

## Surgisphere: mass audit of papers linked to firm behind hydroxychloroquine Lancet study scandal

## Questions continue for Surgisphere and CEO Sapan Desai as universities deny knowledge of links to firm behind Lancet's now-disputed blockbuster study

## Melissa Davey in Melbourne and Stephanie Kirchgaessner in Washington

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Dozens of scientific papers co-authored by the chief executive of the US tech company behind the Lancet hydroxychloroquine study scandal are now being audited, including one that a scientific integrity expert claims contains images that appear to have been digitally manipulated.

The audit follows a Guardian investigation that found the company, Surgisphere, used suspect data in major scientific studies that were published and then retracted by world-leading medical journals, including the Lancet and the New England Journal of Medicine.

Further inquiries by the Guardian into Surgisphere and its founder and chief executive, Dr Sapan Desai, have confirmed that:

Major institutions including Stanford University, which were described as research partners on the Surgisphere website, said they were not aware of any formal relationship with the company.

A study that formed the basis of Desai's PhD may contain doctored images, according to expert claims, and the global medical publishing company Elsevier is conducting a review of his papers published in its journals.

Claims made by Desai about his qualifications gained since his medical degree have been

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called into doubt, including his claims to hold two PhDs, a master's, and affiliations with major universities and colleges. Some of these affiliations have now been removed from his website and online profiles.

The blockbuster Lancet study based on Surgisphere data led to global trials of hydroxychloroquine for Covid-19 being halted in May, because it appeared to show the drug increased deaths in Covid-19 patients.

The study was retracted after a Guardian investigation and researchers found inconsistencies in its data, which came from a database owned by Surgisphere. Desai was a co-author of the paper.

The New England Journal of Medicine also retracted a study with findings based on Surgisphere data and which also listed Desai as a co-author. A third paper involving Surgipshere and Desai, which examined the impact of the drug ivermectin on Covid-19 patients, has been removed from the website SSRN, a repository for scientific papers.

The Guardian can confirm that studies authored by Desai and published before he established the Surgisphere database in 2019 have come under scrutiny by the scientific community and journal editors.

Dr Elisabeth Bik, a microbiologist specialising in scientific integrity, examined a research paper co-authored by Desai and published in 2005 which formed the basis of his PhD in anatomy and cell biology from the University of Illinois at Chicago.

The paper, published in the Journal of Neurophysiology, examined differences in the innerear tissue between species of rodents. It included a collage of nine images of tissue sections obtained from different species including a mouse, a chinchilla and a tree squirrel.

Bik works full time identifying scientific fraud, and researchers around the world send her images for review. After the retraction of the Surgisphere papers she began examining some of Desai's other work. Bik said when she looked at the tissue images in Desai's PhD paper, repeated patterns jumped out at her.

"They are supposed to be from different rodents, yet the rat and the gerbil images have areas shared between them," she said. "There is not only copy-pasting within the images, but also between rat cells and gerbil cells, for example."

Bik highlighted her suspicions on PubPeer, a website where scientists can provide feedback on papers.

"I cannot think of any other explanation than these images have been digitally manipulated," she told the Guardian. A spokeswoman for the journal told the Guardian the editorial board was "aware of the situation and is reviewing the matter". Neither Desai nor his supervising author at the University of Illinois at Chicago responded to a request for comment.

According to online profiles, Desai, who is now 41, has had an extraordinary and varied career. In 2010 the online encyclopedia Wikipedia flagged his page for deletion after editors raised queries about his accomplishments.

"If half of the claims in this article are true, this is indeed an exceptional young man," one website editor wrote of Desai, who at the time was 31. "However, exceptional does not necessarily equal notable. Most claims are unsourced or sourced to the subject's own websites. Many claims are over the top."

As well as holding at least one PhD, a medical degree and working as a vascular surgeon, Desai has also founded several companies including Surgisphere and a charity. His claims

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(on the deleted Wikipedia page) of having a second PhD and a Juris Doctor, or law degree, could not be independently verified by the Guardian and Desai did not respond to questions about this.

His biography also says he completed his master's of business administration in healthcare management at Western Governors University. The university did not respond to requests for confirmation of this MBA. But according to the university archive he gave a speech to a graduation of university students in 2012, telling them: "Nothing that is easy is worthwhile. Because at the end of the struggle is a fountain that never stops, a fountain that showers us with the twin gifts of knowledge and wisdom."

In a video he made for a crowdfunding campaign to support a product he designed, described as a "wearable neural induction device", Desai said he also held a PhD in neuroscience. The device, which Desai boasted could increase brain function and creativity, never came to fruition. The Guardian could find no other record of his having neuroscience qualifications and Desai did not respond to questions about this.

Meanwhile Elsevier, a well-known Dutch publishing and analytics company specialising in scientific content, told the Guardian it was "initiating the process to thoroughly re-assess" papers involving Desai. The Guardian has contacted several of Desai's former co-authors and colleagues for comment.

The Guardian's investigation has also raised questions about other Surgisphere claims. The company's website previously stated that it was "partnered" with a handful of researchers at leading universities to complete "groundbreaking projects", including Harvard, the University of Minnesota, Stanford, the University of Utah and the University of Glasgow. Those affiliations were removed from the Surgisphere website on Friday.

When asked about collaborations, the universities said they had no formal relationship with Surgisphere.

A spokeswoman for the University of Utah said it was not aware of any institutional relationship. One co-author of the Lancet paper, Dr Amit Patel, is listed as being affiliated with the university but a spokeswoman said Patel had been an unpaid adjunct professor and had not held a faculty position since January 2017.

On Monday Patel announced on Twitter that he had resigned from the university. "I had verbally terminated my affiliation with the University of Utah over a week ago and formally this past Friday," Patel wrote. "There is a much bigger story for which I still do not have the information."

He said in the tweet he was related to Desai by marriage. But this was "old news", he said. "Despite this I still do not have the information of what happened at Surgisphere," he said.

Patel did not respond to requests from the Guardian for comment. A university spokeswoman said: "The University of Utah does not comment on the reasons surrounding termination of academic appointments."

Harvard University medical school also said it had "no formal research agreements or partnerships" with Surgisphere, and said the reference on the company's website could reflect Desai's collaboration with Dr Mandeep Mehra, an investigator and cardiologist at Brigham and Women's hospital, which is affiliated with the medical school.

Mehra was listed as a corresponding author on the Lancet study, which said: "The corresponding author and co-author had full access to all the data in the study and had final responsibility for the decision to submit for publication."

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In a statement to the Guardian after the retraction of the Lancet study, Mehra said his intentions "have always been to contribute to scientific discussion and to ensure that the practice of medicine is based on the best evidence available".

"During this pandemic, I have felt this even more keenly, and believe that it is imperative to provide timely data that informs both the scientific field and the care of our patients," he said.

Mehra said he understood Surgisphere to be a privately held company that purported to have data from hospitals around the world "that could be leveraged to answer important public health questions I posed in the face of the Covid-19 pandemic".

"Since we do not have the ability to verify the primary data or primary data source, I no longer have confidence in the origination and veracity of the data, nor the findings they have led to," he said.

"It is now clear to me that in my hope to contribute this research during a time of great need, I did not do enough to ensure that the data source was appropriate for this use. For that, and for all the disruptions - both directly and indirectly - I am truly sorry."

A spokeswoman for the Lancet said the journal was "reviewing our requirements for data sharing and validation among authors, and data sharing following publication" as a result of the retracted study.

The University of Minnesota said it had no record of anyone at the university collaborating with Surgisphere. A spokesman said the university had sought to contact the company for clarification when it discovered it was being promoted on the company's website but that its outreach had gone unanswered.

Both the University of Glasgow and Stanford told the Guardian they were not aware of any relationship with Surgisphere.

Guardian Australia has contacted Desai numerous times for comment.

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