

EpiPens save lives but can cut like a knife

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Epinephrine autoinjectors can be life-saving for patients experiencing anaphylaxis -- a life-threatening emergency - but a new case series published online Tuesday in *Annals of Emergency Medicine* identifies design features of EpiPens, the most commonly used autoinjector, that appear to be contributing to injuries in children ('Lacerations and Embedded Needles Caused by Epinephrine Autoinjector Use in Children'). Credit: *Annals of Emergency Medicine*

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appear to be contributing to injuries in children.

"We were surprised by the severity of some of these injuries, including thigh lacerations and embedded needles," said lead study author Julie Brown, MDCM, MPH, of Seattle Children's Hospital and University of Washington in Seattle, Wash. "We can't think of anywhere else in pediatric medicine where we would hold a needle in an awake child's leg for 10 seconds. That's a set-up for [injury](#), particularly in the uncontrolled, stressful setting of anaphylaxis. In addition, the instructions for use do not mention patient restraint, so parents are not appropriately prepared."

Researchers identified 25 cases of [epinephrine](#) autoinjector-related injuries from intentional use to treat a child's allergic reaction. (One additional case involved a 5-year-old child who accidentally injected himself in the ankle with his older cousin's EpiPen. The needle was bent underneath the boy's skin and had to be removed at the emergency department.) Twenty [children](#) experienced lacerations, as did one nurse. In four cases, the needle stuck in the child's limb. The EpiPens were administered principally by the patient's parent (15 cases, including two nurses), though some injuries were also caused by nurses (six cases) and educators (three cases). Lacerations were up to 3 inches long.

Dr. Brown and her team made five recommendations for reducing the risk of injury when using an EpiPen:

1. The child's leg should be immobilized.
2. The action of administering epinephrine and site of delivery should be as well controlled as possible.
3. The needle should remain inserted in the thigh for as short a time as possible.
4. The needle should be strong enough that it does not bend during use.

5. The needle should never be reinserted.

A recently marketed device, the Auvi-Q (Allerject in Canada) has a self-retracting [needle](#) that is gone in under two seconds.

"On the face of it, this would appear to be a safer design for use in children," commented Dr. Brown. "While EpiPen likely holds a larger share of the epinephrine auto-injector market, it is notable that we did not see any injuries associated with the use of Auvi-Q or Allerject devices, even in recent years."

An estimated 5.9 million children in the United States have a food allergy. As the prevalence of food and other allergies increases in children, so does the risk of anaphylaxis. There is likely to be a corresponding increase in the use of epinephrine auto-injectors.

"We want to emphasize that these injuries are uncommon and should not deter parents and patients from using their epinephrine auto-injectors when needed," said Dr. Brown. "Epinephrine is a life-saving medication that must be given early in the course of anaphylaxis. Our goal in reporting these injuries is not to create fear of the EpiPen device but simply to identify limitations with the device, and hopefully motivate improvements in product design and instructions for use."

More information: "Lacerations and Embedded Needles Caused by Epinephrine Autoinjector Use in Children"

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