

A CHANGE IN CLINICAL PRACTICE REDUCES CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS

Madelain Brits, Dr Suseth Goosen

Mediclinic

PROBLEM STATEMENT

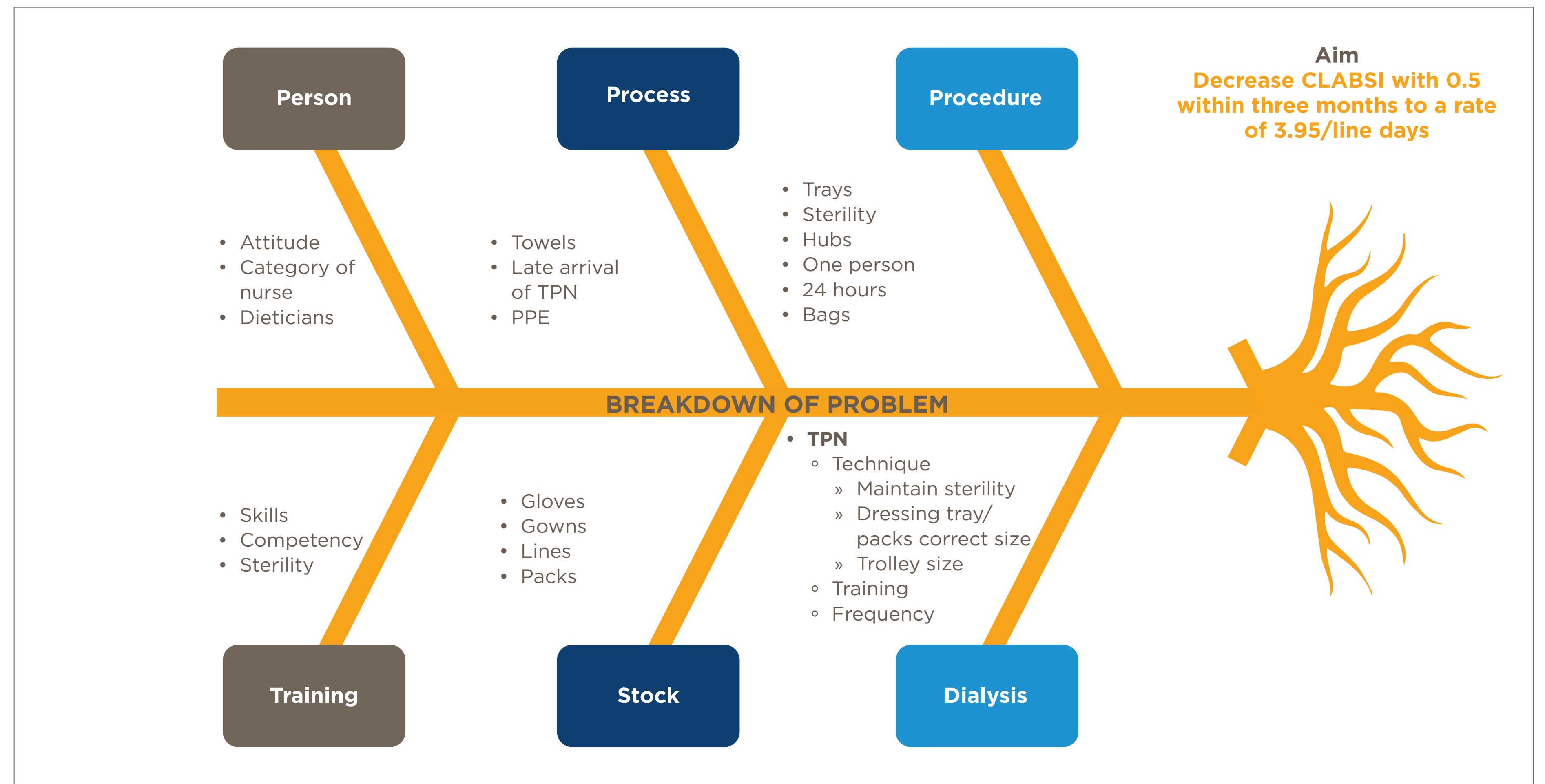
Central line-associated bloodstream infections (CLABSI) increased in Mediclinic Tshwane region in 2022. At the time, Mediclinic Medforum had a CLABSI rate of 6.5 when the target was 2.75 in the four CCUs. Root cause analysis revealed that the primary problem was the failure to maintain aseptic technique during changing of TPN.

AIM

This private hospital's Quality Improvement (QIP) team aimed to reduce the CLABSI rate within three months to 3.94 rate/1000 line days by increasing staff compliance with the prescribed TPN procedure. A reduced CLABSI rate is associated with improved patient outcomes (1).

BREAKING DOWN THE PROBLEM (MEASURING)

The QIP team analysed persons, processes, procedures, training and stock that potentially influence the safe administration of TPN. The root cause of the problem was identified as the technique used to administer TPN. In line with the Quality Improvement process, test ideas were generated that include technique and procedure compliance when changing and initiating TPN. The Quality Improvement (QIP) team firstly observed while staff changed TPN. It became clear/evident that the space between curtain and bed was narrow, resulting in sterile equipment on the sterifield touching unsterile curtains. A larger trolley was required to prevent the sterifield being contaminated by the unsterile curtains. Furthermore, current practice requires that the new TPN bag be placed on the sterifield. However, the new TPN bag and its outer bag are unsterile; thus, the principle of aseptic technique was broken. The prescribed TPN procedure had to be adapted.



ACTION PLANS

1. Collect data on technique

2. Test technique by team

3. Test with one person in CCU B

4. Test by second person in CCU B

5. Change in CCU B

IMPLEMENTATION OF ACTIONS

1. Observation

By team in August

- Night-time changes
- Call team
- Limited observation
- Dry spill in TPN
- Small trolley
- Every person is doing the procedure differently
- Not according to procedure
- Contamination happens
- Feeding from clean to dirty
- PPE used for changing TPN
- Challenges of one person

2. Sterility

- Change TPN packs - theatre in September
- No gowns
- No green towels
- One gallipot

- TPN bag unsterile - by PN of CCU in September
- Confirmation by company

3. Procedure

- Rewrite procedure in October
- Two-person procedure
- Sterility and surgical clean

4. Test new procedure

- Test in November with CF and UM
- Logic and flow
- Size of pack
- Maintaining sterility/surgical clean of second person

5. Dressing tray & TPN bags

- Consult with reps of TPN and dressing trays on 22 and 24 November
- Posters for departments

RESULTS

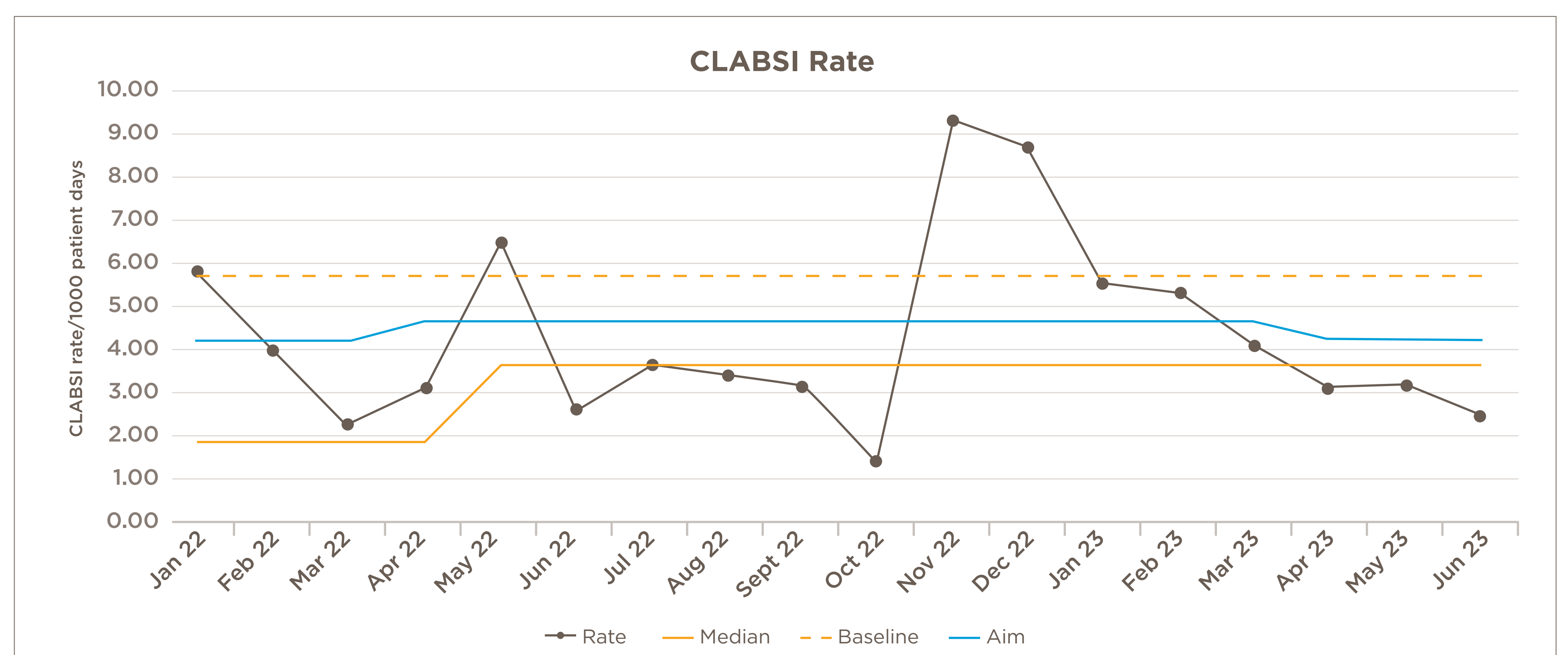
By adapting the way in which the unsterile TPN bag was managed, the CLABSI rate reduced from 6.5 to an average of 4.47 for the last year. For the last six months, there was a further decline to an average rate of 3.96. The CLABSI rate in the month of June 2023 was 2.94.

LESSONS LEARNT AND THE WAY FORWARD

- Expect the unexpected
- Record as you do the changes
- It takes longer than expected
- It takes a team to be successful
- You identify new QIPs as you investigate
- Each member of the team will run their own QIP in collaboration with UMs and management to create a snowball learning experience

CONCLUSION

Currently, CLABSI contributes to healthcare-associated risks in hospitals. By carefully considering current practice and implementing manageable, cost-effective changes in clinical practice, a quality improvement program effectively reduced the CLABSI rate.



Keywords: CLABSI, Quality Improvement and Aseptic Technique

References

1. Haddadin, Y., Annamaraju, P. & Regunath, H. 2020. *Central line-associated bloodstream infections (CLABSI)*. StatPearls Publishing LLC. [Online]. www.ncbi.nlm.nih.gov/books/NBK430891/ [2023 July 18]