

# Weight and Height as limiting characteristics to achieve better performances in Quality CPR in children

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## Purpose of the study

In June 2017, Italian Resuscitation Council (IRC) participated at the international festival "HaBaWaBa", and organized a 5-day Mass Training to increase CPR skills in youngsters.

Three hundred and seven children (95% male, age 10.2±0.8 years old, BMI 19±3 kg/m<sup>2</sup>) were recruited for this study.

The purpose was to assess their ability to provide high quality CPR on a chest compression only scenario.

## Materials and methods

Resusci Anne (RA) Q-CPR manikins (Laerdal, Norway) with and without feedback (196 children) and Brayden Pro (BP) manikins (Innosonion, South Korea) with feedback (111 children) were used to collect data on CPR quality.

## Results

Results were divided according to children's weight (≤40 Kg vs. >40 Kg) and height (<147 cm vs. >147 cm). Children were not able to reach and/or maintained the targets for good quality CPR (Table 1 and 2). Nobody achieved a depth of 50-60 mm: mean depth was 39±6 mm in the BP group and 31±8.4 mm in the RA group (p<0.001). However, Overall Score (OS) of CPR was better in children weighing >40 kg compared to lighter ones.

## Conclusion

Our study confirmed that children are not able, due to physical restraints, to achieve target of chest compression depth. Nevertheless, stratification according to physical characteristics, showed that a greater weight accounted for a better CPR performance.



**Table 1: summary data of weight**

	Overall score %		
Weight	≤40 Kg	>40 Kg	p
BP (n=111)	55.2±0.2	60.9±11.2	<0.05
RA (Q-CPR (n=196)	41.3±15.39	51.48±14.94	<0.0001

**Table 2: summary data of height**

	Overall score %		
Height	≤147 cm	>147 cm	p
BP (n=111)	56.5±11	59±11	0.25
RA (Q-CPR (n=196)	40.35±14.60	51.63±15.34	<0.0001