

Accuracy in use of adrenalin auto-injectors in a simulated emergency situation: a comparison of JEXT, EpiPen and Emerade

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Introduction

- Being able to use an adrenaline auto-injector (AAI) properly in an emergency situation is vital when treating someone suffering from anaphylactic shock.
- Research has shown that nearly half of untrained participants are unable to correctly use an AAI training device after instruction.
- AAIs should therefore have an easy to use design and instructions should be very clear.

Aim

- This study aimed to assess intuitiveness and accuracy of use of JEXT, EpiPen and Emerade in untrained, non-allergic participants, in a simulated emergency situation.

Methods

Participants (n=90 adults) were randomly assigned to JEXT, EpiPen or Emerade. A simulated scenario involved a live patient acting unconscious after eating something they were allergic to; a loud ambulance siren played throughout.

Participants were asked to give the person an injection of adrenalin in the leg, using a trainer pen with no instructions available. They were then asked to give a second shot with a pen of the same design with instructions. The simulation was scored by the researcher and video recorded; participants were interviewed about their experience.

Results

- Overall only **27.8%** of participants could successfully administer adrenalin with no instructions visible; **58.9%** could successfully administer adrenalin after reading the instructions.
- Significantly more participants successfully gave their patient adrenalin using Emerade (100%) compared to JEXT (56.7%) or EpiPen (23.3%) (all $p < 0.001$).
- Participants also took significantly less time to administer adrenalin with Emerade, compared to JEXT, or EpiPen ($p < 0.001$).

Discussion

- In this simulated emergency situation participants found it difficult to read and act on written instructions.

Discussion

- This is likely to be more pronounced in a real emergency where an AAI might be used by someone with little or no training.
- Instructions on JEXT and EpiPen were confusing and skim read by participants, thus they missed important information.
- Emerade was reported to be easy to use both with and without instructions and pictures were easy to follow.
- Instructions on AAIs need to be simplified with less complicated designs.

	EpiPen (n=30)	JEXT (n=30)	Emerade (n=30)
	n (%)	n (%)	n (%)
Successful administration			
Without instructions	0	2 (6.7)	23 (76.7)***
With instructions	7 (23.3)	17 (56.7)	30 (100)***
Time taken to give AAI – all attempts (seconds)	Mean (SD)	Mean (SD)	Mean (SD)
Without instructions	14.08 (12.67)	12.02 (7.48)	10.05 (4.25)***
With instructions	33.73 (19.41)	29.21 (12.03)	14.73 (3.73)***
Score out of 5 for use of the AAI	Mean (SD)	Mean (SD)	Mean (SD)
Without instructions	.47 (.63)	.80 (1.01)	3.43 (1.33)***
With instructions	2.37 (1.43)	3.45 (1.68)	4.83 (.38)***



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