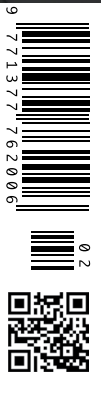




Cover Story

# Pandemic Prevention Strategies



**516 Prof. Amir Khorram-Manesh, Niclas Arvidson, Yohan Robinson:**  
Management of COVID-19 Pandemic - The Swedish Perspective

**520 Fons Rademakers:**  
Using BioDynaMo to Study COVID-19 Spread in Closed Spaces

**528 Prof. Simona Agger Ganassi:**  
Prevention and Innovation for the Post-Pandemic New Normal

**536 Prof. Stefan Heinemann:**  
(You Gotta) Fight for Your Right (to Party!)? - COVID-19 Immunity Passports Through Ethical Lens

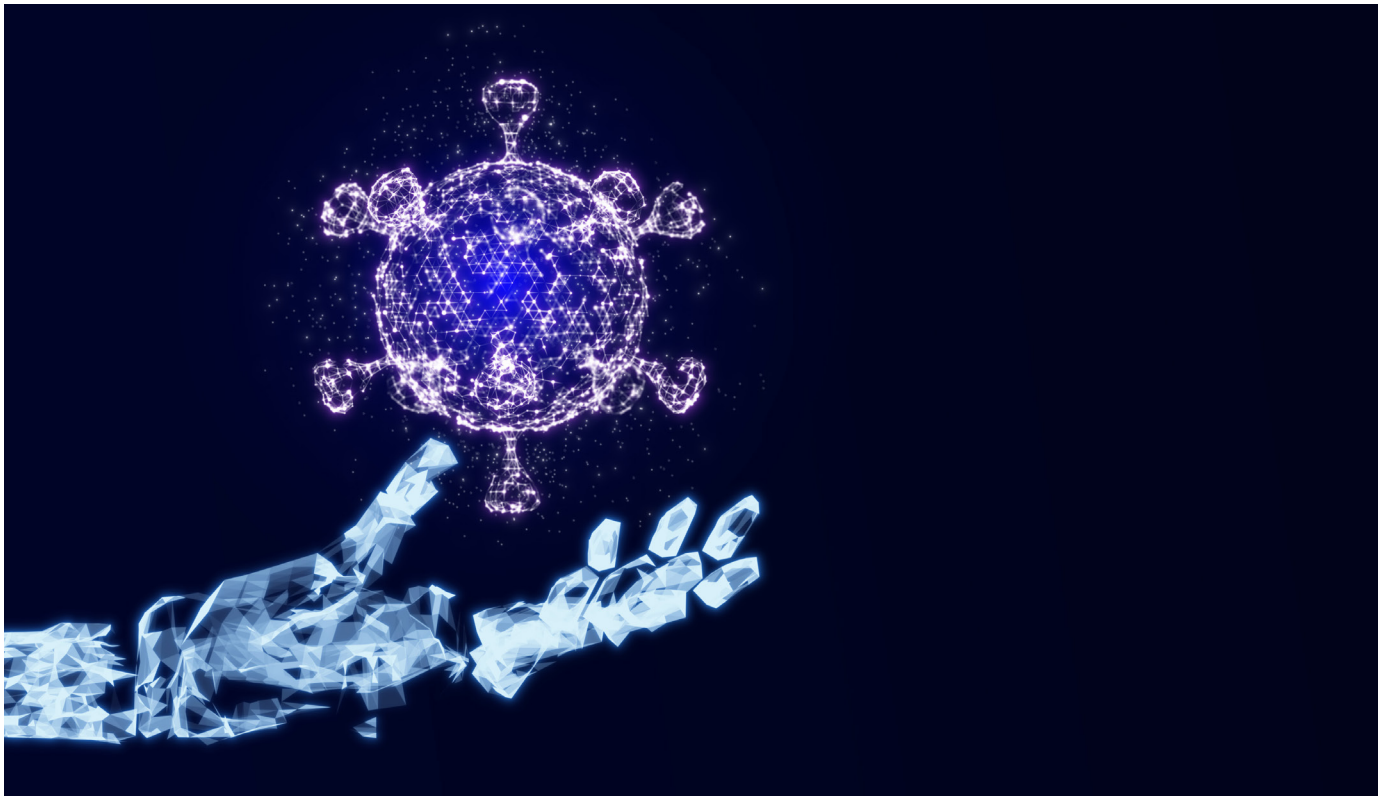
**541 Rafael Vidal-Perez:**  
The Role of Telecardiology - Lessons from COVID-19: A Missed Opportunity or a New Hope?

**498 Prof. Derek Alderson:**  
Rapidity of Change in Surgery

# COVID-19 Paving the Way for Robots in Healthcare?

Interviewee: [Dr Héctor González-Jiménez](#) | Associate Professor in Marketing | ESCP Business School | Madrid | Spain

HealthManagement.org spoke to Héctor González-Jiménez, Associate Professor in Marketing at ESCP Business School in Madrid and researcher about COVID-19 and the use of robotics in diagnosis and treatment. Héctor is interested in interdisciplinary research that addresses phenomena on the self and consumption. Currently, his work spans areas such as cross-cultural consumer behaviour, body image and consumption, and human-robot interactions. Here, he comments on the impact of robotics in healthcare and especially on COVID-19 patients.



## What do you think are successful and efficient uses for robots in the healthcare space?

Research suggests that there are synergies between robots and humans that

can be leveraged in the health-care space and in particular during a crisis. Humans and robots complete a variety of tasks that are linked to different types of intelligence. As outlined by Huang

and Rust (2018), there are four types of intelligence. Mechanical, analytical, intuitive and empathetic. Robots and AI are already very proficient in completing mechanical (e.g. repeated actions and



movements) and analytical tasks (e.g. data analysis). For instance, basic tasks (registration, room information, etc.) in reception areas can already be accomplished by a robot equipped with AI, or a simple AI interface in the form of a tablet. Furthermore, in hospital settings, AI and robots can be used to remind staff to provide treatment or medicine to patients. In some cases, the robot can even take the medicine to patients.

### **What has your research shown in terms of successful and efficient uses for robots in the COVID-19 space?**

China and Thailand already offer some initial evidence on how robots can be leveraged during the current coronavirus pandemic. Medical professionals are using robots to take medicine to patients or to measure their temperature. In doing so, they reduce human-to-human contact, thus reducing potential infections. Moreover, robots are being equipped with UV lights to disinfect rooms and themselves, thus also sparing human intervention in these tasks. Besides these tasks, robots are also used as a contact point between medical staff and patients as medics are able to communicate with patients from a distance via the robots media interface. Outside the hospital, the Chinese government is also using autonomous vehicles to take supplies to people in need that are quarantined in their homes. However, to date this is observational evidence. Empirical data that can offer quantitative insights on the potential benefits and drawbacks is still not available due to the recent nature of these applications.

### **Do you think that robots can have a detrimental effect on patients?**

If patients are conscious, the use of a robot may affect their psychological wellbeing. Researchers argue that especially in moments of trauma and stress, such as an accident or disaster, humans may be especially sensitive and emotionally fragile. Imagine that during such a

moment a victim is waiting for a medical professional or emergency response professional to rescue them. Suddenly, being confronted with a robot may further accentuate their anxiety, especially if they have not interacted with this type of technology before. In such situations a human touch is still quite relevant, especially in terms of a patient's psychological wellbeing. This notion ties in with the four intelligence types. At this stage robots are still not able to accomplish tasks that require empathetic intelligence at the level of humans. Therefore, the application of independent robots may be useful in some instances, but at least for now, collaboration between humans and robots may still be more fruitful.

### **If the 'social distancing' contributions of robots to the COVID-19 crisis is limited, how do you think healthcare managers/department heads could approach the need for distancing instead?**

This is a good question, and I do not want to step into the field of the experts that have to manage such situations live and on a daily basis. That being said, robots and AI could actually be useful in helping with 'social distancing.' Rather than human doctors facing patients directly, there may be situations where they can use robots to treat patients from a distance. In such scenarios it would be fruitful for medical professionals to explain or even introduce the robot to the patients in person. This could reduce the initial surprise if a patient encounters a robot. After that introduction, medical staff could then use robots for some tasks to reduce human contact. Furthermore, social distancing can also be promoted by using autonomous delivery vehicles, thus reducing human contact for delivery service workers. These are just some examples of potential applications. These will, of course, also largely depend on the resources available and the technology readiness of the patients and country context.

### **What do you think the most significant lesson is for health-care management and public health from this crisis?**

Readiness is key. I am aware that it is difficult to invest significant resources to account for scenarios that may not happen, or rarely happen. Imagine you invest into robots that could be used during a pandemic, but then hardly use them until a crisis happens. It would be difficult to justify such an investment to your funders. Looking back, we are always smarter, but predicting the future is challenging to say the least, and realistically healthcare managers do have budgetary resource constraints and often need to focus on current needs.

Nevertheless, there are still things we can learn from the current crisis.

In my opinion, the main takeaway is that if applied correctly, robots, AI and humans can collaborate and enhance healthcare service provisions (see examples in China). Robots and AI are sometimes portrayed as an enemy of humanity, because of associated employment issues. There are, of course, valid arguments to support this thesis. However, as outlined above, there are also benefits.

As a researcher I am rather interested in the societal and psychological implications that come with the integration of robots and AI. From that perspective, I believe that it is integral to introduce these technologies gradually. Furthermore, staff, patients and stakeholders need to be educated on the potential benefits. This also requires close collaboration with the media, because the narrative about robots and AI in the media can have a vast impact on social acceptance of these technologies.

Lastly, in the long term, some of the acceptance issues may be solved with time as new generations grow up. Today's youth is being already raised in a very tech-driven environment; hence they will likely grow up to embrace these technologies with less resistance than current generations. ■