

Medical drones to the rescue

Bernd Debusmann Jr.

DUBAI — Drones are an efficient, cost-effective and potentially life-saving method of transporting blood samples, products and organs and may one day be as commonly used as ambulances or helicopters, according to experts from Johns Hopkins Medicine.

In what is believed to be the first study of its kind, researchers at Johns Hopkins have determined that large bags of blood products — such as those used in transfusions — can maintain vital temperature and cellular integrity while being transported by specially-modified drones that come equipped with a hardened, temperature controlled cooler.

In an interview with *Khaleej Times*, Johns Hopkins' Dr Timothy Amukele noted that the rapid transportation of medical products is vital especially in areas in which "transport is an issue."

"The impact it has depends on what you're moving. In the case of an organ, for example for transplant, (speed) is the difference in getting an organ or not getting an organ ... it's life or death," he said. "If the organ is delayed past a certain amount of time, it's not useful."

In the case of transporting blood products, such as those taken from a donor, controlling temperature and vibrations while in flight is of the utmost importance, Dr Amukele noted.

"For packed red cells, for example, they have to be between zero and six degrees celsius, or it's no longer viable," he noted. "There's also hemolysis, which is basically cells breaking open. It's like an egg, which is useful in its shell, but when it's broken is just a mess. We needed to make sure there wasn't hemolysis from the vibrations of the drone engine."

To make sure that blood arrives in good condition, the research team customised the drone to ensure the engine was separate from its cargo package, which was lined with foam inserts to prevent excessive vibrations.

Dr Amukele noted that there are engineering, biological and regulatory challenges that need to be solved before drones are adopted for medical purposes on a wide scale.



Blood products can maintain vital temperature and cellular integrity while being transported by specially-modified drones equipped with a hardened, temperature controlled cooler. — Supplied photo



Dr Timothy Amukele, from Johns Hopkins

In terms of engineering, we already have drones that are commercially available that can do what we need, to move medical supplies between hospitals, but it can be improved on."

"In terms of engineering, we already have drones that are commercially available that can do what we need, to move medical supplies between hospitals, but it can be improved on," he said. "But we still don't have a robust engine that can go over long distances without changing the battery, and we need the capabilities to communicate with a drone over those distances. People are working on that, but I think we're probably three years out."

"The medical piece, the stability of the substances, so far seems to be pretty stable under the conditions we've looked at," he added. "The regulation, however, is lagging behind technology and public acceptance. But it will catch up."

The benefits of drones
Eventually, drones will be useful in both urban and rural environments, particularly in cases in which smaller facilities need to get units of blood from larger, better stocked facilities.

"This is true everywhere in the US, and it's true all around the world," he said. "But the need maybe more dire in rural areas."

Drones, he added, are likely to be implemented in healthcare before being used in other sectors, due to the relatively simple — and never-changing — flight plans that would be needed and the urgency of medical requirements.

"If I'm a hospital, I'm going from point A to point B, and that track is very clear," he said. "The flight plan can be approved and monitored by the government and will never change."

"Applying them to healthcare helps drones make more sense," he said. "From a big picture standpoint, we're used to getting shoes

from Amazon whenever they come. Nobody sees the need to get shoes in minutes as opposed to a day. Once it comes to healthcare, that need is much more obvious."

Another tool
Looking towards the future, Dr Amukele noted that drones will never totally replace current methods of medical transport, but will become a common tool used alongside them.

"In the future, it will be one more option. It won't replace an ambulance, but hospitals will have ambulances, cars, and a drone fleet as part of the package," he said.

bernd@khaleejtimes.com

Did you know?

Several ideas for the application of medical drones have already been proposed and experimented with locally. At the 2015 UAE Drones for Good Awards, for example, one Emirati team proposed teaming up with DHA to use drones to deliver medicine to the elderly and special needs patients, as well as deliver blood, medical kits, and test results.

Relax! Now you won't be alone during a CT scan

Sherouk Zakaria

DUBAI — If you feel anxious, or even scared, during a CT Scan, you are not alone.

A new study that involved 1,000 UAE residents showed that 48 per cent find CT scan much more intimidating than other routine tests like blood tests (28 per cent), X-Rays (11 per cent) and blood pressure checks (6 per cent).

Results prompted an international medical technology business to introduce the world's first mobile operative CT scanners, Somatom go, that allow medical staff to stay close to the patient during the process.

While conventional scanning involves doctors or radiographers to leave patients for 3-4 minutes to fill in their data in a different room, the new system, developed by Siemens Healthineers, allows radiographers to perform the process through a tablet wirelessly connected to the gantry to stay beside the patient.

The company announced the project launch, developed with radiologists, CFOs, and referring physicians, during the Arab Health Exhibition and Congress. It is expected to be available for use in hospitals and clinics by the beginning of April.

"The main reason people felt intimidated by CT scans is due to the closed spaces, but most importantly they said the absence of anyone beside them made them anxious," said Kay Zwingenberger, Managing Director Middle East and Africa, Siemens Healthineers.

The remote equipment also negates the need to repeat scans meaning decreased waiting times and workloads.

Zwingenberger added that scanners' automated post processing allows staff with a basic level of training to carry out examinations, required particularly during peak times and emergencies.

"It means we are independent of static devices and we can also perform tasks very quickly, allowing more examinations per day," said Zwingenberger.

The new technology is also



A mini CT scan at the Siemens stand at Arab Health 2017 at Dubai World Trade Centre, Dubai on Monday. — Photo by Leslie Pableo

The main reason people felt intimidated by CT scans is due to the closed spaces, but most importantly they said the absence of anyone beside them made them anxious."

Kay Zwingenberger, Managing Director Middle East and Africa, Siemens Healthineers

48%

find CT scan much more intimidating than other routine tests

meant to help in pediatric cases to help calm down young patients.

According to Ayman El Hussein, Head of Diagnostic Imaging Middle East & Africa at Siemens Healthineers, the scanners are designed to be affordable in rural or war-stricken countries.

"The system is designed for operational efficiency and image quality at low doses," said El Hussain.

Siemens Healthineers offers medical imaging, laboratory diagnostics and advanced medical services, consulting and healthcare IT services in the region.

sherouk@khaleejtimes.com

SEE YOU AT THE INDIA PAVILION
IN ZA'ABEEL HALL 5
AT ARAB HEALTH 2017

INDIA HEALS

DUBAI INTERNATIONAL CONVENTION & EXHIBITION CENTRE
JANUARY 30-FEBRUARY 2, 2017

GLOBAL HEALTHCARE PROVIDER
TRUSTED SOURCE OF RELIABLE & AFFORDABLE GENERIC MEDICINES

ROBUST MEDICAL DEVICES INDUSTRY
WORTH US\$ 10 BILLION

PREFERRED HEALTHCARE DESTINATION
FOR TRADITIONAL AND MODERN MEDICAL SERVICES

