CREATION OF A HYBRID INTUBATION AND DIFFICULT INTUBATION TROLLEY IN OBSTETRIC ANAESTHESIA

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Introduction

General anaesthesia in the obstetric population is associated with a greater degree of difficult intubation[1]. In addition to the anatomical changes in pregnancy and the urgency required for obstetric procedures, human factors and inadequate preparedness can add to the complexity of the situation[2].

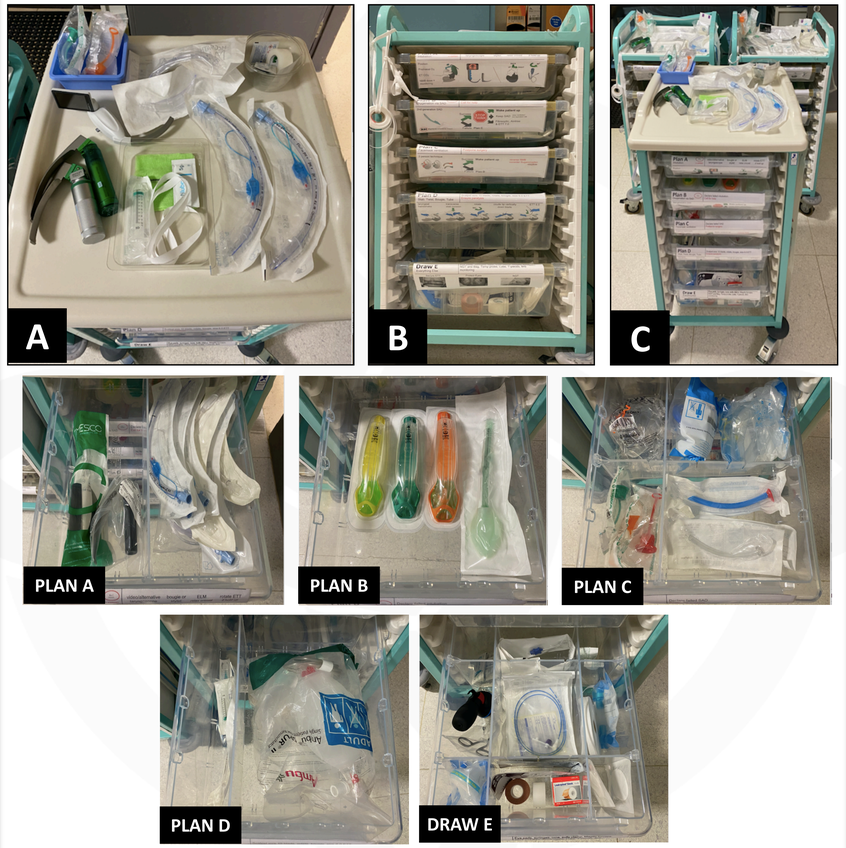
Data from a 5-year period (2017-2021) shows our unit manages an average of 5600 deliveries and performs ~60 general anaesthetics (GA) per year. All GAs were successfully intubated with the support of a video laryngoscope. Local obstetric unit policy dictated the use of an intubation trolley within each of the three obstetric theatres (two emergency and one elective theatre), with a standardised hospital difficult airway trolley (DAT) located remotely outside of all theatres.

A recent inspection by Health Inspectorate Wales identified that urgent improvements were required in the DAT; an incomplete log of equipment checks, expired equipment and damage to the wheels rendering it immobile in an emergency. Additionally, the three theatre airway trollies were not standardised, contained miscellaneous items of equipment not related to obstetric anaesthesia, and were either over or understocked due to a lack of a local store facility.

Method

A streamlined hybrid intubation trolley modelled on the OAA/DAS ABCD algorithm was configured (figure 1). The top of the trolley contained all equipment necessary for intubation, including a video laryngoscope where possible. The drawers contained equipment needed for plan A, B C and D. Drawer E contained “extra” equipment. Due to equipment constraints, one McGrath was placed in the elective theatre, and one was made available for both emergency theatres. The C-MAC was stored centrally with easy access to all theatres. The old DAT was converted into a stock trolley. Laminated sheets of the OAA/DAS algorithm were attached to the trollies. Direct feedback from anaesthetists and ODPs was collected over the 10 weeks implementation period followed by a questionnaire.

Figure 1



A) demonstrates a view from the top of the trollies, B) the anterior view and C) displays all three trollies and their standardised format. A view of the contents contained in all five draws are labelled Plan A, Plan B, Plan C, Plan D and Draw E.

Results

Twenty-eight out of 35 staff gave feedback on the planned set-up - 20 anaesthetists and 8 ODPs. All agreed that the new trollies have enhanced patient safety. Two respondents suggested the addition of an Ambu bag and Water Circuit to aid resuscitation in the delivery room. Seven intubations occurred in the 10-week implementation period. Feedback from users highlighted a delay attaining a video laryngoscope in one of the emergency theatres. As a result, both emergency theatres would contain one McGrath each and the C-MAC to remain centrally available for all three theatres.

Discussion

We have successfully introduced three streamlined, hybrid and mobile airway trollies in our unit. These trollies are in line with the OAA/DAS ABCD algorithm, address Health Inspectorate Wales concerns and fulfil the emerging evidence of the benefit of video laryngoscopy. Early and regular engagement within the obstetric anaesthetic team was the key to successfully implement the change. We will continue to review our trollies for further improvements and aim to secure funding for an additional McGrath laryngoscope for the elective obstetric theatre.

Finally, these daily checked and stocked trollies, which are modelled on the OAA/DAS ABCD algorithm, have brought a heightened sense of safety in our obstetric theatres and in the management of a maternal collapse in any area of our maternity unit. We strongly recommend other units to adopt a similar approach.

References

[1] Hawkins, J., Chang, J., Palmer, S., Gibbs, C. and Callaghan, W. Anaesthesia-Related Maternal Mortality in the United States 1979–2002. *Obstetrics & Gynecology* 2011; 117(1): 69-74.

[2] Kovacheva, V., Brovman, E., Greenberg, P., Song, E., Palanisamy, A. and Urman, R. A Contemporary Analysis of Medicolegal Issues in Obstetric Anesthesia Between 2005 and 2015. *Anesthesia & Analgesia* 2019; 128(6): 1199-1207.

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