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## Telemedicine based assessment of CPR performance in paediatric emergency departments of Pakistan

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**Introduction:** Basic Life Support (BLS) and Pediatric Advance Life Support (PALS) are necessary for physicians working in pediatric emergencies. In Pakistan, similar to other developing countries, number of Pediatric Emergency Departments (PEDs) is low and available PEDs does not have credentialed and certified health professionals to provide life sustaining measures in a critically ill patient. We, Child Life foundation, started working in 2011, have developed 7 PEDs throughout Sind, Pakistan. We have American Heart Association's certified instructors who train our physicians and nursing staff for Basic Life Support (BLS) skills. These skills help us saving lives and increase the level of confidence of these physicians while managing a critically ill child. Child Life foundation has a sophisticated Telemedicine (TM) Program, which provides 24/7 real time, video based consultations as well as assessment of CPR skills of the bedside physicians.

**Objective:** This study aims to assess the CPR performance of bedside physicians via Telemedicine.

**Method:** Cardio-Pulmonary Resuscitation (CPR) being performed in the resuscitation rooms of either of the 07 Pediatric Emergency Departments (PEDs) of Child Life foundation, are frequently assessed by the Telemedicine Physicians on a predesigned checklist. It is a 21 points checklist, designed as per AHA guidelines for BLS. Assessment is done via High Definition Cameras and live monitoring to provide feedback to the physician. All data is kept strictly confidential in a password protected data sheet and feedback of outcome of CPR is given individually and maintain in their monthly performance sheet. We conducted a retrospective data review of CPR assessments done from January 2019 till June 2019.

**Results:** A total of 377 Cardio-Pulmonary Resuscitations (CPRs) were observed. 122 Number of physician observed. 99% of physicians checked response of patient and 95% called for help. 86% physicians checked for pulse while 81% looked for breathing. 84% of physicians performed appropriate rate of compressions and 69% let the chest recoil completely. In 81% of the encounters, appropriate airway positioning was maintained with head tilt chin lift and in 80% of patients correct E-C clamp was maintained. Ambu bag was attached to oxygen device in 98% but chest rise was being observed by only 51% of physicians. 78% physicians performed appropriate number of CPR cycles. Monitor was attached in 85% of CPRs observed, but rhythm check after every 2 minutes was done by only 45% physicians. Epinephrine was given in correct dose and appropriate dilution in 90% and 89% encounters, respectively. 45% avoided interruptions during CPR. Overall CPR performance was 76%.

**Conclusion:** Adequate Cardio-Pulmonary Resuscitation (CPR) performance is the key factor in saving lives in Pediatric Emergency Departments (PEDs) and regular, frequent assessments are necessary to keep a check and balance on performance to provide quality of care and to improve teaching and training.