

## AS017

**CorPatch<sup>®</sup> – A smartphone-based BLS guidance and feedback system: Improvements in laypersons' chest compressions**

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**Purpose of the study:** Survival after out-of-hospital cardiac arrest depends on high quality chest compressions. Even if bystander CPR is initiated before arrival of ambulance, the quality of chest compressions is often poor. A BLS Guidance System (BGS) was developed using a Chest Compression Feedback Device (CCFD) with sensor, which was connected to a smartphone app. Objective was to study the impact of BGS on the quality of compressions performed by lay rescuers with no previous CPR training.

**Material and methods:** 26 subjects performed chest compressions using a Gaumard Code Blue III manikin. 13 subjects were evaluated for 1 min without support first, and then with CorPatch<sup>®</sup>, the other group in reverse order. CorPatch<sup>®</sup> offers a metronome sound (frequency 100 min<sup>-1</sup>), and visually illustrates correctness of depth and frequency. Additionally, text messages and icons provide corrective guidance. Compression rate and depth were recorded.

**Results:** Both depth and frequency of chest compressions were significantly better with CorPatch<sup>®</sup> as compared to no support. Mean frequency with CorPatch<sup>®</sup> was 102 ± 11.5 min<sup>-1</sup> (89 ± 28.8 min<sup>-1</sup> without support),  $p = .028$ . Depth of chest compressions with CorPatch<sup>®</sup> support was significantly higher than for unsupported compressions (4.62 ± 0.69 cm vs 4.25 ± 0.81 cm,  $p < .001$ ).

**Conclusions:** The combination of instructive metronome and visual feedback of chest compressions provided by the CorPatch<sup>®</sup> app improved the quality of chest compressions performed by untrained lay rescuers. Furthermore, the participants reported increased confidence in their BLS performances. However, real time feedback of such high frequency imposes a high level of cognitive demands on the user. More research is needed to further improve usability, especially in terms of intuitive use and ease of recognition. Further studies should evaluate whether the use of CorPatch<sup>®</sup> can also improve the performance of chest compressions provided by lay rescuers who are trained in BLS.

<https://doi.org/10.1016/j.resuscitation.2017.11.005>