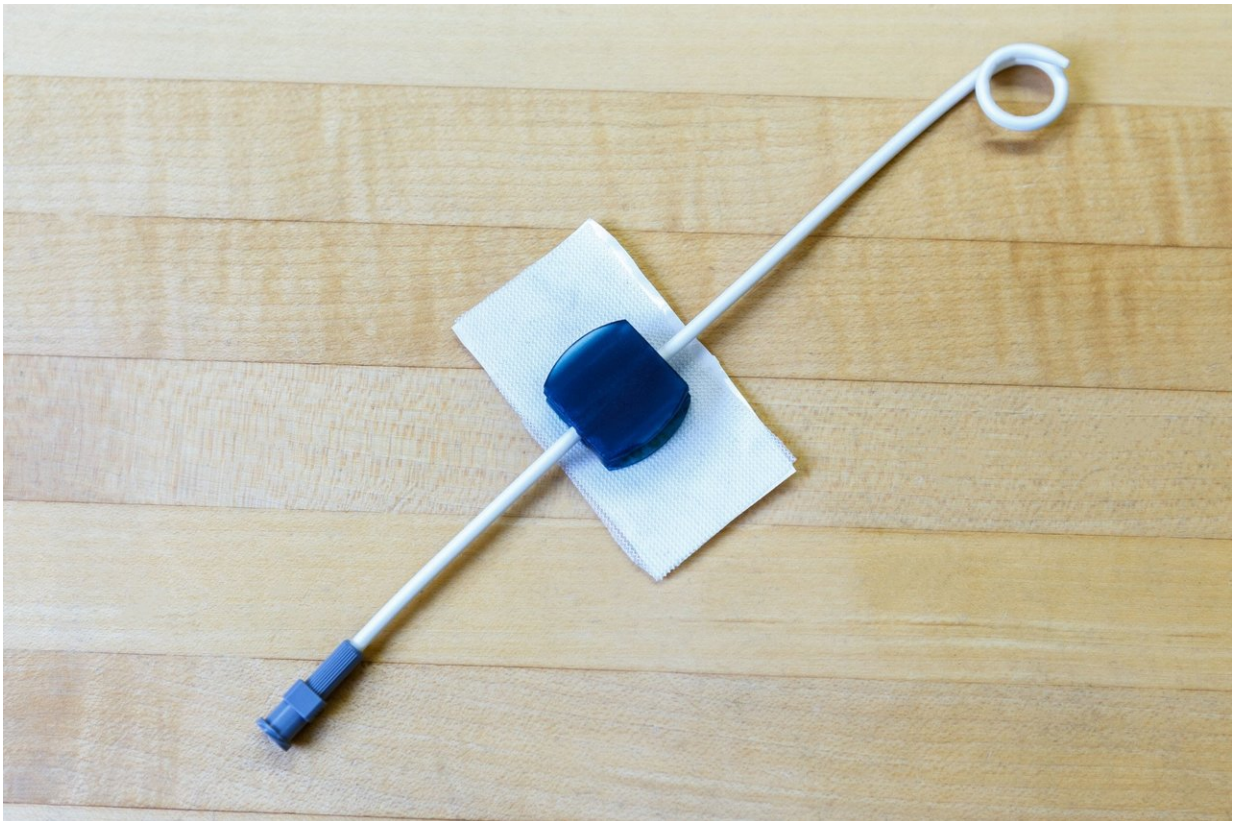


# Researcher develops device to secure chest tubes without sutures

October 6 2017, by Steve Martin

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Dr. Samer Abu-Sultaneh's device, shown holding a chest tube. Credit: Indiana University

Medical practitioners may be able to secure chest tubes to their patients more quickly and with greater reliability by using a device developed by

Dr. Samer Abu-Sultaneh, assistant professor of clinical pediatrics at the Indiana University School of Medicine.

Chest tube placement, or tube thoracostomy, is routinely performed by intensive care physicians, surgeons, interventional radiologists and emergency room physicians to drain fluid, blood or gas in the pleural space, which is the space between the membranes that line the lungs. The current procedure includes an incision between the patient's ribs and feeds the tube into the pleural space. The chest tube is secured with sutures, allowing accumulated fluids, blood or gases to drain with or without the use of suction.

Abu-Sultaneh said the traditional method of securing the tube with sutures directly to the patient's chest has several common risks.

"Sutured chest tubes, especially smaller-sized tubes, can become dislodged. This can lead to the patient experiencing bleeding, pain and pneumothorax—an accumulation of air in the pleural space," he said. "Suturing also takes a substantial amount of time, which is not ideal in emergency situations. The use of sutures may also limit a patient's movement during recovery because the chest tube is prone to dislodgement."

Abu-Sultaneh said his device addresses these challenges.

"The chest tube securement device offers a way of firmly securing a chest tube to the patient without suturing," he said. "By using a medical adhesive strip and a tube mount, the tube can be secured to the [chest wall](#) in a shorter amount of time. It will also be less prone to dislodgement."

In developing the device, Abu-Sultaneh will test the amount of force that can be applied to a chest tube before it is dislodged from his device and from traditional sutures. He also will calculate the time needed to secure

a chest tube with his device and with traditional sutures.

"Should the U.S. Food and Drug Administration approve the device, we could start a trial to use the [chest](#) tube securement [device](#) on [patients](#)," he said.

Provided by Indiana University

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