

Decision Making in the Time of Corona Virus: An Interview with Dr. Leandro Pecchia

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Leandro Pecchia at work

At *IJAHP* we are concerned for the well-being of our friends and colleagues around the world. In our concern, we have systematically contacted many of them to know how they are riding out this crisis. We recently contacted our colleague and long-time friend Leandro Pecchia. Dr. Pecchia, originally from Italy, is an Associate Professor of Biomedical Engineering at the University of Warwick, U. K., and he has been part of the AHP/ANP community for a long time. He was program chair for the International Symposium of the Analytic Hierarchy Process (ISAHP) that took place in 2016 in London, U.K, and has used his decision-making expertise in the biomedical field, where he is considered a world expert.

We were thrilled to find out that he is not only “fine and in a great mood”, but that he and his team at UW are actually very active despite the catastrophic circumstances engulfing the world. Dr. Pecchia is an expert in medical devices, artificial intelligence and decision making. He is also the elected President of the European Society of Biomedical Engineering (i.e., EAMBES), Treasurer of the Clinical Engineering Division of the IFMBE, and Secretary General of the IUPESM, the global union society of medical physicists and biomedical engineers.

In this role, Dr. Pecchia kindly shared with us his thoughts about the current crisis:

“The first need during an emergency is getting appropriate knowledge and clear guidance. It has been more than 60 years since many of our countries have faced such an emergency in their mainland. In response to this need, EAMBES, IFMBE and IUPESM members are supporting the World Health Organization (WHO) to define minimum requirements for essential medical devices, in-vitro diagnostics and personal protection equipment (PPE) to fight the COVID-19 pandemic. For a list of essential medical devices being reviewed weekly you can see this: [https://www.who.int/publications-detail/disease-commodity-package---novel-coronavirus-\(ncov\)](https://www.who.int/publications-detail/disease-commodity-package---novel-coronavirus-(ncov)).

This emergency has revealed the frailty of our production and supply chain for medical devices and PPE. So many years of a profit-focused market has left our countries without endemic productions of critical devices and PPE. Once this crisis is over, we will have to rethink our manufacturing models for critical devices and equipment, following principles of circular economy and local manufacturing. To respond now, during this pandemic, we are assisting manufacturers in the UK Midlands and in Italy, who are converting their production lines to start manufacturing PPEs (e.g. masks, visor) and medical devices (ventilators). In particular, we are helping with the regulatory and design aspects, which in this period are critical. Not only do we need to ensure the usual standard of quality, but we also need to consider making these devices even more resilient because if hospitals fail, we will need to safely operationalize these devices in field hospitals in tents. Therefore, military and rugged standards become relevant too. Meanwhile, we have to help our regulators define fast-track certification procedures. This is not easy, but all are responding very well including the FDA, European Commission and national institutes.

Moreover, this virus spreads as we breathe. Therefore, we need to remotely monitor patients, suspected infected people, and their relatives. We need to control their health trajectories and react promptly and appropriately. In order to respond to this need, we have supported telemedicine companies adapting their platforms for COVID monitoring of patients and self-isolated citizens. This is now serving hundreds of self-isolated patients and citizens in the Rome region in Italy for three local National Health Service (NHS) Trusts, and discussion is going on about opening the same platform to UK NHS Trusts for high-risk populations (e.g., cancer patients).

Finally, we need to be ready for next year. The scientific community has been firmly clear in this regard. SARS-CoV-2 is not a transient problem. We will need to coexist with this virus forever, hoping that new cost-effective vaccines and therapies will become available that will mitigate the risks. While vaccines and therapies are under development, we need to be ready to early-detect COVID-19 from symptoms. This is actually the challenge for next winter. In response to this need, we are working to develop an AI system to detect pneumonia from symptoms (e.g., coughing, pain etc.). I hope we will have something like an App, which will enable people to self-assess their health condition and distinguish COVID-19 from regular flu or other seasonal influences. We are working on a database that is not COVID-specific because data on COVID are not available yet. We are using a dataset from Bosnia-Herzegovinian and learning how to distinguish pneumonia from bronchitis, asthma and normal influences,

but I believe the work we will produce can then be adapted for COVID if/when data becomes available. This is not sufficient, but this is all we can do in this moment.

In conclusion, this pandemic is not to be taken lightly. It requires us all to respond with all our strength. It requires responsible thinking, responsible action and also responsible silence, when we do not have specific competences. We have seen do-it-yourself approaches to PPE and medical devices that are potentially harmful, apart from being useless, and talk shows full of useless and contradictory opinions. This is not the time for opinions. This is the time for responsible thinking, responsible action, and responsible silence!”

Further information on the telemedicine application for COVID-19 can be found here: <https://www.adilife.net/covid-19/>



Leandro Pecchia and colleagues