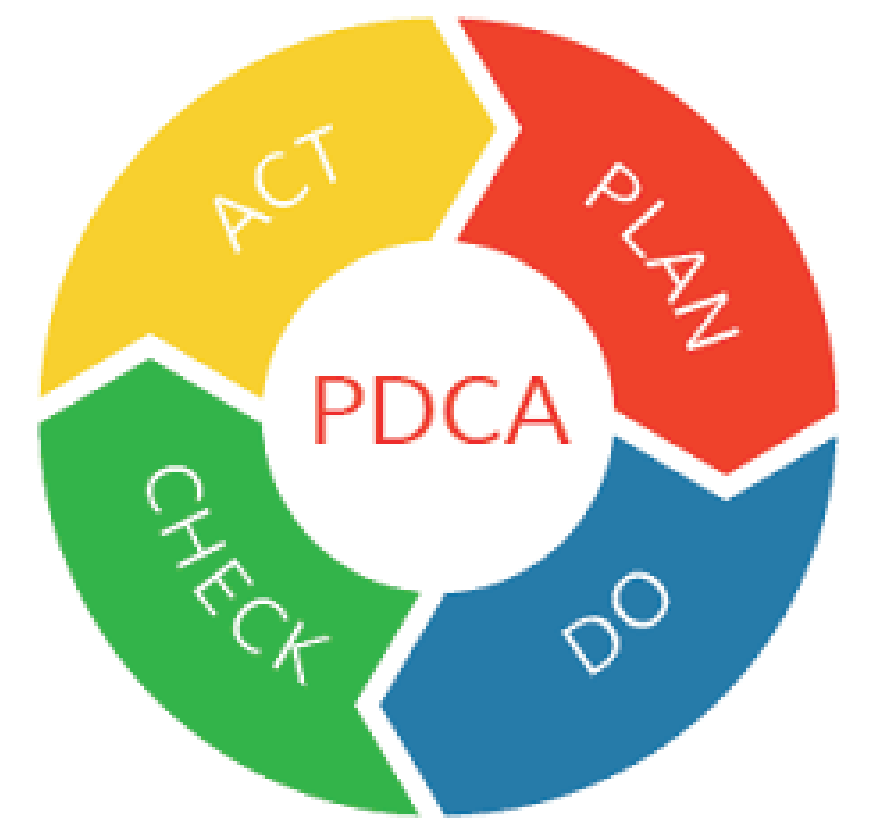
A multidisciplinary "CLABSI team" was permanently established.<sup>5-6</sup>

The project was guided by three principles:<sup>5-6</sup>

- Involvement of clinicians of daily practice
- Evidence based medicine and focus on rationale behind "do's and don'ts"
- Conducive and motivational environment

The intervention included following actions:

- Power BI report: real time data on hospital wide incidence of CLABSI (labo confirmed and clinical suspicion of CLABSI)
- Development of evidence based protocols
- Practical education sessions and bedside training
- Sensitization campaigns
- Online educational videos
- Information leaflets for patients and primary care staff
- Consulting and coaching of individual teams



Three indicators are continuously monitored: CLABSI incidence (labo-confirmed and suspected), bedside observations of catheter manipulation and participation in educational sessions.

**3** The most significant causative agents of CLABSI were coagulase negative staphylococci (skin flora), ranging from 65% to 76% over three years (2021-2023).

Organisme type	Organisme frequentie	% Organisme van totaal
<b>CNS (Coagulase Negatieve Staphylococcen)</b>	<b>16</b>	<b>76,2 %</b>
Staphylococcus epidermidis	12	75,0 %
Staphylococcus hominis	4	25,0 %
<b>Andere</b>	<b>5</b>	<b>23,8 %</b>
Escherichia coli	1	20,0 %
Morganella morganii	1	20,0 %
Staphylococcus aureus	2	40,0 %
Staphylococcus gallolyticus	1	20,0 %
<b>Totaal</b>	<b>21</b>	<b>100 %</b>

Table 1: Causative agents of CLABSI, 2023. Source: Power BI report.

**4** In total, 264 nurses attended the practical training sessions on catheter manipulation. Of the mandatory target group, 130 out of 163 nurses participated in the training (67%). The mandatory group involves nurses in hospital units where central catheters are frequently used.

**5** In June 2023, the CLABSI project was awarded with the hospital's jury prize and also received a star on the hospital's wall of fame.



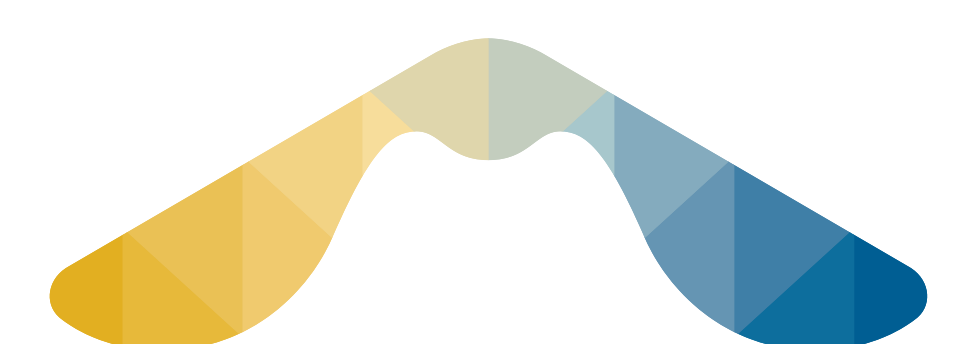
## Conclusion

The CLABSI project appears to have a positive impact on the CLABSI incidence.

The project was guided by the magnet principles: shared governance, exemplary evidence based practice, and focus on improvement.

Future steps include:

- Embedding actions in daily practice by continuous monitoring using Power BI, by organizing practical education sessions, and by observing compliance with guidelines;
- Developing a mandatory e-learning, including a knowledge test;
- Extending the project to primary care.



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