

Rotarians in Lithuania and the United States promote the use of bubble helmets to help patients avoid mechanical ventilators

by Arnold R. Grahl

Rotarians in Lithuania and Chicago, Illinois, USA, are using their influence to promote the use of “bubble helmets” and potentially lessen the need for mechanical ventilators for COVID-19 patients who struggle to breathe on their own.

The Rotary Club of Vilnius Lituanica International, Lithuania, participated in [Hack the Crisis](#), an online event in March that brought together innovators in science and technology to “hack,” or develop solutions to, issues caused by the COVID-19 pandemic. Members of the Lithuanian club, along with members of the Rotary Clubs of Chicago and Chicagoland Lithuanians (Westmont), joined a team to brainstorm ways to help COVID-19 patients breathe without using mechanical ventilators.



Bubble helmets come in various designs and are noninvasive, supplying oxygen without the need for intubation.

“Traditional ventilators used with intubation are a painful intervention into the body and require trained medical staff,” says Viktorija Trimbel, a member of the Vilnius Lituanica club, who was a mentor during Hack the Crisis. “There’s also a shortage of the drugs used for sedation. But you don’t have to be sedated with helmets.”

Bubble helmets are noninvasive and supply oxygen without the need for intubation, a procedure where a tube is inserted down a patient’s throat. A helmet fits over a patient’s head with a rubber collar that can be adjusted around the neck. The collar has ports that can deliver oxygen and air.

Before the pandemic, doctors typically used noninvasive devices to help patients breathe if their oxygen levels dropped below a certain level. If the noninvasive devices don’t boost those levels enough, mechanical ventilators are used to push oxygen into the lungs through the tube at a preset rate and force.

Benefits of bubble helmets

- Helps with respiratory distress
- Noninvasive
- Can be used outside of intensive care units

But some critical care physicians are becoming [concerned that intubation and mechanical ventilators are being used unnecessarily on COVID-19 patients](#) and suggest that more patients could benefit by remaining longer on simpler, noninvasive respiratory support.

[Helmetbasedventilation.com](#) connects researchers, manufacturers, medical professionals, and funding sources to increase the supply of bubble helmets.

“Being a Rotarian, I have in my network people from all over the world,” adds Trimbel, governor-elect of the district that covers Lithuania. “This pandemic has moved like a wave, first in Asia, then Europe, and then the United States. Yet countries like Mexico, Brazil, and India aren’t yet as impacted. We’re trying to get word out in time for the information to help.”

Beginnings of an idea

The idea to promote helmets actually began around a kitchen table in Chicago three days before the hackathon when Aurika Savickaite, a registered nurse and member of the Chicagoland Lithuanians (Westmont) club, discussed the crisis with her husband, David Lukauskas, who is Trimbel’s brother. Savickaite recalled a clinical trial she participated in that involved the helmets a few years earlier.

The [three-year study](#) found that using these kinds of helmets helped more patients with respiratory distress avoid intubation than masks, another noninvasive method. The patients’ overall outcomes were also much improved. The helmets can be used in any room equipped with a wall oxygen supply, not just an intensive care unit.

“You want to avoid intubation for as long as you can, because generally the mortality rate on intubation is fairly high,” said Savickaite.

“Through Rotary, we’re able to connect so many people around the world. It’s a great way to collaborate in this battle.”

Lukauskas was surprised that more people weren’t talking about helmets and called Trimbel, who had already signed up as a mentor for Hack the Crisis. Together they enlisted more than a dozen Rotary members from their clubs to explore noninvasive ventilation options and how to expand the use of helmets.

The group worked with intensive care unit clinicians, healthcare leaders, helmet manufacturers, technology professionals, and marketing managers. They developed a short questionnaire for clinicians and hospital leaders worldwide, gathered practice-based knowledge on noninvasive ventilation for COVID-19 patients, devised an online platform to connect suppliers with demand, and pursued funding to finance the production of more helmets.

Spreading the word

Trimbel, her brother, and Savickaite launched their website to encourage collaboration and link manufacturers, clinicians, and funding sources. Trimbel says they've also spoken with media outlets in the United States.

The website posts news such as the mid-April [announcement](#) by Virgin Galactic that it was teaming up with the U.S. space agency NASA and a U.S. hospital to develop their own version of bubble helmets to supplement scarce supplies of ventilators in hospitals in southern California and beyond.

“Because of trade restrictions and borders being closed, most countries are on their own,” says Trimbel. “There’s a Facebook group where people are designing their own helmets using balloons and plastics. Some may think it’s funny, but it’s also inspiring. The helmet part is not rocket science, as long as it works with the connectors. We believe this has very big potential.”

The problem-solving team also worked on how to improve the isolation of patients who think they may have the virus, and how to match the supply and demand for medical equipment with available funding. Another team at the hackathon developed a digital platform that helps family physicians find up-to-date medical information on the virus for their patients.

Savickaite feels Rotary is in a strong position to find solutions to problems caused by the pandemic.

“Through Rotary, we’re able to connect so many people around the world,” she said. “It’s a great way to collaborate in this battle.”

Source: Rotary Website -