

## Interview with Dr. Nuno Marques President of the Algarve Biomedical Centre

***“The probability of a second wave next winter is very high”***

Dr. Nuno Marques runs the Algarve Biomedical Centre (ABC), a biomedical research centre that has been at the forefront of combating the pandemic. He recently talked to *Diário de Notícias* about this struggle over the last three months, and the future, in which masks, social distancing and hand washing will be mandatory, "at least in the next two, three years".

As a doctor at the Faro and Portimão hospitals, professor at the University of the Algarve and president of the Algarve Biomedical Centre (ABC), a partnership between those institutions for biomedical research, Nuno Marques has been at the forefront in combating the covid-19 pandemic in Portugal. He was one of the drivers of diagnostic tests in scientific research centres across the country, in a network that now covers 22 centres, which was "decisive" in the most critical phase and "is to continue", he says.



The doctor, professor and researcher has no doubt that this network "is an opportunity" for "faster and more effective global development" in the country. As for the likelihood of a second wave of the pandemic in the winter, he says, "it is very high", so "we have to be very attentive" and "continue to prepare". Social distancing, wearing masks and frequent hand washing, therefore, have come to stay "for the next two, three years, at least". It is a new way of life that "we must adopt". And never let your guard down, because "a new outbreak can happen at any time".

**The ABC has played a central role in combating Covid in the Algarve. Three months after the disease arrived in Portugal, what is your assessment of the situation in the country and in the Algarve in particular?**

It's a good balance. In several countries the pandemic has far exceeded the response capacity of health services, and in Portugal there were measures that allowed this not to happen. The healthcare sector contributed to this, but so did others, fighting alongside. This is what the ABC academic centre did in the Algarve.



We soon realized that the fight against the pandemic could not be just within the healthcare institutions and that it was essential to have a frontline of combat, doing as many tests as possible outside the health institutions and leaving them to deal only with those cases that needed hospitalization and intensive care. For the first time, there was also strong unity between everyone, in health, science and in the industry itself, to find the best solutions. That was the key so that the number of deaths, which unfortunately exist, was not as high as in other European countries.

**At the moment, there are still active outbreaks in the country. Why is that?**

This was to be expected, as the country reopened after lockdown. This means that we have to be very alert. It is essential that all cases are detected in time, at the beginning of the transmission chains, with contacts traced and cases isolated, so as to limit the spread of the virus. The more careful people are in wearing masks, maintaining social distance and washing their hands, the more limited the contagion will be. How things go will depend a lot on people's behaviour.

**There has been much discussion on the use of mobile applications to identify contagions. What is your opinion on this?**

I am in favour of using these applications, as long as they protect people's privacy and identity. These applications allow greater certainty in the identification of contacts with positive cases and are an important help to contain the transmission chains, because we have to be one step ahead of them. And there are already some applications in Europe that are being tested and launched, that preserve people's privacy.

**What should the focus be now in fighting the pandemic?**

It is very important for people to understand that they have to be careful, otherwise we will have more outbreaks and a large number of cases of Covid-19. And the research centres, which have played a decisive role in combating the pandemic, in the testing effort and in the search for solutions, will have to remain active and maintain their responsiveness.

In the coming winter in the northern hemisphere, starting in October, November, a significant number of cases is expected again, alongside the flu and other respiratory infections. We will have to be very attentive and have a great capacity for testing, to isolate any cases of Covid-19, so that there are no chains of mass transmission that lead to the collapse of the National Health System [SNS].

We must keep improving what we have already achieved and optimize everything in each of the health and science institutions so as to be as prepared as possible for next winter, when the need for tests will be very great. In the case of the ABC, there is still this summer season, with many tourists in the Algarve. We have to be very alert because this increase in population also increases the risk of spreading the virus.

**Is a second wave of Covid-19 inevitable?**

No one can say for sure, but the probability is very high. We are talking about a virus and a disease that are strongly seasonal in character. The likelihood of a second wave in winter in the northern hemisphere is very high.

**But could it happen even before winter?**

It can happen before if we are not careful, because this virus has a high transmission capacity. The winter would be the most natural time for it to happen, but we cannot rest at any time because one person can infect many, even with very mild symptoms. If we are not careful, we could have an outbreak at any time, including during summer.

We cannot let our guard down until we have a vaccine, if it is possible to have it, or effective treatments, if it is possible to have them. A worldwide effort is being made in this sense, but I do not expect either solution this year. If we consider the time it takes to develop either of them, having them next year will be very fast. We will have to continue to live with the disease, be very attentive and, at the slightest sign, carry out tests, tests, tests, to isolate the cases and prevent an infected person from infecting many others.

**Are we ready for a second wave right now?**

We are much better prepared now than we were three months ago, and this work continues in the hospitals. The SNS responded very well to the first round and is preparing for a second, which could be even stronger and more virulent. Inpatient equipment is being reinforced, procedures are being optimized and teams are being prepared. We also have the network of research centres that is complementary in terms of testing and which provides the guarantee of very high testing capacity, which can still be increased if necessary.

**The scientific research centres started diagnostic testing for Covid-19 very early. How did this happen?**

It was a spontaneous move. The IMM [Institute of Molecular Medicine - João Lobo Antunes, part of the University of Lisbon] started doing them; we here, at the same time, also developed this capacity. The various

centres communicated with each other and a network arose from there. We are currently talking about 22 research centres in the country, which are sharing experiences. Any innovation from one of them is soon made available to the others. I had never seen research centres sharing information in a network this way, at the service of the population.

### **Was this decisive in combating the pandemic in Portugal?**

It was decisive at that time when there were no diagnostic kits available, because it meant that there was never a drop in the number of tests being done. To date [Tuesday, June 16], research centres have performed more than 172,000 RT-PCR tests, which make the direct diagnosis by detecting the virus's genetic material. This was only possible because in many of these centres there are qualified researchers who have already applied these techniques in their investigations.

### **What actions outside healthcare institutions were also essential in combating the pandemic?**

One of them was the creation of drive-thru [test centres where users do not leave their vehicles], where many samples were collected for testing, preventing patients with mild symptoms from crowding the hospitals. And in homes, too. The Ministry of Labour and Social Security realized that homes would be potential hotspots, and started testing in a preventive way, rather than just when the problem arose, as happened in other countries.

As such, the scientific research centres, which made themselves available all over the country, played a key role so that there was this additional capacity for testing employees and people at home. This made it possible to identify outbreaks very early and prevented many deaths in the country.

### **What about ABC's intervention in the Algarve?**

Even before there were cases in Portugal, we were already on the ground. We realized what was happening in other countries, stopped other activities and put our focus on Covid-19. We helped institutions in the Algarve to prepare their contingency plans and then we realized that it was necessary to remove as many patients as possible from the hospitals, which being public institutions, often operate under difficulties.

It turned out that there were no problems because many of the cases did not even reach the hospitals. We created a drive-thru testing centre at Estádio do Algarve, which has already collected more than 25,000 samples, from people who therefore did not pass through hospital units or health centres, and positive cases were able to quarantine at home. In addition, we developed and created the testing capacity.

So far, we have done more than 21 thousand tests, and we maintain a working laboratory for this purpose. The Algarve only had one laboratory for the entire region. ABC also supported testing in homes and day-care centres in Baixo Alentejo and Alentejo Litoral, and this will continue. In addition, we developed some solutions when there was a shortage of equipment.

### **What solutions were these?**

Swabs and sample collection kits that were not available in the country in April, and that had to be developed. They were initially produced by a start-up from the University of Algarve and later by a northern company, *Hidrofer*, which had greater production capacity.

In addition, our medical students reinforced the SNS 24 line, which at one point was not coping with response, as we know. There are 150 students in the last two years of the Medicine degree at the University of Algarve who continue to provide this service today. Later, ABC and the Minho University opened another call centre to assist the SNS 24 line in Braga, with students from the last year of medicine at Minho. This is now temporarily closed as there is no need for it, but everyone is still available, should there be any more peaks. The Algarve one, in Faro, continues to function.

**What fruits can this collaboration between research centres bear in the future?**

It is an opportunity and an example that in the future we can apply to other things. The country needs this collaboration. It will help overall development to be much faster and more effective. Everyone is now easily in contact and this will continue and will leave marks in the country and on science.

The centres will continue to be interconnected, to meet, and to develop scientific actions. And that will lead to greater interconnection with the industry and more sharing in European projects. This link between science and health was unique, even in European terms. I am in a European group in this area of Covid testing and there is no parallel in European terms to this.

Portugal is very well placed in the response it gave to the tests also due to the fact that these research centres were doing them, which provided capacity that many other countries did not expect from us. The creation of this network was key because it left no region uncovered.

**In terms of preparing for the future, what remains to be done in this pandemic?**

The reinforcement of hospital centres continues and these are making acquisitions and creating reserves of personal protective equipment. Testing capacity is being optimized. The tests are already faster. For urgent analyses we no longer need six hours; a well-trained team can do them in three and a half hours. And developments will not stop there. There are several research centres developing new solutions to fight the pandemic. There were two calls for research support from FCT [Foundation for Science and Technology]; the projects are being developed and will produce aid in a short period of time, to be available next winter.

**What new solutions may come out of it?**

Some are computer solutions for developing algorithms for monitoring situations or new methodologies for even faster tests for a better response in the hospital context. I believe that some of the projects will be successful and that this will be an asset for this second phase.

**And at ABC, what is being done in this regard?**

We acquired equipment so that testing is ongoing and at the same time we can continue to do the research work. But it also means that if we have a pandemic peak, we will have double the testing capacity, which in a region like the Algarve can be key. In addition, over time we have been optimizing the sample collections and we have achieved a drive-thru capacity where we can harvest every 15 seconds, with over a thousand harvests a day.

We are now taking stock of the situation in homes in the Algarve and Alentejo and acting whenever there is an identified case and working with the institutions in preparation for next winter. Always in conjunction with public health and with easy and quick communication between everyone. We have to have the maximum capacity installed on the ground this summer, given the large number of tourists that come to the Algarve at this time, and that we want them to remain safe.

**Regarding the pandemic, how much longer will we have to continue to practice social distancing?**

This is a new way of life that we have to adopt in the coming years. Even if a vaccine or treatment appears, its effectiveness will not be one hundred percent. Just look at other diseases. We cannot rest until there is mass vaccination. Social distancing and wearing masks are here to stay for the next two, three years, at least.

**What about immunity? It is not yet known how long it will last.**

There is still no data to prove this. In most other diseases caused by viruses, immunity is relatively long-lasting, often even if antibodies are not detected. But this disease is not expected to behave very differently from other viral diseases of the same type, in which immunity is developed by the host.

Without being sure, because in the face of something new we cannot be absolutely sure, the likelihood of having immune people is much greater than that of developing the disease again. Unless the virus has enough mutations to be able to infect people again. But, as far as we know, that hasn't happened yet.

*Translation and photos added by Safe Communities Portugal 21<sup>st</sup> June 2020*