



INTRODUCTION:

Tracheal intubation is a frequently performed procedure in the delivery room and NICU. Adverse events associated with endotracheal intubation are common in the NICU and associated with emergent intubations and increasing number of attempts¹. Use of checklist for invasive procedure is good medical practice in NHS. Clear documentation of this procedure is important as it is reviewed medico legally.

PHASE 1

PLAN :

- To assess the quality of Intubation pertaining to
 1. Size of ET tube
 2. Length at which we are fixing
 3. Use of end tidal co2
 4. Number of attempts
 5. Premedication
 6. Confirming tip position on CXR
 7. Accidental Extubation
- To assess confidence of junior doctors in intubation and opportunity for training
- To assess Record keeping of Intubation Procedure on NNU

DO:

- Retrospective Data collection from clinical notes
- 28 intubations were analysed
- Survey conducted to get feedback from junior doctors regarding intubation skills
- Data analysed to assess current practice

STUDY RESULTS:

Quality and Documentation:

Appropriate size of ETT	85%
Appropriate length of ETT	61%
Use of End tidal Co2	57%
1st attempts success rate	57%
use of pre medication	61%
confirmation on CXR	65%
accidental extubation	14%

Junior Doctor Survey :

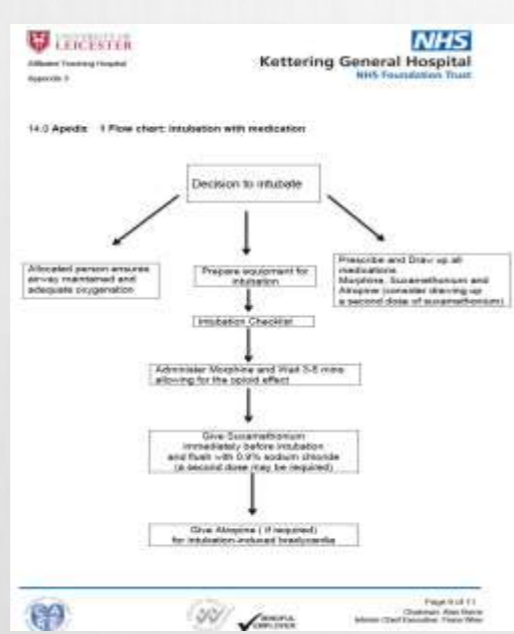
Tier 1	
Chance to intubate	13%
Confidence in bag and mask(average and above)	71%
Confidence to intubate (average and above)	0%
Tier 2 (Registrar)	
Given chance to intubate junior doctor	44%
Confidence to intubate (average and above)	89%

ACTION PLAN:

- Pre-checklist for intubation and documentation sheet introduced
- Flow chart for intubation written
- Revised intubation guidelines
- Regular Consultant led simulation training for junior doctors and nurses
- Re do PDSA cycle to improve quality

Pre-checklist and documentation

Flowchart for intubation



Simulation training



PHASE 2

Revised Guideline

Reference for ET Tube size and length

Gestation	ETT size	ETT length
28-30	2.5	10
31-32	2.5	10
33-34	2.5	10
35-36	2.5	10
37-38	2.5	10
39-40	2.5	10
41-42	2.5	10
43-44	2.5	10
45-46	2.5	10
47-48	2.5	10
49-50	2.5	10
51-52	2.5	10
53-54	2.5	10
55-56	2.5	10
57-58	2.5	10
59-60	2.5	10
61-62	2.5	10
63-64	2.5	10
65-66	2.5	10
67-68	2.5	10
69-70	2.5	10
71-72	2.5	10
73-74	2.5	10
75-76	2.5	10
77-78	2.5	10
79-80	2.5	10
81-82	2.5	10
83-84	2.5	10
85-86	2.5	10
87-88	2.5	10
89-90	2.5	10
91-92	2.5	10
93-94	2.5	10
95-96	2.5	10
97-98	2.5	10
99-100	2.5	10

PLAN :

To assess the action plan implementations of first cycle

DO:

Prospective analysis of 14 intubations

STUDY RESULTS :

Quality and Documentation:

Appropriate size of ETT	71%
Appropriate length of ETT	50%
Use of End tidal Co2	100%
1st attempts success rate	79%
use of pre medication	100%
confirmation on CXR	65%
accidental extubation	0%

Junior Doctor Survey :

Tier 1	
Chance to intubate	50%
Confidence in bag and mask(average and above)	92%
Confidence to intubate (average and above)	23%
Tier 2 (Registrar)	
Given chance to intubate junior doctor	62%
Confidence to intubate (average and above)	100%

ACTION PLAN :

- 1) To improve in size and length of ET tube insertion Laminated sheet of reference for ET Tube size and length attached to all resuscitation trolleys.
- 2) To sustain improvement continue simulation training.
- 3) Inform junior doctors at induction about Intubation checklist, guideline and documentation.
- 4) Remainder charts in doctors office to document confirmation on CXR
- 5) Re do PDSA cycle to improve further.

CONCLUSION :

- Effective simulation, training, education and perseverance in change in practice improved the intubation skills in neonates as well as confidence of doctors & nurses working on the unit.
- Intubation skill Improvement is likely to improve outcome of these babies.
- Persist with this practice and re do PDSA to maintain quality standards

REFERENCE :

- 1 L. Dupree Hatch et al Endotracheal Intubation in Neonates: A Prospective Study of Adverse Safety Events in 162 Infants, J Pediatr. 2016 Jan; 168: 62–66.e6
2. Kelleher J, Mallya P, Wyllie J. Premedication before intubation in UK neonatal units: a decade of change? Arch Dis Child Fetal Neonatal Ed. 2009 Sep;94(5):F332-5

Acknowledge: Sincere thanks to all our colleagues who participated in the survey in particular Dr J Nur GP Trainee and Dr M Vahgela. FY1