

Paramedic – Evidence Based Medicine (P-EBP) Program

Paramedic CAT (Critically Appraised Topic) Worksheet

Title: Preventing Injuries in Paramedics

Report By: Aaron Munro

2nd Party Appraiser:

Clinical Scenario: Paramedics transport patients on stretchers, which must be loaded and unloaded into the back of the ambulance, requiring the paramedics to lift and lower upwards of 700 lbs, which can result in paramedic injuries. With the advancement of technologies, could power stretchers that lift and lower a stretcher through hydraulics reduce paramedic injuries?

**PICO (Population – Intervention – Comparison – Outcome) Question:
Paramedics – Power Cots – Manual Cots – Injury Rates**

Search Strategy:

PUB MED: (EMS or EMT or PARAMEDIC or EMERGENCY MEDICAL SERVICES) and (POWER or HYDRAULIC or BATTERY or ELECTRICALLY) and (STRETCHER or COT or GURNEY)

Search Outcome: 10

Relevant Papers:

AUTHOR, DATE	POPULATION: SAMPLE CHARACTERISTICS	DESIGN (LOE)	OUTCOMES	RESULTS	STRENGTHS/ WEAKNESSES
Studnek, Crawford, Fernandez Received 26 March 2010 Accepted 2 May 2011	Urban EMS Systems	Green III	Hydraulic stretchers to decrease occupational injuries	Significant decrease in injuries, however they may not have all be related to the intervention	Strengths CI 95% Weaknesses Not a randomized study Retrospective Unintentional multifaceted approach to worker safety may have influenced the outcome.

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Fredericks, Butt, Hovenkamp 12 June 2009	EMS Service	Green III	To determine the financial impact of manual vs battery power gurneys to lift and lower patients, on an EMS service.	The battery powered gurney provides a positive financial impact for the EMS service. The battery powered gurney decreased injury claims paid by 41% and a 62% decrease in the amount of claims paid per transported for incidents involving gurneys. Claims related to raising and lowering the gurney decreased by 69% and 96% respectively.	Strengths 4 years worth of data from a larger EMS Provider. Even through call volume increased, study continued to see decrease in claims per transport. Weakness Not a randomized study Retrospective
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Comments:

In both articles address aspects of the original PICO. The first article direct relates power cots to a reduction in injury rates, while the second article focused on the cost savings related to reducing injuries through power cots. There was very little drift from the original PICO.

Consider: *Why would you NOT change practice, based on this article?*

Clinical Bottom Line:

Based on the evidence present, there is not enough evidence to support switching from manual to power stretchers. There are too many confounding factors which may have contributed to the reduction of injuries. The evidence suggests more research or additional trials are required. We would recommend a prospective study with a controlled group to generate the necessary evidence to support a recommendation on power stretchers.

References:

Studnek JR, Mac Crawford J, Fernandez AR. Evaluation of occupational injuries in an urban emergency medical services system before and after implementation of electrically powered stretchers. *Appl Ergon.* 2012 Jan;43(1):198-202. Epub 2011 May 31



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Fredericks TK, Butt SE, Hovenkamp A. The Impact of Gurney Design on EMS Personnel. Occupational Ergonomics and Safety Conference 2009 June 12