Cristóbal Belda, Director del ISCIII: “PERTE represents an opportunity to help our country”

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Dr Cristóbal Belda became Director of the ISCIII (Carlos III Health Institute) last August. Until his appointment, he had served as the Institute's Deputy Director General with direct responsibility for operational management of ***Acción Estratégica en Salud***, the main strategic actor in coordinating and fostering biomedical research in Spain. He is a specialist in medical oncology and Doctor in medicine, who is an expert in the design and execution of highly complex clinical trials and cancer biomarkers, co-author of over 100 articles published in international journals, tens of book chapters and advisor for nine doctoral theses. Since 1999, he has attended patients and families diagnosed with brain tumours and lung cancer, as well as undertaking research to improve their quality of life.

- ***The Strategic Projects for Economic Recovery and Transformation(known as PERTE) have just been approved. What research opportunities do they represent for the Carlos III Health Institute (ISCIII)?***

The ISCIII is one of the organisations with greatest involvement in PERTEs, and we are extremely proud of this. What's more, the ISCIII itself has invested considerable funds within these strategic projects. What we have to understand is that the ISCIII is a scientific body anchored in healthcare and, therefore, we simultaneously represent both science and healthcare. We play an important role in PERTEs, in the sense that this dual focus is necessary in order to meet the majority of PERTE objectives. As well as this dual focus, PERTEs contemplate the need to transform our way of conducting R&D, and the efficiency with which this R&D is ultimately transferred to society. And this can be achieved in many ways: transfer may be in the form of industrial wealth or highly qualified jobs, but we can also direct it at transgenerational training for different people: from the youngest, who need training in different pre-doctoral or post-doctoral routes, to people who are more mature and have greater professional skills but need to adapt to new and more complex environments.

- ***What does the term salud de vanguardia mean?***

Vanguard Health, ***salud de vanguardia*** **in Spanish**, is a combination of all possible technologies and information sources to achieve optimum prevention, diagnosis, treatment and rehabilitation for each individual. That is to say, taking all the data we can obtain about the collective, employing big data analytics, and applying this information at the level of a specific individual, with the final goal of preventing and avoiding problems this person may experience by delaying them as long as possible or, in the case of the onset of problems, solving them as quickly as possible so that the individual can enjoy a full life. In turn, this result should enable us to obtain feedback to add to the collective dataset and improve the precision of the various derived actions.

- ***Could we say that we are much closer to personalised or precision medicine?***

Over and above population studies, we need many other things, because precision medicine is a goal. In addition to precision medicine as a goal, we have to include certain types of therapy that are highly precise treatments, practically tailor-made for the individual. This has to be combined with a data system that allows us to include information taken from social and environmental areas, data about health and disease, in addition to lifestyle habits.

Ultimately, the four goals set out in PERTEs are inseparable in nature, despite the fact that in order to correctly carry them out, each has to be individually conceptualised. In any case, to achieve precision, you need data, to obtain data, digitization is necessary, to achieve advanced therapies, you need digitization and precision: we have distinguished four objectives or goals, with very specific leads, but the truth is that they form an inseparable unit.

There are also transversal or interdisciplinary lines that completely determine the objective, bearing in mind that the aim of PERTEs is to create wealth and highly qualified employment, but through health, and the enormous developments in health R&D.

And at this point it is worth remembering that Spain has been able to carry out academic R&D at the

highest level. If we consider the size of our economy and make a rank list comparing the position we have to Spanish scientific production, it becomes clear that there is an imbalance, since our position in scientific production is vastly superior compared with the size of our economy. It is amazing how much we have achieved in recent decades. Moving on from this point, the next thing we need to do is analyse the capacity of this scientific production to be transformed into industrial wealth. And it is here that we find the gap. So, we need to be able to take advantage of the opportunity offered by PERTEs to help us bridge this gap. It should be the seed, a seed that generates a strong, firm root that will enable us to bridge the distance, providing a clear and definite path between academic scientific production and industrial wealth. What's more, managing to achieve this objective will allow us to bring scientific fact both to the lives of the people who go to hospital at a given time because they are ill, and to the creation of employment and industrial wealth.

- ***One objective of PERTEs is to encompass both the public and private sectors. How do you intend to do that?***

Each sector knows how to do one thing, sometimes several things, but in general, when you focus talent, it is very productive. We, as the public sector of science, know how to produce science at a very high level. The business and industrial sectors know about business and industry, and they do it very well. If we add to these factors the fundamental principle of public-private cooperation, maintaining a two-way perspective that surpasses the linear idea of sales as the basis of this collaboration, we achieve a truly winning combination. To do this, we have to align both worlds so that they share the same line of vision, even though this may mean that we have to adapt our initial points of view. As well as that, we would have to be able to add regulatory science, which is often lacking in the academic sector, and is what the business sector probably knows a lot about. You could be capable of developing the best biomarker in the world, but in order for it to get into the system it has to pass a series of regulatory filters in the same way as any drug, medical device, etc. And we, as scientists, don't always have good knowledge of this, despite the common language that may exist in both sectors.

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- ***How can PERTEs be made attractive for private businesses so that they become fully involved?***

I believe that there is a basic attraction, which is that this is a project for the entire country. Throughout the public health crisis caused by COVID, we heard many voices saying that everyone wants to help their country. PERTEs represent an opportunity to help our country.

As citizens, we have to try to develop the capacity to build the industrial fabric, to create employment that is highly competitive. Secondly, academic R&D has to have an industrial application, a result that will generate wealth and returns for the population. There are a good number of our businesses that need high-value R&D to be competitive at an international level. The PERTEs should be able to focus common interests and bring them into the same line of vision.

In addition, the global transformation of our National Health System represents a historic opportunity for scientists, businesses and our National Health System itself, because ultimately, it is people who are at its centre. At times the people are scientists, at others they are patients, and sometimes they are industry. Now is the time, so, as our **Minister of Science** always says: "people".

- ***So, given that CNIC has experience in public-private collaboration, how will it participate?***

PERTEs represent an umbrella covering a series of objectives and a number of financial tools. Under this umbrella there will be subsidies, partially repayable loans, and it even contemplates the creation

of a company. So, what will the CNIC's role be? CNIC is an institution with an enormous capacity to generate knowledge applied to people. What we hope is that the CNIC will be able to help us hold up the umbrella and generate new projects that come under the umbrella. We cannot consider PERTEs as a fixed entity, as a box with a specific, limited capacity. PERTEs are a blueprint, with very specific funding - almost 1,500 million euros, that will achieve a series of objectives. But on this foundation, other pieces will be added whose aims, obviously, will align with PERTE general objectives, but will also help us to steer this boat in a direction that will help us achieve our goals.

- ***The ISCIII's previous director, Dr Raquel Yotti, was very interested in improving the relationship between health and science within hospitals. Do you share this idea?***

Absolutely. My project as ISCIII director is a continuation of **Dr Raquel Yotti**'s project. Dr Yotti's role at ISCIII was revolutionary: when we see things with more historical perspective we will realise the dimension of what Dr Yotti's did here, and of what she continues to do from her current position as Secretary General for Research.

So, the policy that we are going to follow is the one that Dr Yotti began. We will continue along the same path and in the same direction begun by her. We will continue with the Strategic Plan that she promoted. Bearing in mind my time as deputy director under her, and that as such I participated in the strategic plan, it would be strange if we did not follow that path.

- ***What challenges do you face in your new position as director?***

The major challenge is to be able to comply with the Strategic Plan with sufficient flexibility to respond to new challenges.

- ***When you became director of ISCIII we were in the middle of the Covid-19 pandemic. How has the pandemic conditioned research at the ISCIII?***

The ISCIII response was, and is, excellent. The professionals who work here do so for their fellow citizens, and often go far beyond the requirements of their positions. Obviously, the main focus of ISCIII's work in research is transmissible diseases, however, we do also research non-transmissible diseases. At present, with a pandemic of a transmissible disease, naturally, our main effort is directed at this.

Nevertheless, it is true that from the Institute, we have accessed additional funding that has been distributed to different external groups and has enabled health-focused research activity to continue in a way that would have been difficult if we had only concentrated on the pandemic.

- ***What do you mean by that?***

We have increased our funding for research into cancer, cardiovascular diseases, neurological diseases, etc. In our efforts to fight COVID, what we could not allow to happen was to detract funding from science against cancer, ischaemic heart disease, high blood pressure, diabetes, etc. We could not allow that. The government made a firm commitment to science that would combat COVID and the support that we have had over the last two years has been very firm; however, over the same period, we have increased funding for the rest of science in order to protect health.

The Institute, unfortunately, has been able to respond very well. And I say "unfortunately" because that response has been conditioned by the existence of a pandemic which is, obviously, unfortunate.

- ***So, the creation of the biomedical research network for infectious diseases, CIBERinfec, is a step in this direction... towards being alert to the possibility of new viruses?***

For many years, we have been thinking about a research network for infectious diseases, and to tell the truth, the pandemic gave us the final nudge to set up CIBERinfec.

- ***How important is it to generate scientific knowledge to combat situations like the one we are living nowadays?***

We have to generate knowledge aimed at three essential aspects. The first aspect is knowledge for its own sake. Science is valuable for its own sake. This is something that we have to be quite clear about in a world where everything is focused on utilitarianism, which is also essential, because we have to be capable of transferring scientific fact to citizens, industries, businesses, the country. But we should not forget something quite basic, which is that science, for its own sake, is an absolute value that we must protect.

The second aspect is science to avoid or delay disease: this is another of the major aspects we need to focus on.

And finally, science to reverse or alleviate disease. Because sooner or later, each of us will become ill. We try to avoid or delay it as far as possible and, if we cannot, it is very important that we should be able to try and reverse or alleviate it.

- ***The CNIC Director General, Dr Valentín Fuster, says that the time has come to stop talking about disease or illness and to start talking about health, of taking care of ourselves.***

There are two important aspects here, and Dr Fuster is one of the great champions of this approach. At the end of the day, the way to promote health is through education. As scientists, we can do as much as possible to promote health, but the reality is that this is achieved by educating people. Health by learning. And we haven't taken this step yet, but Dr Fuster has. He has taken health education to children, because educating a child is probably easier than changing the habits and behaviour that we have as adults. As adults, our attitude, our habits, are as formed and inflexible as our bone structure, whereas children are still flexible, and in all likelihood, this is the time when it is possible foster healthy habits.

If we promote healthy lifestyle habits from infancy, it will probably change us and protect us when we are older. It is a very complicated exercise to undertake. Science is fundamental but, at the end of the day, what is most important are schools and families: these are the places where health can really be promoted. I remember something that Dr Fuster said, "if a child eats well, the parent will do what is necessary to eat well." For me, that is the message.

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- ***We could say that the pandemic has brought some good things and that society now perceives the value of science, the value of innovation in research. Can this trend be used to make society aware of how important it is to take care of our own health?***

If we don't take care for our own health, who will? What I mean is that each of us has to have sufficient discipline to eat fruit and vegetables every day, because nobody is going to come along and eat that fruit and vegetables for us. Each of us should avoid cigarettes or alcohol or certain types of bad habits.

But it is also important to bear in mind something that I consider essential: although self-care is, without a doubt, primordial, we have to help with very clear public health policies that protect it. The crisis that has accompanied the pandemic, the crisis that occurred ten years ago, any crisis, has an impact on the health of people. All of us try to foster healthy lifestyles among the most disadvantaged people, but the problem is that often difficult to understand the situations of living conditions, social environment or the workplace. And even if it is possible to understand these aspects, it may be impossible for us to change them.

Indeed, what we are seeing is that certain types of food are easier to acquire and are much cheaper than others. If what we are trying to do is introduce mechanisms that stop the spread of these types of food, but we do it in such a way that some foods become so expensive that certain segments of the population cannot afford them, then we will be back to where we were, and a person's health will be mainly determined by their income. This would lead us to fail anew. And we cannot allow that to happen. We are an advanced society. Apart from fostering health, fostering self-care, we have to be capable of generating economic and social environments that mean fostering health can be effective. If buying a product with an enormous amount of trans fats is much cheaper than buying fresh vegetables, what we are doing is making access to a healthy life dependent on income. And this is something that, in principle, should be combatted using any policy that is necessary. Income cannot become the determinant factor for a healthy life.

- ***Another priority of the previous director was attracting both Spanish and foreign talent. Are you going to continue this line?***

Without a doubt. But this means that we must make a series of regulatory changes that have to go further than finance, and make Spain a magnet for scientific talent, regardless of whether that talent has a Spanish passport or not. Nationality is irrelevant; the most important thing is talent.

- ***When the pandemic ends, or is more or less under control, will ISCIII be easier to lead?***

I have no idea whether ISCIII will be easier or more difficult to lead when the pandemic is over. But it will always be a weighty responsibility. We are the State's main biomedical research institution. We have the tools for funding science, which is to say that we act like a bank, we act to push back the frontiers of knowledge, whether under the flag of ISCIII, CNIC, CNIO, etc. or under the flag of a CIBER research network. And with that comes a responsibility that is not always easy to manage, bearing in mind that our ultimate objective is science as a tool to protect health.

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