

Introduction

In January 2024, a National Patient Safety Alert was issued by NHS England, instructing every provider to transition to NRFit connectors for all intrathecal and epidural procedures¹. Following this advice, University Hospitals Sussex transitioned from Luer epidural devices to NRFit across all departments. Following concerns about the new needles, complications rates were analysed, and a questionnaire was sent out to users.

Methods

A retrospective analysis of epidural insertion complication rates was carried out using the obstetric database Badgernet. 558 episodes were analysed in total. The former Portex Luer devices were compared with the Portex NRFit needles that had replaced them. Complication rates were statistically analysed. Following high complication rates and a departmental survey reporting a dislike of the new equipment, Portex NRFit needles were replaced with Pajunk needles, and complication rates were reaudited.

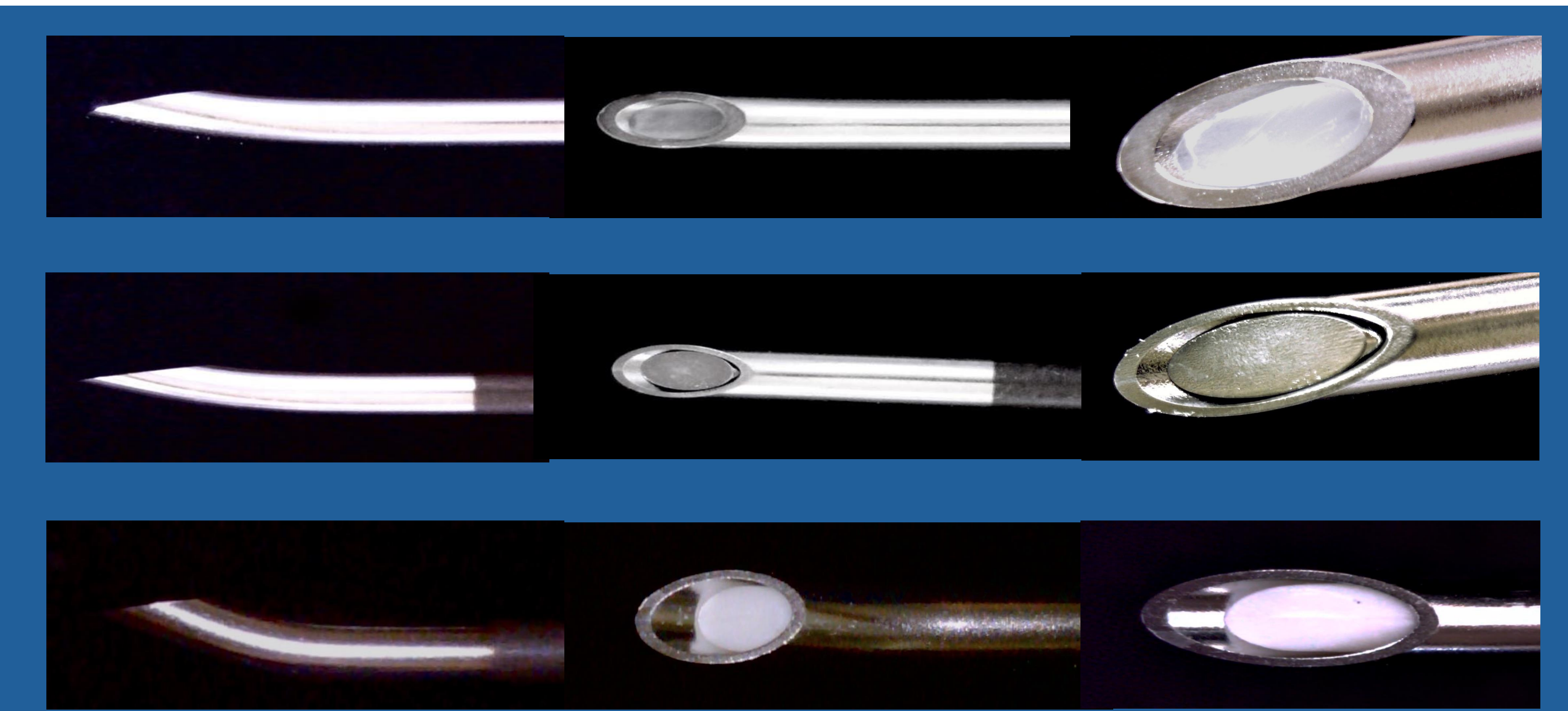


Figure 1. Comparison of Portex Luer epidural needle with nylon stylet (top), Portex NRFit needle and metal stylet (middle), and Pajunk NRFit needle with plastic stylet (bottom). Images courtesy of Dr John Pateman.

Results

1) Bleeding

Portex NRFit epidural needles were found to have a statistically significant complication of bleeding, affecting 33% of epidural insertions. This was also seen across other surgical specialties, with one case resulting in a serious untoward incident. In comparison, Portex Luer devices held a bleeding rate of 6%, and once transitioned to Pajunk NRFit needles, these held a bleeding complication rate of 9%.

2) Dural Puncture

Dural puncture rates were also higher using Portex NRFit needles at 2%, vs Portex Luer at 0% and Pajunk NRFit at 0.87%.

3) Unsuccessful Insertion

Portex NRFit devices held a 5% failure rate, this was 0% for the former Portex Luer devices. The Pajunk NRFit needles held a 1.1% failure rate.

4) Epidural Re-sites

Epidural re-site rates were increased with the Portex NRFit needles. This was captured on the data collected for the OAA GOALPOSTs project, as seen in March 2024. Almost 20% of insertions required re-siting. This was partly thought due to dressing problems resulting from bleeding at the insertion site.

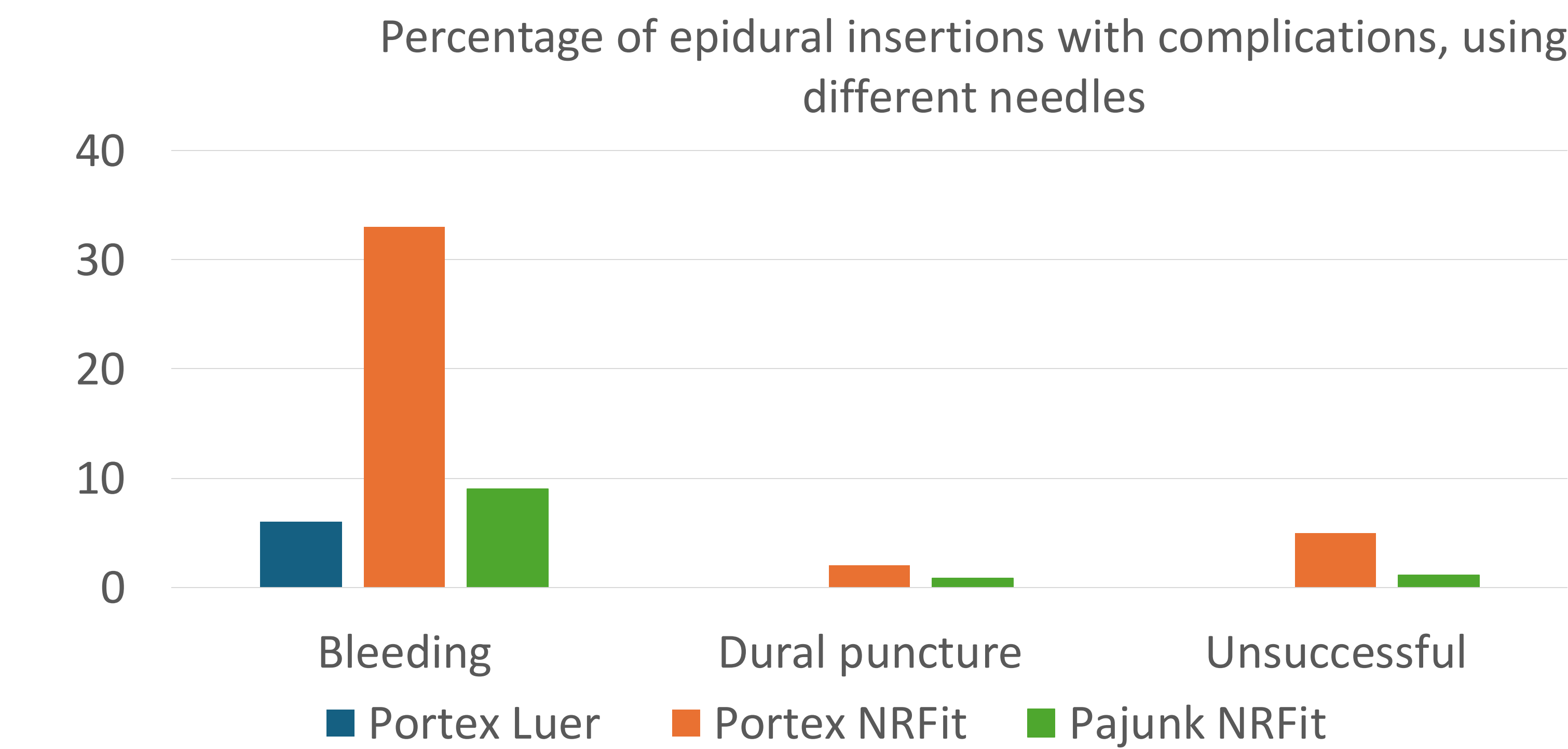


Figure 2. Bar chart showing percentage of epidural insertions with complications according to needle type.

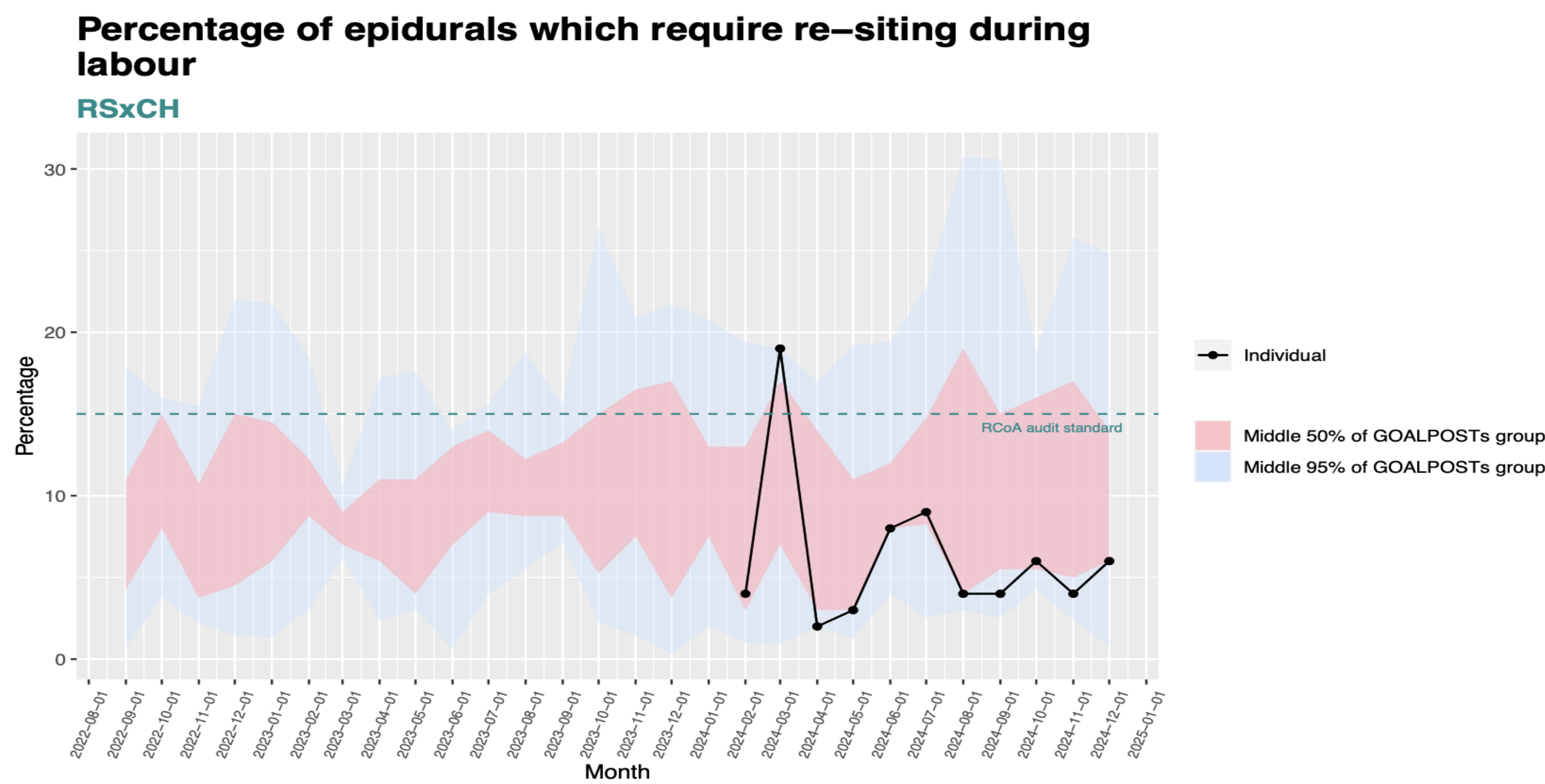


Figure 3. OAA GOALPOSTs data showing percentage of epidurals requiring re-siting, reaching nearly 20% of insertions following the introduction of Portex NRFit needles.

Survey Results

40 users responded to the survey. 75% said they had encountered more complications with the Portex NRFit needle compared with the Luer devices, with 93% of these being bleeding complications. 10% of responders reported an accidental dural puncture using the NRFit needles and 85% said that based on their experience so far, they would choose to use Luer devices in preference to NRFit equipment, if given the choice.

Discussion

The introduction of NRFit epidural needles has led to increased epidural complication rates in our hospitals. This highlights the need for extra vigilance following the introduction of new equipment, and the importance of monitoring for complications to help guide future procurement. Furthermore, the familiarisation of users with new equipment remains essential. Our findings were reported to the Medicine and Healthcare products Regulatory Agency.

References

1. National Patient safety Alert (2024): 'Transition to NRFit™ connectors for intrathecal and epidural procedures, and delivery of regional blocks,' available at <https://www.england.nhs.uk/wp-content/uploads/2024/01/NRFit-NatPSA-FINAL-v1.pdf>