“What did you say?”: noise reduction project in a Scottish obstetric theatre

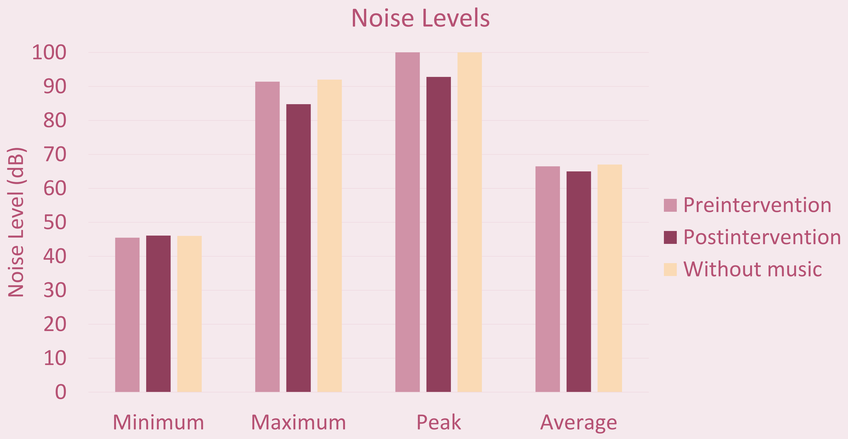
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Introduction

Sources of noise in the obstetric theatre include anaesthetic monitoring, operating equipment, music and conversation. Increased noise levels can be a significant source of distress for the patient and their birthing partner in the obstetric theatre. The World Health Organisation (WHO) recommends a noise level less than 35dB in operating theatres to enable a calm environment for patients.[1] Increased noise levels and distractions can also negatively affect patient safety, particularly during emergencies.[2] Our aim was to reduce the noise level in obstetric theatre to enhance teamworking and communication.

Methods

The project was undertaken at St John’s Hospital. The noise levels were monitored in the obstetric theatre during elective and emergency obstetric cases using “Decibel X” mobile app in decibels (dB). The results from the baseline noise levels were shared with the obstetric theatre team (midwives, obstetricians, anaesthetists, operating department practitioners and theatre team) and a small survey undertaken. A noise reduction programme was initiated in obstetric theatre which included SoundEar Monitor,[3] education and rules agreed by the team.





SoundEar Monitor

Results

Baseline data was collected for four obstetric cases. This showed an average noise level of 66dBA (minimum 45 dBA, maximum 91dBA and peak 100dBA). The results of this were shared with the obstetric theatre team. A short survey was carried out with the midwives, ODPs, anaesthetists, obstetricians and wider theatre team. 100% felt that the noise levels negatively affected communication at points during caesarean sections. Following group discussion with the theatre team, it was agreed that noise levels would be kept a minimum at three critical points:

1. **Surgical Pause**
2. **Anaesthetic (general or regional)**
3. **Knife to skin until delivery of baby**



A SoundEar monitor was borrowed from recovery and placed in obstetric theatre. It was set to 80dB – up to 75dB the monitor was green, 75-80dB amber and above 80dB red. This was used as a visual aid for all members of theatre team to reduce noise if it was amber or red at any of the three critical points. Following introduction of SoundEar over one week period, the noise levels reduced (minimum 46dB, maximum 84dB, peak 93dB, average 64dB). A trial of no music playing was trialled, to assess the effect on noise levels. Overall, the noise levels increased with no music on (minimum 46dB, maximum 93dB, peak 102dB, average 67dB).

Discussion

The introduction of noise reduction project led to an overall small reduction in noise levels. However, the feedback from the team was that it significantly improved communication. We found that having no background music on led to an increase in overall noise levels. The involvement of the entire theatre team in this project allowed rules to be set that were acceptable to all team members. In the future, we hope to get funding for a permanent decibel monitor and to consider surveying patients about their experience of noise levels in theatre.

References:

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2.van Harten, A, Gooszen, HG, Koksma, JJ *et al.* An observational study of distractions in the operating theatre. *Anaesthesia.* 2021; 76:346-356. https://doi.org./10.1111/anae.15217

3.SoundEar A/S. SoundEar II. Accessed 1 February 2022. https://soundear.com/soundear-ii-standard/