



Cover Story:

# COVID-19 Care Continuum

212 **Giuseppe Galati:**  
Management of COVID-19 in Italy

220 **Prof. Mamas A. Mamas:**  
COVID-19 Pandemic: The Importance  
of Testing and Social Distancing

226 **Prof. Eugene Fidelis Soh:**  
Smart Hospital for the Future

234 **Prof. Andy Tatem:**  
COVID-19: Data Uncertainty and  
Effectiveness of Interventions

248 **Rafael J. Grossman:**  
Telemedicine Post COVID-19

258 **Eric de Roodenbeke:**  
Filling the Gaps: Learning from Each  
Other During the COVID-19 Pandemic





# COVID-19 Pandemic: The Importance of Testing and Social Isolation

Prof. Mamas A. Mamas is a structural interventional cardiologist, treating patients with underlying coronary artery with percutaneous coronary intervention (PCI) in both the elective and emergency setting and undertaking Transcatheter Aortic Valve Interventions (TAVI). He is also the Associate Editor of Circulation Cardiovascular Interventions and leads a large research groups focussed around electronic health record research. HealthManagement.org spoke to Prof. Mamas about the COVID-19 pandemic and its management in the UK.

## **Do you think your country is taking enough precautions to contain the virus, and have any of the other countries implemented measures that have impressed you or that you feel worked well?**

South Korea has done a fantastic job of controlling the virus. It has been very aggressive at the start of the pandemic, in identifying cases, in contact tracing, and then enforcing isolation of those cases that were found to be positive through digital solutions such as tracking through mobile phones, smartphone activity, and so forth. In the UK, our approach has been less robust; we don't have a proper means of testing. The only people that are getting tested currently are those admitted to the hospital. However, the vast majority of people (around 80%) that are infected with this condition won't be admitted to the hospital. Since we're not testing these people, there's no way of contacting them, and there's no way of enforcing isolation.

The second thing is that the UK initially adopted a herd immunity approach. What that means is that you rely on a certain number of individuals to get infected, and typically, you would need 60-70% of the population to be infected, and that would then result in the protection of the other population. If a significant proportion of the population has caught it and they're immune to it, the spread of the disease is much lower because you've got fewer people that are susceptible to it. The problem is that when people started to realise what impact this would have on health care services, the government switched their approach and implemented lockdown and social isolation. That's almost trying to bolt the door once the horse has left the stables and missed the

opportunity to be able to control the situation. It all comes down to testing. If you cannot test your population and trace the contacts that they've had with and test them, you will have difficulty in managing this situation, and that's why many of the European countries, North America and the UK, haven't dealt with the situation very effectively. South Korea has been very proactive in dealing with testing and contact tracing, and therefore, they have limited the spread and the impact of the disease.

## **Do you think that aggressive testing could have curtailed the spread?**

Some health care systems like South Korea adopted very aggressive testing and contact tracing, and the spread has been far far less than in countries that are not doing proper testing, including the United Kingdom and the United States. In the United Kingdom, testing is not available to the majority of people. It's only to those admitted to the hospital. It is not even available to healthcare professionals, and we're told that if you have a temperature or you or anyone in your family has a cough, you should self-isolate for two weeks. But then the temperature or the cough may not have anything to do with COVID. Many hospitals are reporting 20 to 30% of their staff self-isolating that don't even have COVID. The second thing is, if you're not testing these individuals, you can't contact trace. You can imagine if each of these individuals has been in contact with a number of people who may or may not be infected and not knowing who these people are and whether they're positive or negative results in a complete disaster for the spread of the virus. Countries have failed miserably in

aggressive testing of their population and aggressive contact tracing, and aggressive management of the patients with enforced isolation of those identified to be positive. Don't forget that the data was very confusing in January. We had the World Health Organization in the early part of January saying that Chinese data was suggesting that person to person spread was unlikely, and clearly, we all know how wrong that was. It would suggest to me that perhaps in China, contact tracing and testing in the very early stages of the disease were less robust.

I was traveling a lot in February and March, going to different meetings. I was shocked when all the reports were coming out of China, and it was spreading to Italy. I was in the US, and I arrived back in the UK, and no one tested individuals, no one measured temperatures, no one had questionnaires around whether you've had a cough or you're breathless, or you're unwell. There are tools that were used only in the latter stages when traveling was stopped. The global response was relatively poor because a lot more could have been done in trying to test individuals that were trave-

l affecting all the organs in the body.

### **How long do you think a lockdown is feasible for countries?**

We are all aware of the economic impact of the lockdown. In the UK, the GDP has dropped over the last couple of months below what it has been for probably close to 100 years. The last time that GDP dropped so much was in the Great Depression of the 1920s. The GDP drop has been more than the crash in 2008. From a public health perspective, having a lockdown for as long as possible will control the spread of the virus. There's no doubt about that. On the flip side, though, the longer you have the lockdown for, the greater will be the economic impact. You can't separate the economy of the country with the delivery of healthcare within a country. An economic crash will impact individuals' health quite significantly, in that you won't be able to afford proper health care delivery. It's always a balance between the economic well-being of the country and the benefits that brings to population health versus trying to have a lockdown

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lars. Places like London, New York, Paris, and Rome that now have a huge rate of infections are the travel hubs for airplanes, and there were no robust mechanisms or systems for screening passengers. Carriers were arriving in a country free to mix with the population, and there were no checks as to whether these people were infected, or who they're coming in contact with. The public health response has been very poor and has been reactive rather than proactive.

### **We know that this disease affects the lungs in patients who reach the severe phase. Could other organs and systems be affected by it?**

There is a lot of data as to how COVID-19 can influence the cardiovascular system. There have been a number of papers that have shown that between 1 in 10 and 1 in 15 patients with COVID-19 have abnormalities in cardiac biomarkers, suggesting that there is cardiac involvement or cardiac damage. People that have elevated biomarkers have a worse prognosis and worse outcomes than those without. A small proportion of people with COVID-19 get a dysregulated inflammatory phase, and this can affect systems of the body. When these patients get really sick and enter the Intensive Care Unit, they tend to have multi-organ failure, renal dysfunction, cardiac dysfunction, circulatory collapse, and that's part of the dysregulated inflammatory process that's

to limit the spread as much as possible. The solution cannot be worse than the process. You have different approaches. For example, Sweden hasn't adopted a limitation and lockdown, and so the impact on the economy will be much less compared to places like the UK and other places in Europe that have the lockdown. There is a lot of discussion on how long we should continue this lockdown because there will be a big economic crash, and that will have an impact on the healthcare of the population.

### **If you look at the trends in China, they were able to get back on track within three months or so. Do you think that things will get better for other countries three or four months down the line?**

There are a lot of questions being asked about Chinese data. I don't know how robust or non-robust this data is. The problem is that we don't have great data because we don't know what the denominator is. All we know is the number of people that are admitted to the hospital or that have a test and whether it's positive or negative. But don't forget that in Italy, and in a lot of Europe, the vast majority of individuals are not having the test. We're not testing the population, so we have no idea whether it's increasing or decreasing, or staying the same. Or what proportion of the population has been infected because, for immunity to work, you need about



70% of the population to be infected. If we do testing and we find that 60 to 70% of the population has been infected, that would be a good argument to stop this lockdown or reduce its severity. The second bit is: how do you define cases? You can only say that there's been a COVID case or a COVID death by testing for it, and different countries do different things. If someone dies in the community, does that count as a COVID death? If a patient is tested to see if they have COVID or not, and if they go to the hospital, and die before the test result comes back, is that a COVID death? Just looking at the number of deaths from COVID and the number of cases from COVID may not necessarily be the most robust way of looking at infection rates. It depends on how many patients you're testing, who you're testing, and what you're counting as a case.

**So, testing clearly is very critical. Why do you think countries are not doing it?**

It's a number of things. First and foremost is the capacity. There are different types of tests. There is a viral test, and there is an antibody test. Some of the antibody tests that have been developed aren't as robust as what would be

Secondly, there have been a lot of discussions about being able to use a single ventilator to ventilate more than one patient. It may be challenging because you have to find two patients with similar ventilation requirements and similar volumes required because you can't support a 150-kilo man and a 40-kilo lady with the same settings. You have to find people that are similar enough that you can do that, and that will be challenging, but that might be another potential way of dealing with the ventilator issue. The third way of doing it is what they're hoping to do, which is by doing lockdown and social isolation. What that does is, it slows the spread of the infection. Rather than everybody getting infected at the same time and having a big impact on the healthcare service where you can't ventilate everyone, if you do social isolation, and slow the spread of infection, it may be that the same number of patients get infected, but they get infected over a longer period of time, and therefore there's not the density of patients or the number of patients that need a ventilator.

Finally, as with anything in medicine, there have to be questions about how we allocate resources because resources are not infinite. We do this in medicine all the time. It's just that now, it's a lot more overt because there is a

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needed for clinical care, and you may get a lot of false negatives. PCR methods are much more accurate as long as you do a good swab, but they are time consuming and so doing PCR techniques as a means of population screening will be difficult because there may not be the facilities to run hundreds of thousands of these tests every day.

**What about resource allocation in case of a shortage of ventilators as the number of cases increase? Should chances of survival be the criteria?**

There can be shortages even in the best healthcare systems with the greatest resource. Look at the United States, for example. They are still reporting shortages. In the United Kingdom, we have 8000 ventilators that have been called by the government, and a number of manufacturers have been approved to try to get additional ventilator production and support to the United Kingdom.

With all of these discussions, first and foremost is: does the patient actually need more ventilation? Could you achieve a similar benefit in a proportion of patients using CPAP, where we know that there is a much greater CPAP resource than formal ventilation? Particularly for the milder cases, perhaps thinking about using CPAP may make it more optimal.

much greater need for this limited resource - the ventilator. You have to think about patients' chances of survival. For example, if you have multimorbid, very frail patients that have other life-limiting conditions such as active cancer, what is the benefit of them being ventilated if it's a limited resource, and you're preventing a younger patient without co-morbidities and without life-limiting conditions receiving treatment? You will think about the chances of survival. That's always challenging because we're only now understanding the condition and we only have limited data as to what are the factors that have better chances of survival, and what are the factors that have worse chances of survival. I think we also need to consider the patient's background health status as well and think about their quality of life currently, and what we're trying to achieve. If a patient has a life-limiting condition, I'm not sure if that is the best use of the resource.

With all of these things, we have to think about the resources that we have, and try to minimise the use of resources hence why social isolation is so important, and a lockdown is so important. But then when we are faced with a number of people with limited resources, we have to allocate based on those where we feel that the chances of survival are greatest and the quality of life after survival will be greatest. These discussions are very difficult because there

are no official guidelines for how to run this. You have to do it within an ethical framework where there's a full discussion within the care team. This is not a decision that an individual can make. It has to be a whole team and also involve patients because I have dealt with patients many times in my career that may say, "Doctor, we've had a great life. I don't want to go on the ventilator. I would rather put boundaries around the aggressiveness of my treatment." I think that's reasonable. That's an informed discussion with the patient and their family.

### **Should doctors be involved in making this decision, or should resource allocation decisions be taken by a hospital committee?**

That would be difficult. Often the people that are on the committees don't do clinical work. I'm not sure that they would provide any insight whatsoever. I don't agree it should be the individual. It should be a team. But it should be the clinical team that is involved in the use of this resource. It should be the intensive care team there on the floor on a day to day basis, not the administrators that haven't been in a clinical environment for 20 years. I don't think they offer a valuable opinion. Decisions should be made by clinical teams looking after patients and involved in active clinical care.

### **Do you think healthcare systems across the world have failed healthcare professionals?**

I've been speaking to physicians in North America and in Europe. The protection offered to healthcare workers is poor. In many ways, national recommendations do not go far enough in protecting healthcare workers. Many of us believe that the recommendations are based on the availability of PPE as opposed to what is the best PPE. There have been many physician deaths in the US, UK, and Italy. Many of these were avoidable deaths because of inadequate protection. The guidelines have said that COVID spread is only through droplets. But a lot of studies have suggested that that might not be the case. It may be aerosol spread, and the surgical facemask may be ineffective for healthcare professionals. We should be using N95 masks as that would be much more effective with aerosols. If you look at the way that the Chinese protect their workforce, particularly in the latter stages, where they had full hazmat suits on, all of them had N95 and compare it to what we did in the NHS, with the face mask and plastic apron and scrubs unless it's an aerosol-generating procedure, there's a big difference. It's clear that we're placing our staff at risk by inappropriate guidelines and inappropriate protective equipment. This will eventually lead to a shortage of healthcare workers if doctors keep getting sick. The reason is twofold. Number one: they really are getting sick. Number two is the issue that if a member of that family has a fever, the requirement is for healthcare workers to self-isolate for 14 days, even though the cough or the fever may have nothing to do with COVID. Children have

constant fevers. It may have nothing to do with COVID. But because we don't have proper testing or widespread testing, we're mandating healthcare workers to self-isolate for two weeks and in many hospitals, between one in three and one in five of their healthcare worker are off sick for self-isolation.

### **Is there anything else you would like to share?**

I think there are many negatives about how this situation has been handled by governments and policymakers. But I think there are many positives about how the healthcare community has dealt with this. One of the real eye-openers has been around the exchange of information over social media. At the end of the day, we are dealing with a health-care condition where there isn't an academic space. Up to three or four months ago, no one knew that this condition even existed. But now, over social media, between societies, we're having an exchange of information across the globe. We have Chinese physicians doing webinars with UK-based groups with American groups. I've been involved in webinars with Italian intensive care physicians over social media. We're all working together exchanging information about protocols, management strategies, presentations, how to structure our services. I think this is amazing. One of the comments that I made in one of the webcast I was involved in with TCTMD was how would this have been managed ten years ago when we didn't have such active social media? It would have been very different. The exchange of information between colleagues across the globe now is instantaneous. And we've had a very quick adoption experience and protocols from our Chinese colleagues who have been absolutely fantastic in sharing their experience with us, with our Italian colleagues who have been amazing sharing their experience with us. We now have a pool of expertise across the world that we can access with a click of a button. I think that has really, to me, stood out as to how we should work as healthcare professionals across the globe. ■

### **Interviewee: Prof. Mamas A. Mamas**

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