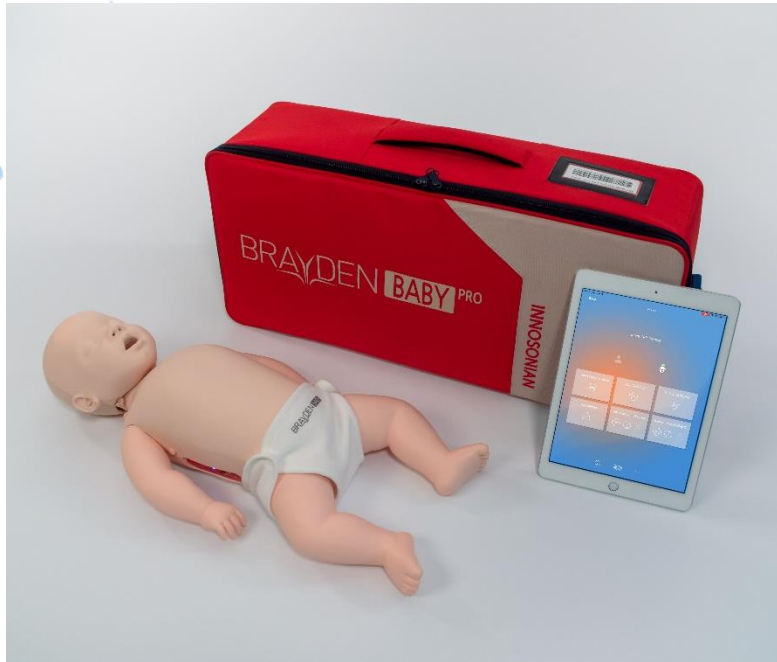


**Real-time objective feedback for
infant CPR using a novel new
infant manikin (Brayden Baby
Pro™)**

**– a pilot study with paediatric
nurses in the UK**

WELCOME



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CREDENTIALS / BIO PRESENTER

Hypothesis/Research Question

The hypothesis for this pilot study was to investigate whether it is possible to identify components of infant CPR that improve with practice (using objective and visual feedback).

The objective was to investigate which of the components of infant CPR improve with practice with objective feedback from an infant manikin.

Cardiac arrest in infants is rare but is associated with an overall mortality of up to 90%.

The majority of infants suffering from cardiac arrest have a poor chance of survival compared with older children. Providing good quality chest compressions with correct ventilation technique is essential during infant CPR but has been reported to be challenging to achieve in practice.

Previous studies have found that frequent use of real time feedback in training can improve infant CPR performance. CPR feedback devices are recommended during CPR training to help improve skills.

Methods

Using a realistic simulation environment, 10 paediatric nurses were assessed individually and asked to perform infant CPR using the ERC 2015 Guidelines. The infant manikin was a Brayden Baby Pro™ intended to represent a 6kg infant in this scenario (using the iPad App Brayden Online™). The Nurses were told at the start that the infant was 'not breathing normally' and they were alone and first on the scene. There were 3 stages that each Nurse undertook with the assessment:

1. Perform 5 rescue breaths followed by three cycles (15:2) of infant CPR. No feedback from the manikin was provided to the Nurse and no debrief at the end. The overall CPR quality (%) and individual numeric CPR component data were recorded via the manikin/App.
2. A short period (max 3 minutes) of guided and free practice with the real time feedback from the manikin switched on for the nurse to individually assess performance.
3. Repetition of stage 1. A questionnaire to assess ease of use of the manikin was also completed by each nurse individually at the end of Stage 3 using a Likert 10 point score.

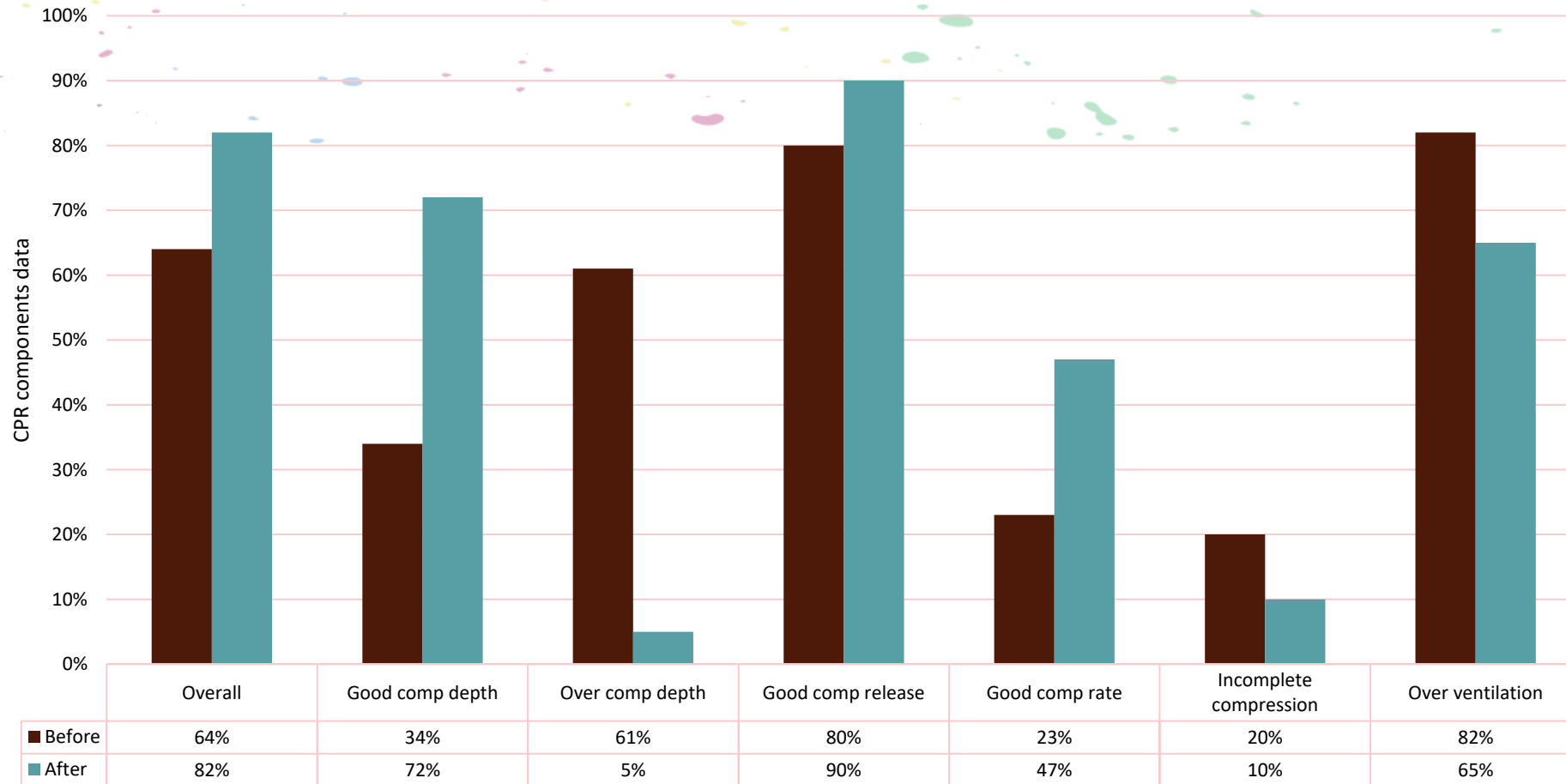
The manikin objective data collected for Stage 1 and 3 was later analysed with descriptive (central tendency and distribution) and inferential statistical analysis (paired samples t-test). The level of significance used was set at $\alpha=.05$.

Methods

Visual (lights) and objective feedback from the infant manikin (Brayden Baby Pro™) and the associated iPad App (Brayden Online™)



Results



Results – Explanation

Overall mean infant CPR quality score improved from 64% to 82%. (p= .00)

Good compression depth (range: 1/3AP) improved from 34% to 72%. (p=.01)

Incidence of 'over compression' decreased from 61% to 5%. (p=.00)

Good compression rate (range: 100-120) increased from 23% to 47%. (p=.02)

Good compression release increased from 80% to 90%.

Accuracy of finger or thumb position was 100% in both Stage 1 and 3. No change.

The mean ventilation volume delivered (target was range 20ml – 40ml), decreased from 46 ml in Stage1 to 43 ml in Stage 3. (p=.04)

Incidence of 'over ventilation volume' delivered decreased from 82% in Stage 1 to 65% in Stage 3 (p= 0.4).

The mean score for ease of use obtained from the completed questionnaires was 9.2 out of a max. 10 (SD = 1.9).

Conclusion

Continual quality assurance of CPR performance during training using real time objective feedback via visual and numeric means, together with repetitive practical manikin training, enhances the quality of infant CPR.

The results show guided and free practice with visual feedback (which is easy and quickly understood by the student) when using the Brayden Baby Pro™ infant CPR training manikin helped improve the overall CPR quality performance together with the important component parts of infant CPR technique (i.e correct compression depth, rate, release and correct ventilation volume etc).

These key components of the ERC Paediatric CPR guidelines, when performed correctly, ensure high-quality infant CPR and are essential for maintaining vital organ perfusion.

Infant CPR is difficult to perform within the correct parameters, even for highly skilled providers, so training manikins that help improve and optimize performance and are easy to understand and use should be employed where possible and relevant. These results are consistent with this statement.

Furthermore, the questionnaire results suggest the new manikin is easy to understand and use.

QUESTIONS?



#IMSH2021

SIMULATION:
BRINGING LEARNING TO LIFE

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THANK YOU!