

Study finds most patients do not use inhalers and epinephrine autoinjectors correctly

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For people with asthma or severe allergies, medical devices like inhalers and epinephrine autoinjectors, such as EpiPen, can be lifesaving.

However, a new study by the University of Texas Medical Branch at Galveston indicates that a majority of [patients](#) often do not use these devices correctly, resulting in less effective delivery of these medications and potentially disastrous outcomes.

"Improving how patients use these devices leads to better clinical outcomes," said Dr. Rana Bonds, lead author and assistant professor in the department of [internal medicine](#), division of allergy and immunology. "We conducted an investigation to identify factors associated with incorrect use of inhalers and epinephrine autoinjectors at UTMB so that [health care providers](#) are aware of the problem and can plan better ways to increase proper usage."

These new data are published online and scheduled to appear in the January print edition of the *Annals of Allergy, Asthma & Immunology*.

The study looked at more than 145 patients using epinephrine autoinjectors or inhalers from multiple UTMB allergy/immunology clinic sites. Participants demonstrated how they used the device and were evaluated compared with established standards.

The study found that only 16 percent of patients used the epinephrine autoinjector properly. More than half missed three or more steps. The

most common error was not holding the unit in place for at least 10 seconds after triggering release of the epinephrine. Other common errors included failure to place the needle end of the device on the thigh and not depressing the device forcefully enough to activate the injection.

Being able to use the device correctly was not associated with a particular clinic, a patient's education level or whether someone in a family had used a similar device.

With inhalers, only 7 percent of users demonstrated perfect technique and 63 percent missed three or more steps. The most common misstep was not exhaling as much as possible before using the [inhaler](#). Another common error was failing to shake the inhaler before taking the second medication puff. None of the factors examined in this study, including clinic site, age and education level, impacted the rates of correct inhaler use.

"We found that incorrect use of these [medical devices](#) is still a problem," said Bonds. "Despite the redesign of the autoinjector for easier use, most patients continued to make at least one mistake with the device. Most patients made multiple mistakes and would not have benefitted from self-administration of the potentially life-saving treatment if the need arose."

The same was true with inhalers used for asthma. Fortunately, most patients were able to complete more than half of the steps properly and the common errors displayed by inhaler users would typically result in diminished drug delivery rather than no delivery at all.

The study demonstrates the clear need to improve training for patients so they receive the full benefits of these medications. Recommendations include repeated verbal and visual education using demonstration. New ways to provide this training will help patients and potentially save lives.

More information: *Annals of Allergy, Asthma & Immunology*,
[www.sciencedirect.com/science/ ... ii/S1081120614007522](http://www.sciencedirect.com/science/.../ii/S1081120614007522)

Provided by University of Texas Medical Branch at Galveston

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