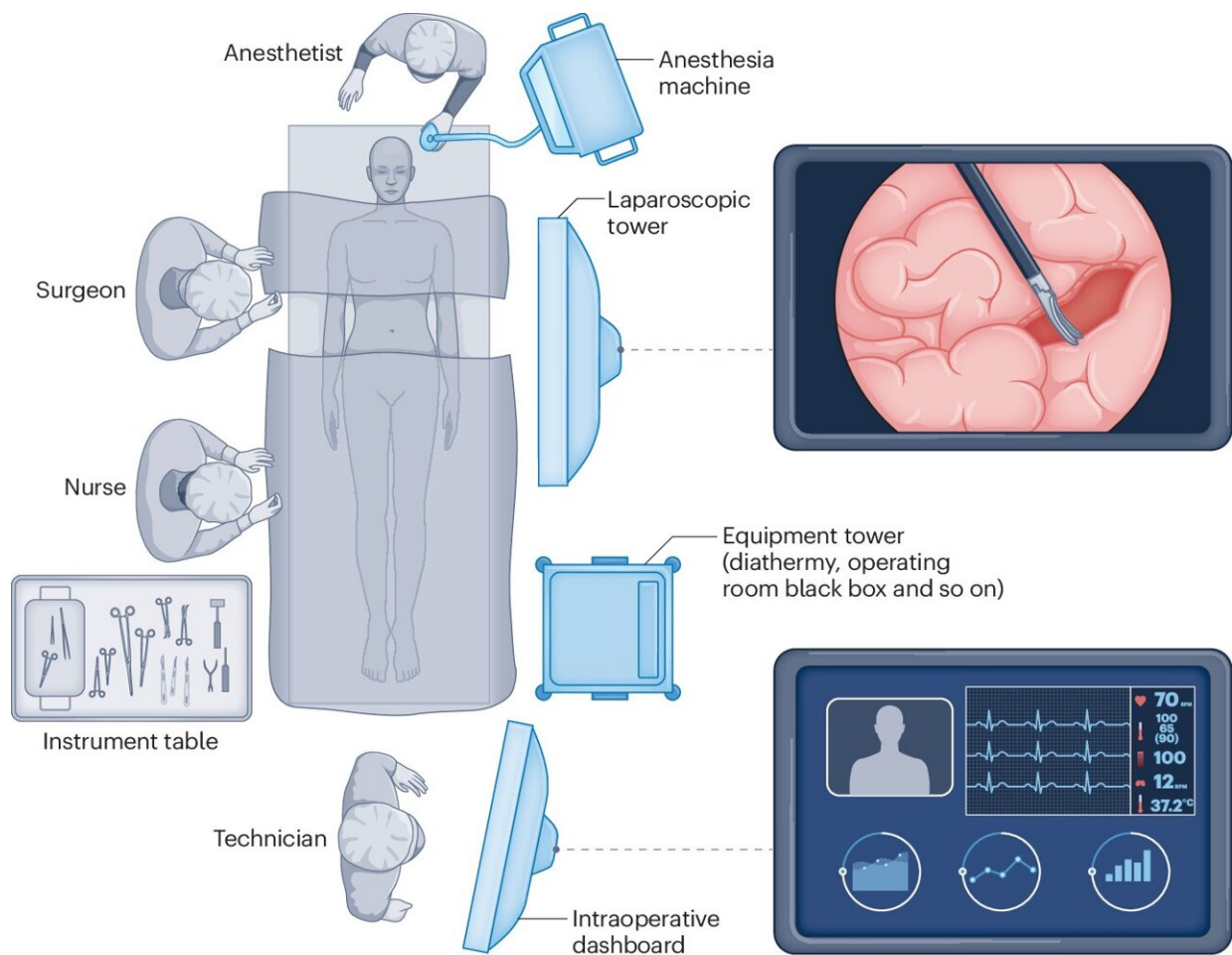


Artificial intelligence and the future of surgery

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Integration of novel AI-powered digital interventions in the intraoperative setting. Credit: *Nature Medicine* (2024). DOI: 10.1038/s41591-024-02970-3

You may not think artificial intelligence could have a role in surgery, but new research shows AI can help solve problems for patients, doctors and the health system. A group of researchers led by surgery researcher Dr. Chris Varghese at Waipapa Taumata Rau, University of Auckland has published an article on artificial intelligence in surgery in [Nature Medicine](#).

"I think AI has a role in every part of a patient's surgical journey, before surgery, during surgery and, most interestingly, after surgery," Varghese says.

"Each time that we leave hospital, we are at increased risk of having complications from surgery.

"AI has got a real potential to provide monitoring and safety-netting to ensure that we can mitigate and prevent some of these complications and enhance the recovery that you're able to achieve at home."

Another application for AI is already being used in Aotearoa, New Zealand, where automated algorithms can process very long waiting lists and prioritize them based on need, so the right patients are seen at the right time.

An emerging area is the use of AI during surgery using "computer vision."

"AI is trying to learn what surgeons see, what the [surgical instruments](#) look like, what different organs look like," Dr. Varghese says.

"And the potential there is to identify abnormal anatomy and [determine] what the safest approach to an operation might be.

"Using [virtual reality](#) and augmented reality to plan ahead of surgeries

can be really useful for cutting out cancers and more."

However, there are limitations, especially in overcoming issues of data privacy and ethics.

"AI is based on building models from lots and lots of data and ensuring that the data we feed into these algorithms are unbiased and are not perpetuating existing inequities in our [data sets](#) and our research is essential.

"So, really ensuring that what we feed into these models and train these models on, is really robust and achieving the best outcomes for our patients.

"In terms of what's next for New Zealand, I think there needs to be a big focus on investing in our digital infrastructure.

"Right now we have hospitals across the country using different health care systems that don't communicate with each other.

"It is a real potential to unify our health care data systems with Te Whatu Ora and bring in everyone's data in a safe and robust manner to ensure that we can keep abreast and be leaders in the field as we integrate AI technologies into health care."

More information: Chris Varghese et al, Artificial intelligence in surgery, *Nature Medicine* (2024). [DOI: 10.1038/s41591-024-02970-3](https://doi.org/10.1038/s41591-024-02970-3)

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