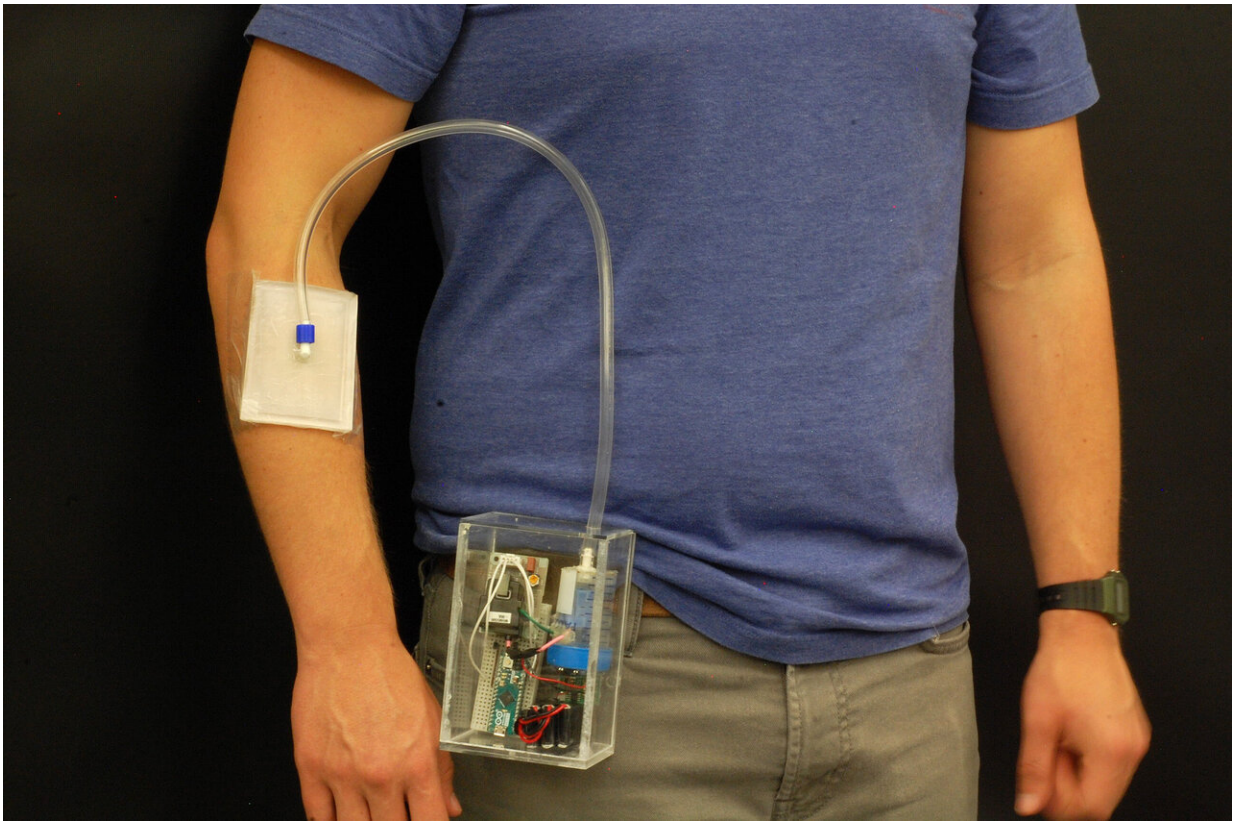
Wearable, portable invention offers options for treating antibiotic-resistant infections

September 3 2020



Purdue University innovators created a wearable invention that offers options for treating antibiotic-resistant infections and wounds. Credit: Purdue University/Rahim Rahimi

The rapid increase of life-threatening antibiotic-resistant infections has resulted in challenging wound complications with limited choices of

effective treatments. About 6 million people in the United States are affected by chronic wounds.

Now, a team of innovators from Purdue University has developed a wearable solution that allows a patient to receive treatment without leaving home. The Purdue team's work is published in the journal *Frontiers in Bioengineering and Biotechnology.*

"We created a revolutionary type of treatment to kill the bacteria on the surface of the wound or diabetic ulcer and accelerate the healing process ," said Rahim Rahimi, an assistant professor of materials engineering at Purdue. "We created a low-cost wearable patch and accompanying components to deliver ozone therapy."

Ozone therapy is a gas phase antimicrobial treatment option that is being used by a growing number of patients in the U.S. In most cases, the ozone treatments require patients to travel to a clinical setting for treatment by trained technicians.

"Our breathable patch is applied to the wound and then connected to a small, battery powered ozone-generating device," Rahimi said. "The ozone gas is transported to the skin surface at the wound site and provides a targeted approach for wound healing. Our innovation is small and simple to use for patients at home."

More information: Alexander Roth et al, Wearable and Flexible Ozone Generating System for Treatment of Infected Dermal Wounds, *Frontiers in Bioengineering and Biotechnology* (2020). DOI: 10.3389/fbioe.2020.00458

Provided by Purdue University