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- Interoperate globally
- Leverage excellence
- Minimise waste

Sovereign

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- Self determination
- Privacy first
- Non-exploitative

Res

- High va
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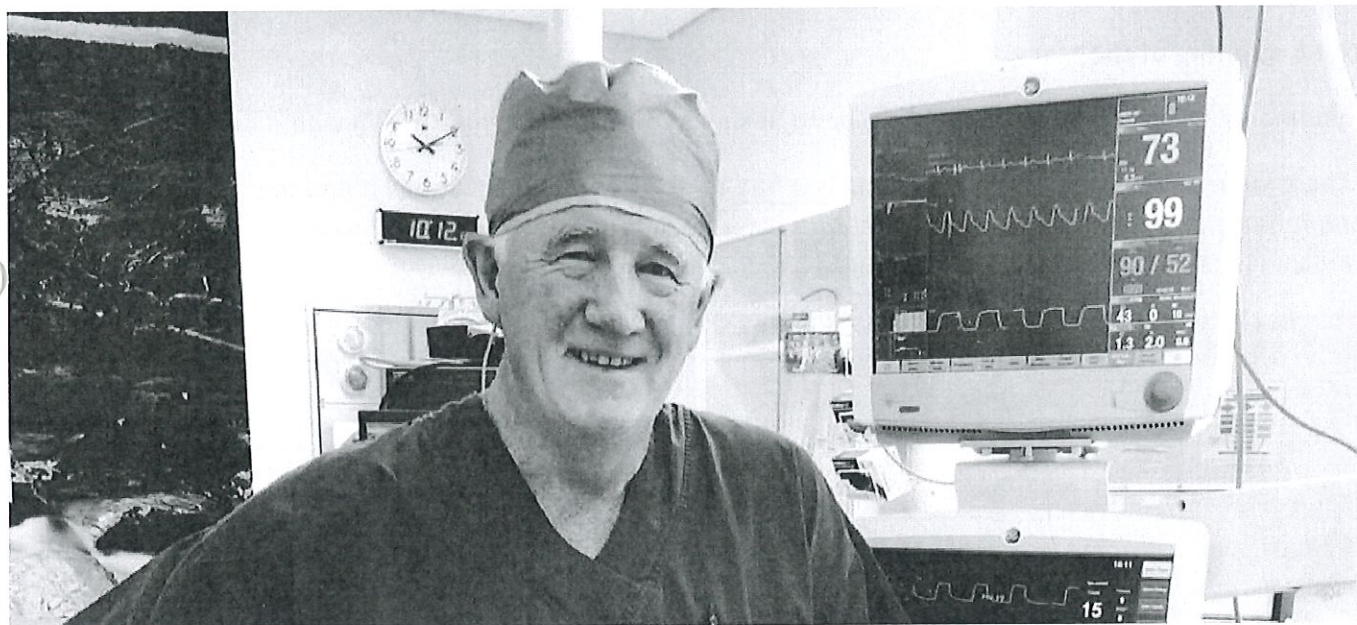
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Retired anaesthetist John Hyndman calls his ventilator a "Toyota Corolla", compared with the "Rolls Royce" machines in NZ operating rooms and ICUs. But during the Covid crisis there was a scary possibility we wouldn't have enough Rolls. Photo supplied.



Nikki Mandow

Nikki Mandow is Newsroom's business editor @NikkiMandow.

PODCAST: TWO CENTS' WORTH

The little ventilator that could

How two multi-millionaires, two pandemic futurists, Air NZ's former boss, a dairy executive on a break, a retired anaesthetist (and a few others) nearly saved New Zealand

Christchurch-based anaesthetist John Hyndman is no stranger to complicated medical machines. He's used them for decades.

But he prefers them when they are working properly. Otherwise, they are kind of scary. Particularly for his patients.

So he was shocked when, in the early 2000s, he was doing voluntary work in small hospitals in the Pacific Islands and Southeast Asia, and he found himself trying to work with patched-up anaesthetic machines originally sent over from New Zealand and other developed countries.

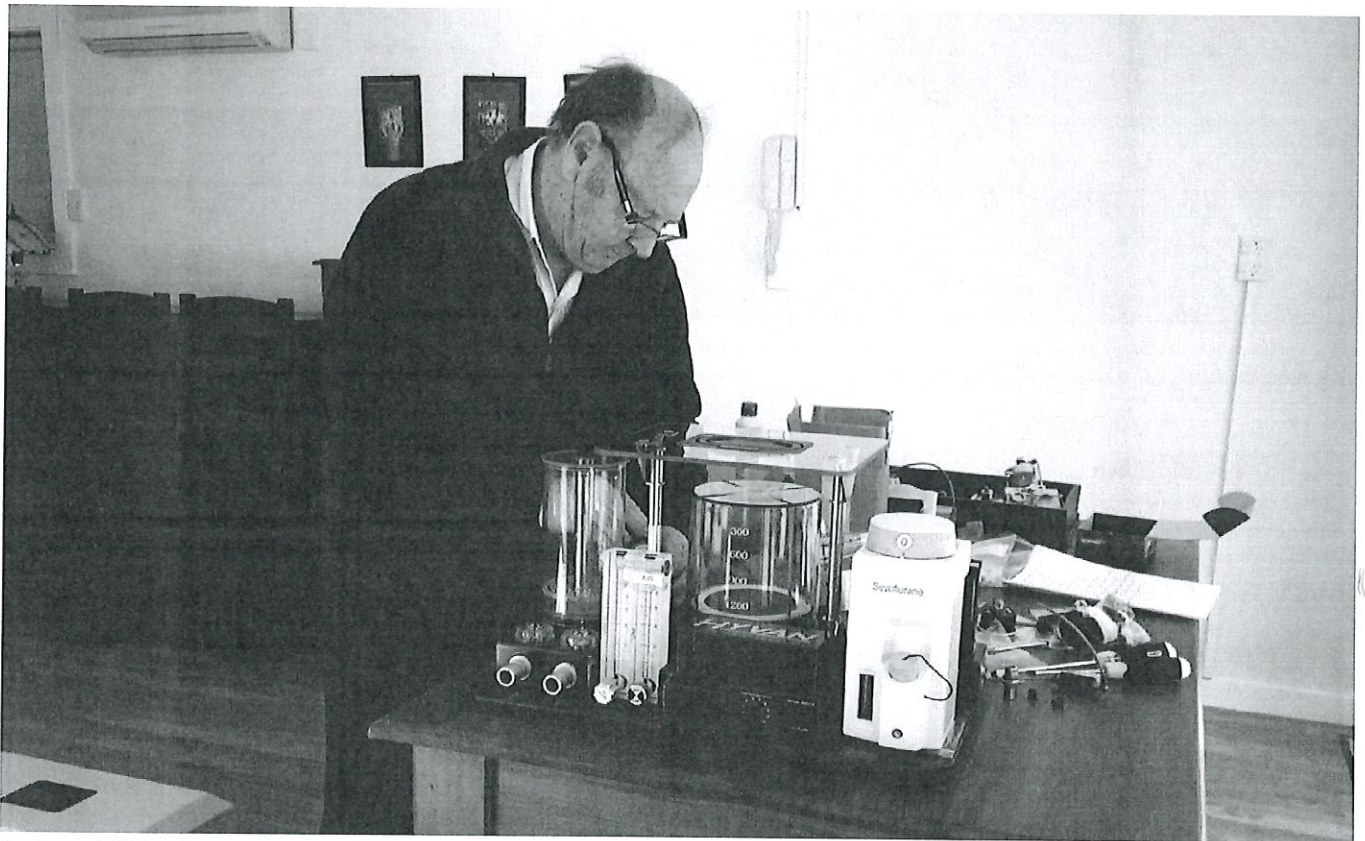
Hospital corridors and storerooms contained other discarded machines.

"In New Zealand, when our equipment's about four years old, we buy new stuff and the old machines find their way to developing countries. But this gear is very sophisticated and it breaks down quickly and can't be repaired. People in these hospitals don't have the expertise and they certainly can't afford the parts.

The beginning of the story

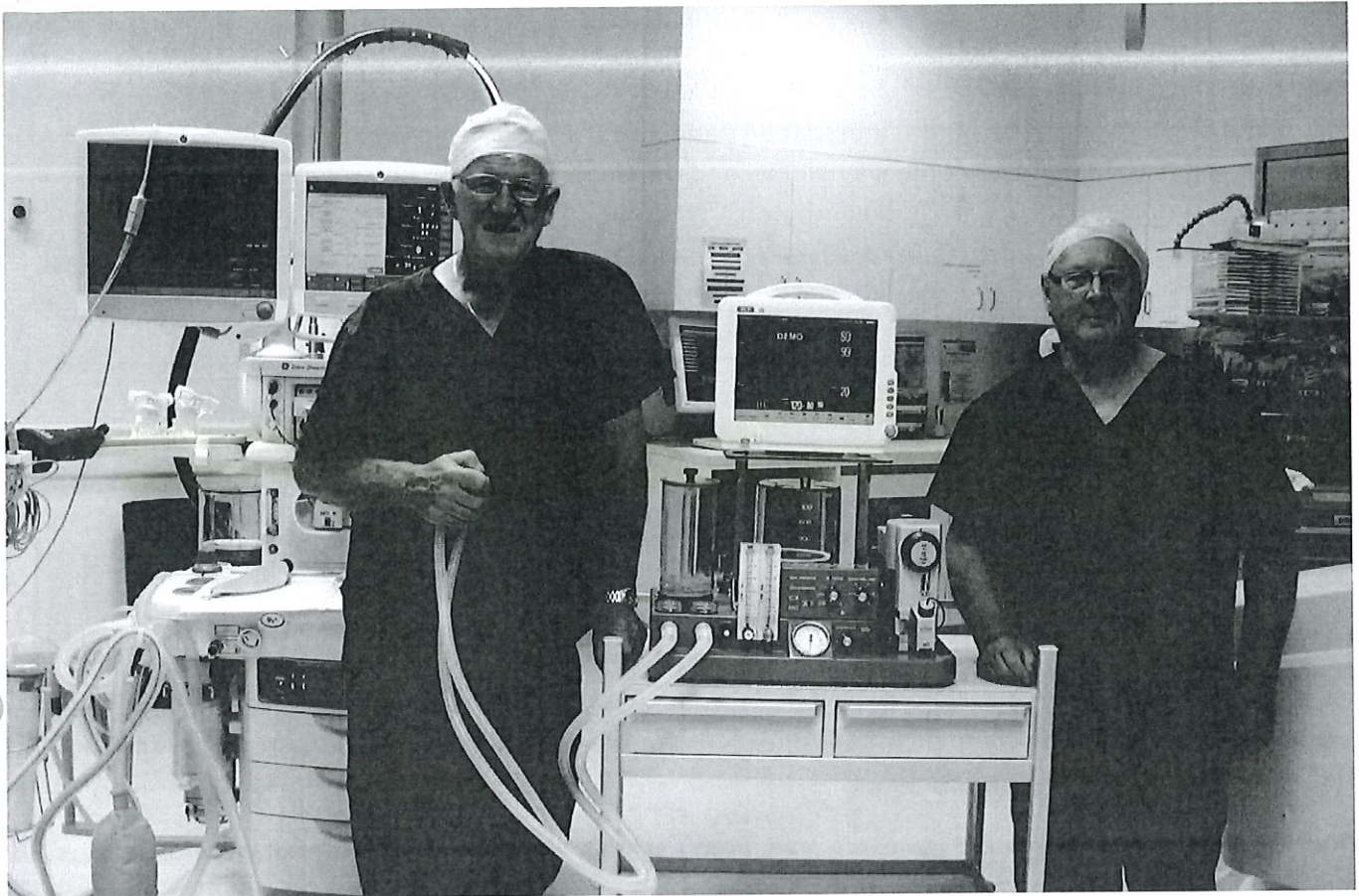
Hyndman decided the best thing would be to design and build a machine which would be more suitable.

"There were a few criteria. The first thing is it had to be affordable. Secondly, it had to be very simple and reliable and robust. And ideally, last for years. Most importantly it had to be easily maintained and serviced in the hospital workshops in these small remote hospitals.



Hyndman calls his friend Ivan Batistich a genius with machines. Photo supplied.

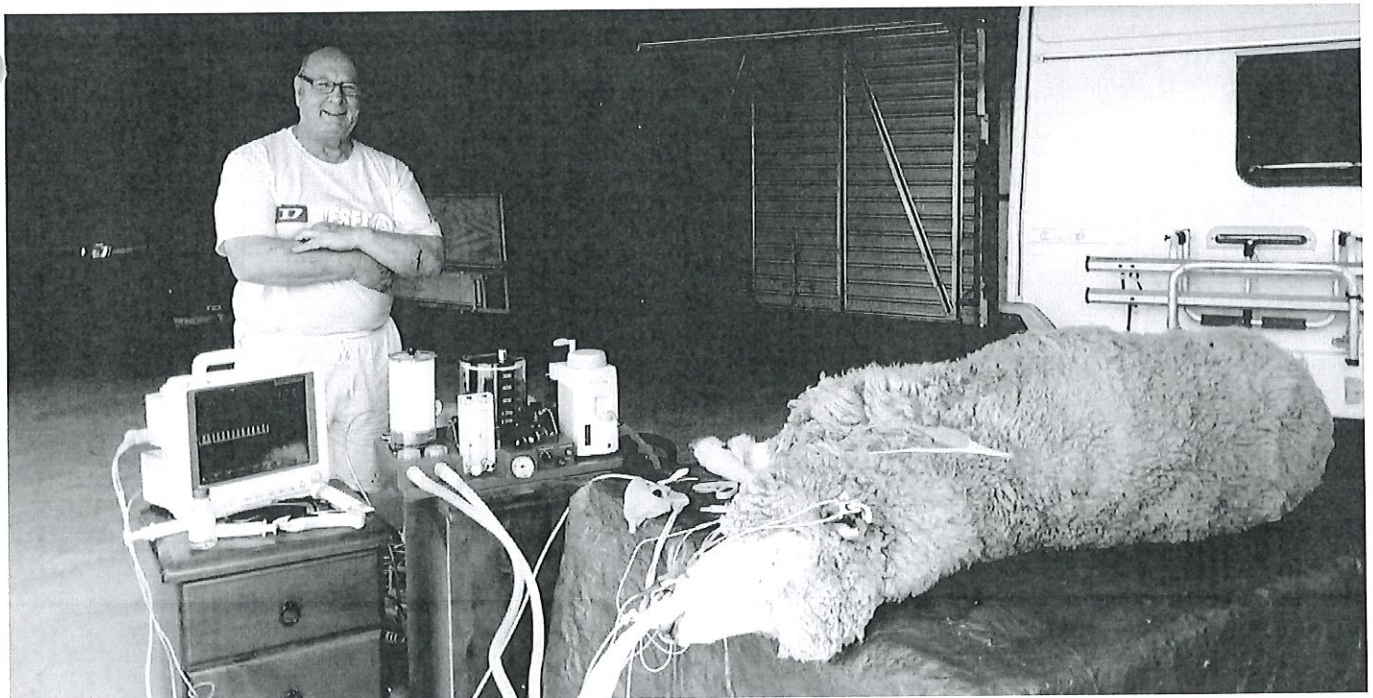
Hyndman teamed up with "genius" engineering friend Ivan Batistich and they came up with a machine (and a company) they called **Hyvan**, - from their names **Hyndman** and **Ivan**. And it worked just great.



John Hyndman and Ivan Batistich with the Hyvan anaesthetic machine. Photo supplied

But over the next 15 years, the two men discovered what so many entrepreneurs know only too well, that designing a great product is only the beginning. And sometimes the easiest part. Getting international certification was a nightmare, cutting through bureaucracy and corruption in overseas hospitals was tortuous.

Hyndman chewed through a million dollars of his retirement savings and still they didn't have any Hyvans in production, or any sales in the pipeline.



Batistich and Hyndman test a Hyvan anaesthetic prototype on a sheep. It works beautifully. Photo supplied.

The hospitals they visited were still patching up New Zealand's old anaesthetic machines - often unsuccessfully, and dangerously.

And then, in early March this year, it became clear Covid-19 wasn't just a flu-like disease that might cause a few problems with our seafood sales in China.

This was a big one. And experts who understood pandemics, like future strategist Roger Dennis, began to realise that if New Zealand went the way of Italy and the US in terms of the number of cases, we were going to be seriously short of medical ventilators - those vital machines that breathe for patients when their lungs stop working, keeping them alive in the hope that they recover and can go back to breathing on their own.

A ventilator crisis

The numbers were frightening. In a worse-case scenario based on overseas experience, New Zealand might need 4000 ventilators. We had fewer than 1000, including adapted anaesthetic machines.

And many of the ones we did have were in use already for non-Covid, but equally needy, patients.

"The challenge would be that you couldn't simply source ventilators from around the world, because everybody would be screaming out for them," Dennis says. "Therefore you'd have to try and find some way of manufacturing them in New Zealand."

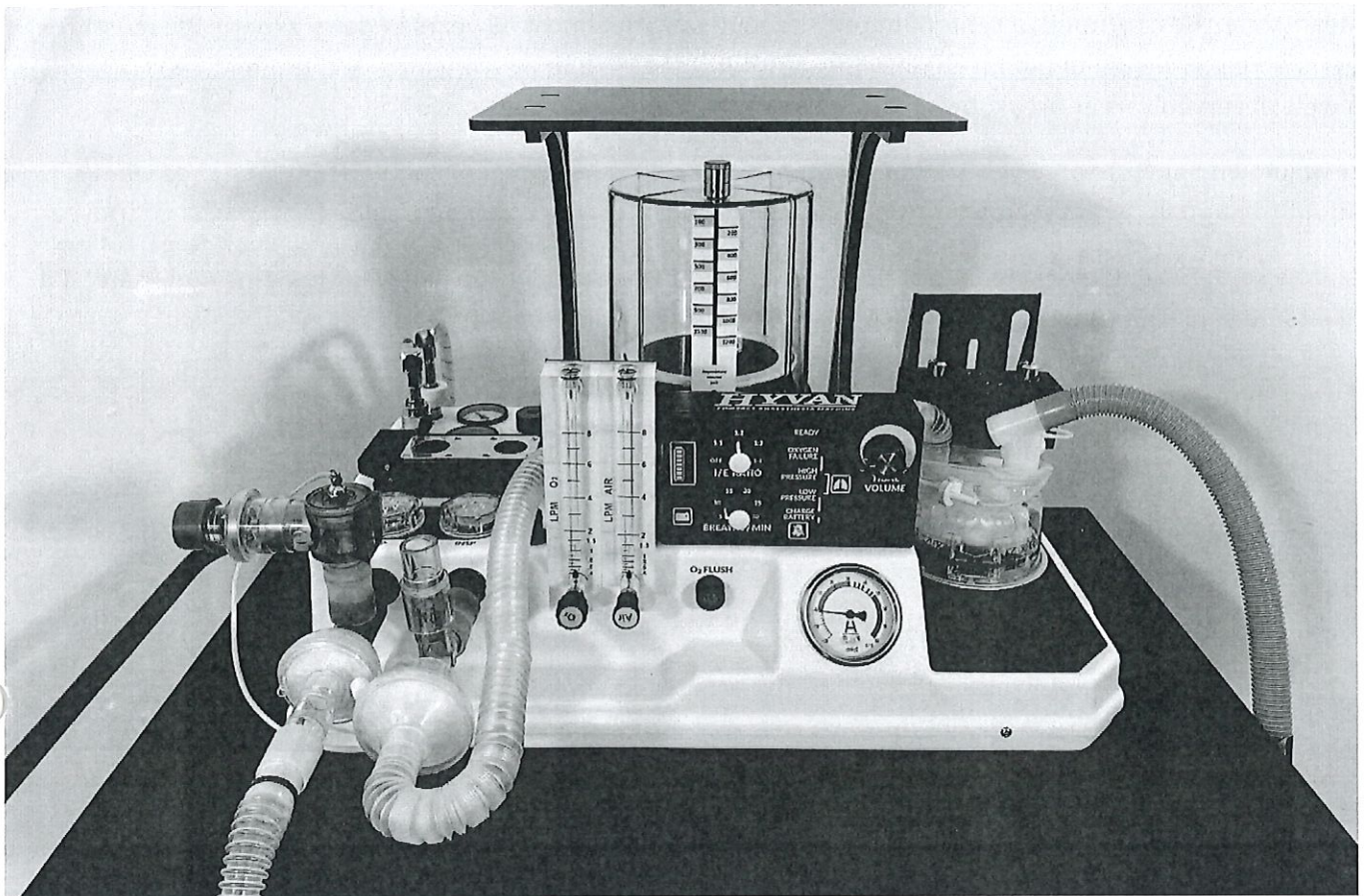
Around mid-March, Dennis bumped into a colleague who is a general surgeon in Christchurch, and they started talking about the ventilator crisis.

"And he said 'You should go and look at this ventilator that's being developed in Christchurch.'"

To the uninitiated, an anaesthetic machine and a ventilator may not sound the same thing, but actually it's only a question of a couple of hours to turn one into the other.

"So on the 18th of March I got an intensive care specialist in Christchurch and we went to a manufacturing facility that had produced Hyvan prototypes in the past. And I also arranged for a couple of manufacturing specialists to visit the same factory that day.

"So there was basically a manufacturing check around the ability of this organisation to scale up and to make a lot more ventilators, followed by a sort of a sanity check from a health point of view as to how the equipment would work for itself and what modifications would have to be made, if any."



The Hyvan is designed to be affordable (around \$10,000, as opposed to \$40,000 for an ICU-grade machine). Also simple, reliable, robust and easily maintained. Photo supplied.

And that was the first step in a private sector-initiated and funded drive to get local ventilator manufacturing up and running in just a few weeks.

A bunch of high-powered volunteers

Dennis brought Trade Me founder Sam Morgan on board; Morgan contacted fellow multi-millionaire and philanthropist Sir Stephen Tindall of The Warehouse fame.

They teamed up with former Air NZ chief executive Rob Fyfe, who was the private sector lead on the Covid-19 taskforce, sitting alongside former police chief Mike Bush.

Morgan got in touch with seasoned entrepreneur Grant Ryan, co-founder of the YikeBike foldable electric bike company, who was happily retired out in Akaroa designing devices to catch rats and stoats.

As Morgan puts it:

"I said, 'Hey, this is more important. What do you think about getting onto this?' And, you know, bless him, he sort of stood up and decided to do it."

Ryan was tasked with scaling ventilator production - taking Hyvan, the little Christchurch company that wasn't even in commercial production - and getting it ready to produce 50 ventilators, maybe 100, 500, 5000 - whatever might be needed.

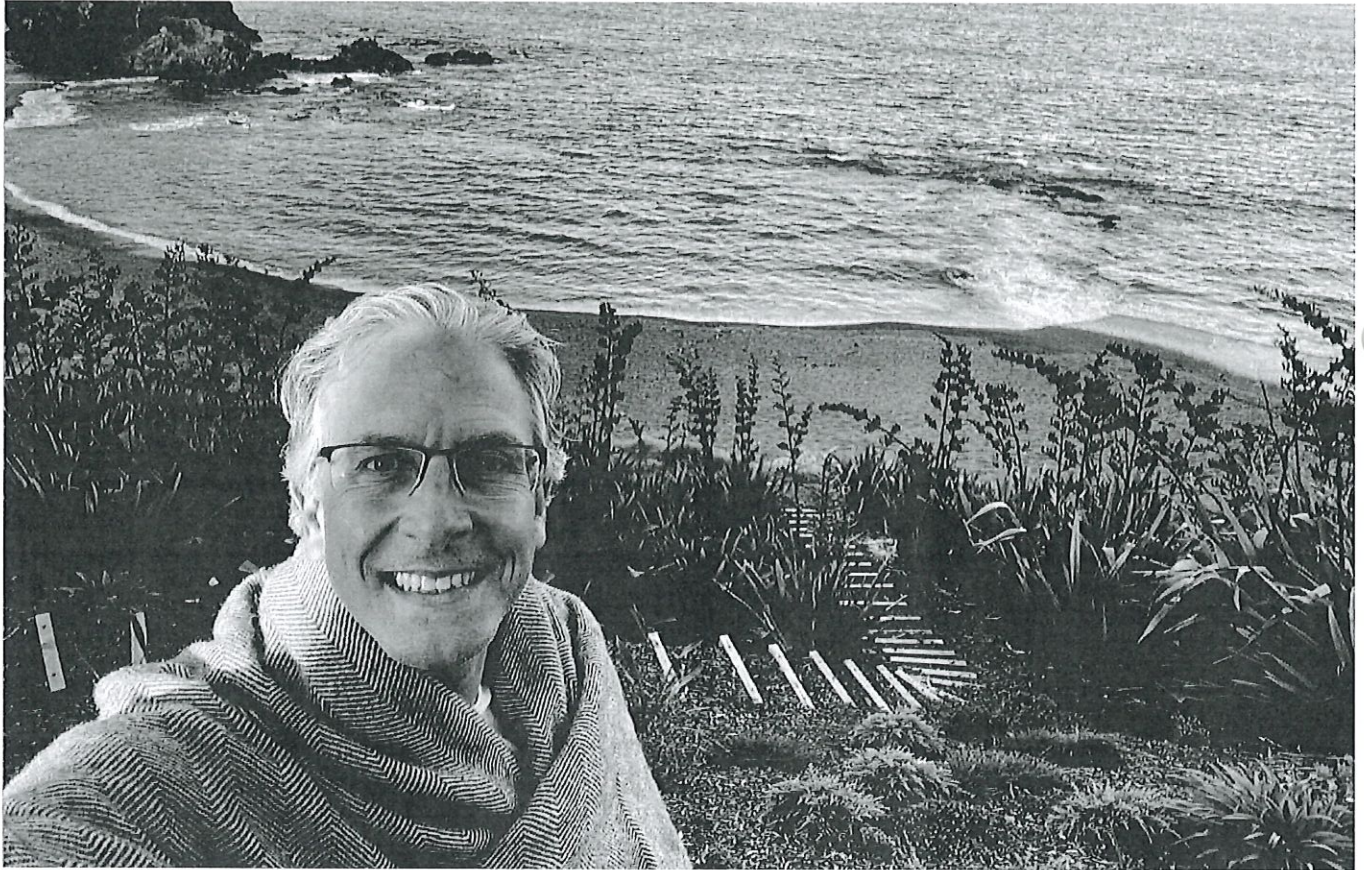
"I'd like to do something, and I'm good in a crisis. Fonterra's had a few of those."

Alex Turnbull

Meanwhile, Alex Turnbull, a senior Fonterra executive with almost 30 years of dairy experience mostly in Latin America, also found himself onto the ventilator team - and also unpaid. He'd thought he was taking a well-deserved career break, before Covid hit.

"I've known Sam for some years and I sent him a text and said, 'I'm glad someone understands what's about to happen [with the Covid crisis], because it doesn't seem anyone else does.'

And he said, 'Well, I know you're not doing anything at the moment. Do you want to help? And I said, 'I'd like to do something, and I'm good in a crisis. Fonterra's had a few of those.'



After 30 years in the dairy industry, Alex Turnbull found himself managing the private sector ventilator project - for free, and remotely from lockdown. He's now working for the Ministry of Health's Covid Response Team. Photo supplied

Turnbull was put in charge of the whole local ventilator project; not only Hyvan, but investigating a raft of potential manufacturers.

"There was a bunch of interesting people contacting the Covid Response Team on how they could potentially build ventilators, which seemed like a pretty preposterous idea given how complex they are.

"And to be honest, I'm like, 'Well, okay, we haven't got any choice. So no idea is a bad idea.' And so we stormed in action, picked up the phone and started asking questions to try to get a sense of whether these ideas are serious or crazy.

"And oh my god, we had both. It was wonderful."

"It was quite terrifying really," Morgan says, "because you didn't you didn't know what was going to happen and we were in the early stages and we're seeing Italy's health system completely crashed. And people being ventilated by their relatives in the carpark.

"So we just had no idea what we were going to do. We just knew that New Zealand has the lowest level of ICU beds in the Western world, or are pretty close."

Tindall and Morgan ended up funding four ventilator projects, including the Hyvan. They put up a million dollars to start, and were prepared to fund millions more, if necessary.

Milking your contacts

Tindall also used The Warehouse team in China to source 75 ICU-grade ventilators for New Zealand, and various essential components for the Hyvan and other Kiwi ventilators.

"When you've got an organisation like The Warehouse group that is buying hundreds of millions of dollars worth of product in China, you've got a little bit of sway," Tindall says.

"So my team in Shanghai got a whole lot of specifications for the spare parts that we needed to get out of China. And they went out and tried to find them. And because they are experts in sourcing anything you want, they were able to do it."



Sir Stephen Tindall had money, and invaluable contacts - and he used both. Photo supplied.

One of the most critical parts for the Hyvan were the bellows, that actually push air in and out of the lungs.

"There was only one company we could find that were making bellows that would go into these ventilators we started making in Christchurch," Tindall says. "And that was called Beijing aerospace. A huge organisation, making goodness knows what else.

"Maybe, you know, launch satellites, I don't know but they made these bellows.

"When they found the aerospace company, then somebody actually got on a train and went there and waited in the waiting room to see the right person."

The guy gets on a train in the middle of a pandemic, in a country still majorly in lockdown.

So they begged, and they got the bellows.

"I think entrepreneurs ultimately are just really good at managing extreme risk."

Sam Morgan

Complete uncertainty

It was chaos, Morgan says, and risky. And everyone in the ventilator project was making decisions under conditions of complete uncertainty.

But that's something that entrepreneurs are kind of used to, Morgan says.

"I think entrepreneurs ultimately are just really good at managing extreme risk, you know, so they manage the tail risk. Whereas most people are sort of just managing for the mid case."

Tindall says being part of the Covid response sometimes felt a bit like the early days of The Warehouse, when he'd sunk all his money into the business and then it seemed like the council was going to close him down

"You would get up every morning and you'd think 'We could be in for the worst thing that's ever happened to our country, you know, this is a really scary.

"So you say, "What more can I do? How can I push this thing faster. So it was high pressure."

Turnbull describes a world where people are leaving their families and setting up separate bubbles to work on ventilators. Where he's writing full health and safety plans overnight so people can start work; where he's getting travel exemptions to get engineers across the country.

"At some point, we send everyone an email saying 'This email gives you a right of passage and just show it to the police'. And I got some really helpful guy in, the Covid command centre, a policeman to say, 'Yep, that'll do.' You know, there was just no time to get the official slip."

The end of the story

Of course, in the end, the lockdown worked and we didn't need the ventilators. Hyvan produced 50, not 5000, and are now trying to work out whether to try to sell them overseas, to countries doing less well Covid-wise than New Zealand. Or whether to turn them into anaesthetic machines and sell them to developing countries to replace those broken, sophisticated machines donated by New Zealand.

It's been a huge learning curve, Hyndman says. Good and bad. The company now has more debt than before - around \$1.5 million, which may mean an even more depleted retirement fund.

And Hyndman recognises sales and marketing isn't his forte. The company may - or may not - survive.

But now production has actually happened, prompted by funding and expertise from the Covid response team, there's at least an opportunity, he says.

"It's been worthwhile - we got the best result possible. We've made the machines.

"Now we'll see how we get on; it's been a struggle for many years, so we'll just struggle on for a couple more years.

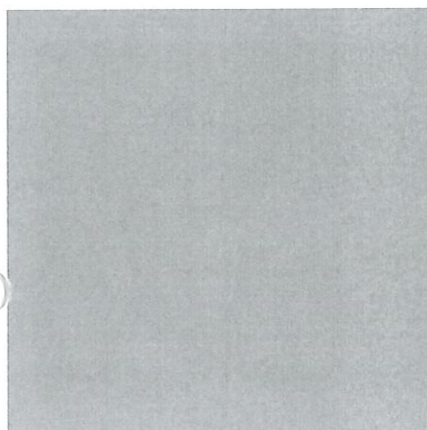
"It's a lovely little machine to use. I've used it on 1000 or so patients and it's wonderful. It's just just a shame we can't get it out there. But it's just the way it is."

For the full story of this amazing project, including how Stephen Tindall and Sam Morgan were planning a \$300,000 media campaign to pressure the Government to go into lockdown the week before it happened, listen to the Two Cents Worth podcast (audio at the top of this page).

As New Zealand moves from crisis to recovery mode the need to support local industry has been brought into sharp relief.

As our journalists work to ask the hard questions about our recovery, we also look to you, our readers for support. Reader donations are critical to what we do. If you can help us, please click the button to ensure we can continue to provide quality independent journalism you can trust.

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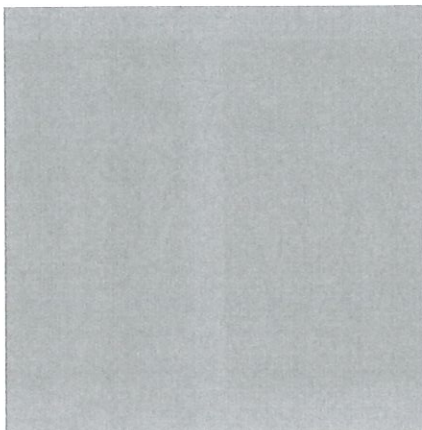
COMMENT

National MPs need to avoid...

Publicly, the National Party claims it did all that it could in the election campaign and is silent about the leader in the room. But it's time to put away the blue-tinted spectacles, writes Tim Murphy.



Tim Murphy ^{19 HOURS AGO}



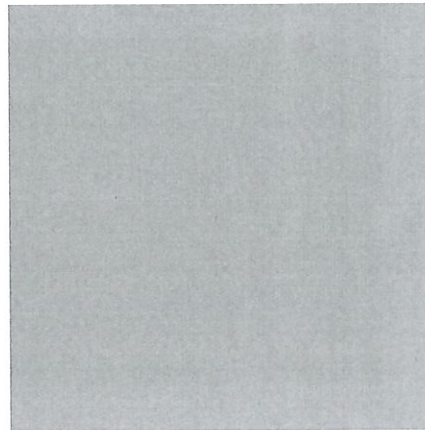
COMMENT

Just Fix the F***ing...

It is far, far, past time for politicians to mandate the changes that will help Kiwis live in secure, affordable homes. Just do it, pleads Jess Berentson-Shaw.



Jess Berentson-Shaw ^{3 HOURS AGO}



GOVERNMENT

Chihuahua bites into constitution

A tweet about the oath of allegiance gets to the core of a much-needed conversation about NZ's constitution.



Laura Walters ^{3 HOURS AGO}

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RECOMMENDED READS



COVID-19





Urgent moves to build ventilators here

NZ doesn't have enough life-saving medical ventilators to cater for a Covid-19 emergency. So the Government and businesses are getting together to see if we can make them ourselves.



Nikki Mandow

MAR 19 2020

 N95/P2 Mask	 Eye Protection*	 Gloves	 Fluid Resistant Gown or Plastic apron
×	×	×	×
×	×	×	×
×	×	✓	✓

COVID-19

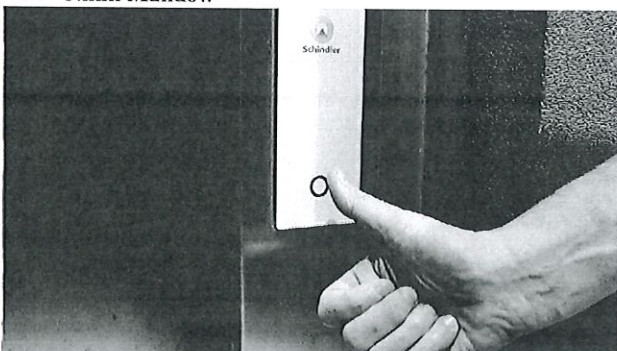
Surgical mask mess: A tale of two tables

More than a month after promising protective masks for home carers, the Ministry of Health has at last changed its guidelines so everyone might just get them.

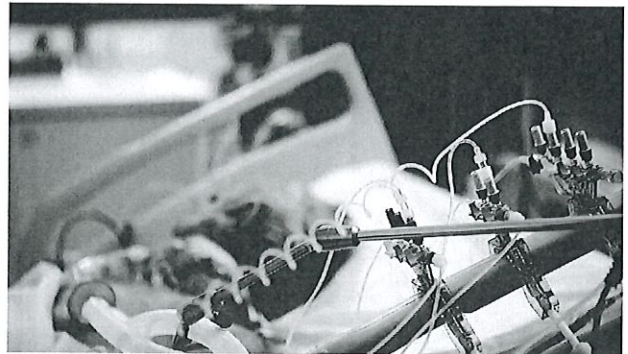


Nikki Mandow

MAY 11 2020



PODCAST: TWO CENTS' WORTH



IDEASROOM

Inside the ventilator question

Covid-19 is making us think about many things we have never had to consider before – one of them is the use of ventilators.



University Of Auckland

APR 17 2020



COVID-19

Still no gear for home care workers

Home care workers are still visiting thousands of elderly and disabled people every day - without protective clothing.



Nikki Mandow

MAR 27 2020

Will things we touch change forever?

Our Two Cents' Worth business podcast answers listeners' questions around how Covid-19 might change the world. Here: how will it change the design of everyday objects?



Nikki Mandow

APR 11 2020

