

Paramedic – Evidence Based Medicine (P-EBP) Program

Paramedic CAT (Critically Appraised Topic) Worksheet

Title: Effectiveness of CPR instruction via Emergency Medical Dispatchers

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Clinical Scenario: An Emergency Medical Dispatcher receives a 911 call for a 71 year old male who is unresponsive. Through their scripted questioning they confirm the patient is unconscious and not breathing and begin providing pre-arrival CPR instructions to the caller.

PICO (Population – Intervention – Comparison – Outcome) Question:

“Can Emergency Medical Dispatchers identify patients in cardiac arrest and effectively provide pr-arrival CPR instructions?”

P: Patients that are described to EMD by a bystander as being unconscious and not breathing

I: CPR instructions

C: Caller compliance

O: CPR being performed by bystanders

Search Strategy:

((Cardiac arrest) OR (unresponsive))AND (CPR) AND ((EMD) OR (Emergency Medical Dispatcher)) AND (Pre-arrival instructions)

Search Outcome: 8 hits

Relevant Papers:

AUTHOR, DATE	POPULATION: SAMPLE CHARACTERISTICS	DESIGN (LOE)	OUTCOMES	RESULTS	STRENGTHS/ WEAKNESSES
O’Neill (2007)	Emergency calls identified from AMPDS for cardiac arrest and confirmed through ambulance patient care records	Case report (LOE III)	Bystander CPR Time to perform interventions	69.7% agreed to giving CPR with instructions Median times: Open airway = 128s 1 st ventilation = 247s 1 st compression = 315s 40.6% had no chest compressions prior to ambulance arrival	Difficult to determine accuracy of timelines as instructions are given over the phone Small case review group (176 calls)
Lerner (2008)	Patients who received chest compressions from bystanders	Retrospective case series (LOE III)	Caller performed	15% received compressions prior to EMS arrival 8% failed to	Descriptive statistics were used to analyse the data

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	who called 911 to centres that provide CPR instructions		compressions Sequence of instructions Barriers to performing CPR instructions	complete airway and breathing steps 19% disconnected prior to instructions 18% refused to perform CPR 14% unable due to emotional state 13% inability to listen and care concurrently 8% had physical limitations	
Heward (2004)	Emergency calls confirmed as cardiac arrest by dispatch and paramedics where CPR instructions were provided	Retrospective analysis (LOE III)	Barriers to following instructions Time taken to reach key points	49% had barriers to following instructions Median time to recognize arrest: 40 s Time to 1 st ventilation: 4 m 10 s Time to 1 st compression 5 m 10 s Notable increase to times where barriers exist	Small case review (100 calls)

Comments:

These three articles show that CPR instructions delivered by telephone may increase the number of bystanders that attempt CPR however the delays and barriers may limit the effectiveness.

Clinical Bottom Line:

Dispatcher assisted CPR instructions can be a valuable tool to engage bystanders in performing this act however the AMPDS protocols need to be amended to enable the dispatcher to provide timely instructions with the flexibility to make modification to assist those with barriers

References:

O'Neil, J.F., Deakin, C.D., (2007). Evaluation of telephone CPR advice for adult cardiac arrest patients. *Resuscitation*, 74(1), 63-7

Heward, A., Donohoe, R.T., Whitbread, M.,(2004). Retrospective study into the delivery of telephone cardiopulmonary resuscitation to "999" callers. *Emerg Med J*, 21(2), 233-4



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Lerner, E.B., Sayre, M.R., Brice, J.H., White, L.J., Santin, A.J., Billittier, A.J 4th., Cloud, S.D., (2008). Cardiac arrest patients rarely receive chest compressions before ambulance arrival despite the availability of pre-arrival CPR instructions. *Resuscitation*, 77(1), 51-6