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/m2) 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 (Innosonian, 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