

Home » Health » Icmr Successfully Test Flies Drone To Deliver Test Tissue Sample Mid Surgery

ICMR successfully test-flies drone to deliver, test tissue sample mid-surgery

On Wednesday, a tissue sample was flown mid-surgery from a Karnataka hospital to a tertiary care center in Bengaluru for advanced testing.



By **Chetana Belagere**

Published Apr 11, 2024 | 11:06 AM — Updated Apr 11, 2024 | 11:07 AM



The trial was carried out under the aegis of ICMR's i-DRONE initiative. (Representational image/Unsplash)

The short flight was a giant leap that covered the last mile in 15 minutes.

A drone buzzed up from Dr TMA Pai Hospital at Karkala in Karnataka's Udupi and hummed 37 kilometres across the sky to reach Kasturba Medical College to deliver a package on Wednesday, 10 April.

The consignment contained oncopathological samples from a patient mid-surgery, and within minutes, they were transmitted electronically to the surgeons.

With the test flight, the Indian Council of Medical Research set a new milestone in healthcare. The trial run was undertaken for the first time in the country.

Besides ICMR, Kasturba Medical College at Manipal, and Dr TMA PAI Rotary Hospital partnered with the pilot



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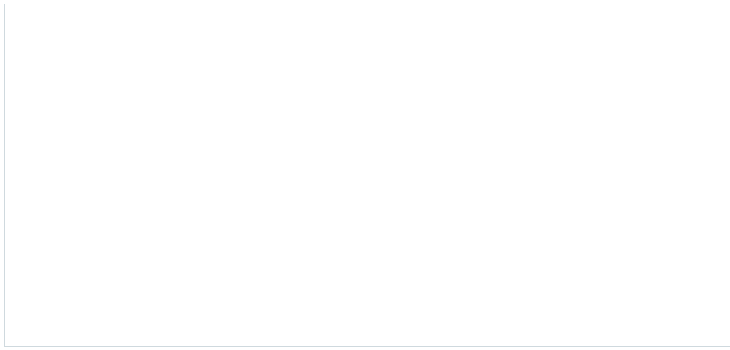
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The initiative, part of a broader national mission to expand the country’s drone ecosystem, saw a tissue sample delivered from a peripheral hospital in Karnataka to a tertiary healthcare facility for advanced pathological testing.

The test, aimed to check for malignancy, marked a crucial step in the patient’s treatment journey.

The trial carried out under the aegis of ICMR’s i-DRONE initiative, not only showcased the potential for drones in medical logistics but also set a precedent for using technology to bridge the healthcare divide between urban and rural India.

In a country where access to advanced medical facilities has often been limited by geographical constraints, the initiative could herald a new era in timely and efficient healthcare delivery.

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37 km in 15 minutes

The drone transported intraoperative surgical biospecimens surgically excised from the patient at the Dr TMA Pai Hospital, Manipal Academy of Higher Education (tertiary care hospital).

It covered approximately 37 km in 15-20 minutes, which would have otherwise taken around 50-60 minutes by road.

Upon arrival, the sample was analysed, and the report was electronically conveyed back to the peripheral hospital. After the surgery proceeded with the surgery based on the received report, it said.

Dr Rajiv Bahl, Secretary of the Department of Health Research and Director General of ICMR, highlighted the broader implications of this initiative, emphasising its utility beyond the context of the pandemic and its potential to alleviate the burden on tertiary care hospitals.

The ICMR had used drones to deliver vaccines to inaccessible areas during the Covid-19 pandemic.

“Last year, we successfully conducted trials for delivering blood and blood-related products, which require low-temperature storage. In another study, we transported medications and diagnostic samples to sub-zero temperature areas and challenges exceeding 12,000 feet in Himachal Pradesh,” Dr Bahl explained.

“In this ongoing study, our focus extends beyond delivering pathological specimens. We aim to enhance patient care and reduce the burden on tertiary care hospitals,” he added.

Also Read: [Drones show new-age face of Kerala’s plantation sector](#)

Drones in healthcare

Drones have increasingly been recognised for their important role in various sectors, including agriculture, defence, disaster management, and healthcare.

They were particularly valuable in healthcare during emergencies, as they could quickly transport vaccines, medicines, and essential medical supplies to hard-to-reach locations.



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The research carried out in Manipal sought to fill this knowledge gap by establishing protocols for the rapid transportation of surgical samples via drones.

ICMR researchers stated that by employing the innovative method, it was possible to link smaller healthcare centers with larger hospitals equipped with sophisticated diagnostic tools. It would ensure immediate support during surgeries.

The effort could significantly enhance the efficiency of intricate surgical operations by removing geographical obstacles to specialised healthcare services at hospitals in isolated locations.

ICMR has been at the forefront of incorporating drone technology into healthcare, having already achieved milestones in delivering medicines, vaccines, and blood bags to remote areas in Himachal Pradesh, Manipur, Nagaland, and the Delhi National Capital region through its i-DRONE initiative.

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Why are doctors excited?

Dr Atul Goel, Director General of Health Services, explained the study's relevance in the Indian context.

"The utilisation of drones for delivering healthcare essentials during emergencies has the potential to save lives by bypassing challenging geographical terrains, benefiting the Indian population, while also bolstering India's healthcare infrastructure."

Speaking to **South First**, Dr Narayana Subramaniam, Senior Consultant and Director, Head & Neck Surgery & Otolaryngology at Innovation Sparsh Hospitals in Bengaluru, lauded the initiative.

"Drone technology is valuable to transport patient samples and even organs for transplant as it can bypass traffic jams and avoid significant delays. Hub-and-spoke models need to be better developed so we can leverage this technology for routine care in a unique instance," he opined.

Also Read: [Cancer Task Force in Karnataka to combat increase in cases](#)

Drones to battle cancer

A Consultant Medical Oncologist at Manipal Hospital in Sarjapur and Jayanagar in Bengaluru, Dr Nitin Yashaswini explained how drone sections played an important role in cancer surgeries.

"These facilities are not always available at secondary centres. This is a method by which the pathologist can confirm whether the tumor cells are not in the operated sample. It would enable the surgeon to perform more definitive surgeries."

He further added that it would ensure completeness of surgical resection and that no residual disease was left behind.

"In centres where this is not available and if margins come positive, patients may have to undergo re-surgery or other treatment modalities like radiation," Dr Yashas added.

He said that it was heartening to see the usage of drones in facilitating a crucial step in the treatment of cancer.

Challenging shortage of pathologists

The initiative could also address the shortage of pathologists in peripheral hospitals by leveraging the expertise available at tertiary centres.

"Drone delivery of frozen section biopsy tissue sample from peripheral hospitals to tertiary care centres is an effective solution," Consultant Nephrologist and Transplant Physician at Trustwell Hospitals in Bengaluru, told **South First**.

"The shortage of pathologists at peripheral centers is compensated by the pathologists at tertiary care hospitals. Drone delivery of samples via drones enables early diagnosis. This is advantageous for the surgeon, oncologist, and the patient, as it ensures timely diagnosis and treatment."



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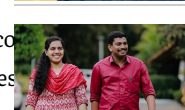
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Delivering organs

Dr Canchi said drones could be used for delivering blood and blood products, and at a later stage, ferry organs harvested from deceased persons.

“Vaccine and drug delivery to remote areas is another possibility,” he added.

Dr Sundar Sankaran, Consultant Nephrologist and Programme Director at Aster Institute of Renal Transplantation in Bengaluru, said the drone technology for transporting medical supplies and pathology specimens was a giant leap, considering the traffic

“I look forward to transporting organs between different centres in the city. Drone technology is used to transport products in remote African villages. We could replicate it in India too,” Dr Sankaran, a former chairman of the Indian Society of Nephrology, added.

Aster Hospital in Bengaluru had tested drones’ capability in delivering diagnostic samples and medicines in the

However, when asked about the challenges Dr Canchi explained that maintaining the cold chain, and problems should be considered. He also advocated a regulatory framework.


Referring to earlier studies, Dr Canchi said adverse weather conditions might hinder the deployment of unmanned


Also, technical issues impede the full potential of drone services. For instance, a limited battery life would restrict Dr Canchi added.

However, doctors were excited about ICMR’s new technological leap in healthcare. They expressed hope that the healthcare despite the challenges.

(Edited by Majnu Babu).


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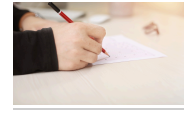


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