Paramedic CAT (Critically Appraised Topic) Worksheet

Title: Does bystander CPR increase survival rates in sudden cardiac arrest

Report By: Jeff Waring

2nd Party Appraiser: Jen Greene

Clinical Scenario: A middle aged man collapses while shopping at the local shopping mall he is not breathing and bystanders cannot detect a pulse. EMS is called and paramedics arrive on scene 8 minutes later, they immediately start CPR and start working the cardiac arrest. If CPR was started pre-EMS arrival would survivability increase?

PICO (Population – Intervention – Comparison – Outcome):
In sudden cardiac arrest (P) does bystander CPR (I) opposed to waiting for EMS arrival (C) increase survival rates (O)?

Search Strategy: PUB med, Bystander initiated CPR, cardiopulmonary resuscitation and clinical consequences

Search Outcome: This resulted 163 hits, 2 that directly related to the PICO

Relevant Papers:

AUTHOR, DATE	POPULATION: SAMPLE CHARACTERISTICS	DESIGN (LOE)	OUTCOMES	RESULTS	STRENGTHS/ WEAKNESSES
Adielsson ,2011	7,187 patients met the criteria. Age and place (out of hospital Cardiac arrest)	11	Bystander CPR increased from 46% to 73% to 95% over the course of this study..	survival rates (to 1 month) increased from 12% to 23%	Length of study too long. Doesn't take into account other treatment path changes
Sekimoto, Aug 2000	Pre hospital Cardiac arrest patients	11	Increase in viable rhythm if CPR started within 5 minutes of arrest	The rate of early CPR from 20% to 50% would expect to rescue an additional 1800 pts. per anum in Japan.	Retrospective study. Length of study too short.

Comments:
Topic has too many variables, need to eliminate some.

Consider: *Conflicting information studies took too long or short not taking into account treat path advances and cultural changes that are required.*

Clinical Bottom Line: Early CPR saves lives; both studies provide evidence that by educating the population in CPR you will increase the chances of bystander CPR being initiated. Furthermore the studies indicate that early CPR and defibrillation increase survival rates.

References: Pub Med

1) Adielsson A, Hollenberg J, Karlsson T, Lindqvist J, Lundin S, Silfverstolpe J, Svensson L, Herlitz J. Heart. 2011 Sep;97(17):1391-6. Epub 2011 Jun 29.

Increase in survival and bystander CPR in out-of-hospital shockable arrhythmia: bystander CPRand female gender are predictors of improved outcome. Experiences from Sweden in an 18-year perspective.

2) Sekimoto M, Noguchi Y, Rahman M, Hira K, Fukui M, Enzan K, Inaba H, Fukui T.

Estimating the effect of bystander-initiated cardiopulmonary resuscitation in Japan. Resuscitation. 2001 Aug;50(2):153-60. PubMed PMID: 11719142.