“Clinical medicine and laboratory science, can we understand each other?”

Laurent Kaiser, full professor and chairman of the Department of Medicine, Geneva University Hospitals, member of the former Swiss National COVID-19 Science Task Force

Interview **Michael Nagler, editor-in-chief pipette**

The pandemic was an acid test for teamwork between scientific disciplines and government agencies. So, we asked an expert on the front lines about his experiences.

MN: Professor Kaiser, you are the chairman of the Department of Medicine, leading the center for emerging viral diseases, and you were the director of the laboratory of virology. So, you wear both hats, that of clinical medicine and that of a laboratory specialist. Can these two disciplines understand each other?

LK: There really shouldn't be any question about that. For this very reason, it is termed "Laboratory Medicine". The laboratory must answer the questions that arise in the clinical setting and the clinic must make the correct interpretations from the available tests. For this reason, we have introduced a matrix structure in the Division of Laboratory Medicine at HUG. Our laboratory specialists are anchored in the clinical disciplines. This enables an exchange on both sides. In order for the disciplines to understand each other, good and close communication is necessary. Unfortunately, communication between the different disciplines has not always been working during the pandemic. But this is expected during a crisis like this one.

MN: Different experts seen in the media expressed contradictory messages, particularly regarding testing. One got the impression that this was not coordinated.

LK: This depends on your viewpoint; whether you are running a private lab, a public lab (or a reference center like us), whether are clinicians or public health specialists or a scientific part of a task force; whether you advise or you implement, whether you pay or you bill. Thus, recommendations depend on the viewpoints and expertise and sometimes the interest of specific groups. The selection of experts during this type of crisis was a key issue as well as their ability to have a real impact. But of course, it is the case that coordination between all these instances and specialist disciplines is difficult, even within the Society for Microbiology; the interests sometimes are divergent as well as the level of involvement in the crisis.

MN: As it was in the Swiss National COVID-19 Science Task Force. Was it possible to bring in your concerns there?

LK: Sometimes yes and sometimes no. The task force was made of a very large group of people and covered many other fields, not only diagnostic. This has been complicated since there is a gap between scientific thinking, concepts, ideal world, and implementation in real life.

MN: Has this been the reason not all testing strategies were planned effectively? The performance of testing strategies depends on decisions on all parts of the process, from indication for testing to a wide range of preanalytical issues to rapid reporting.

LK: First, compared to other European countries Switzerland was not bad for access to testing and some labs performed very well; we also for the first time had close collaboration and created a network of labs. Of course, the communication here could have been better and decisions more anticipated; experts from the routine laboratories have not been sufficiently involved sometimes. In addition, in all cantons something else was done. There was a lack of funding to conduct rapid and on time clinical trials on the testing strategies as well. The authorities may say that this is research and the SNSF said this is public health. And conduct trial during a crisis demands a large number of resources and support. We were lucky to collaborate with some NGOs like FIND and have support from the FOPH.

MN: I would like to return briefly to your previous activity as the Director of the Virology Laboratory during the pandemic. Was it easy to get more resources to upscale testing facilities?

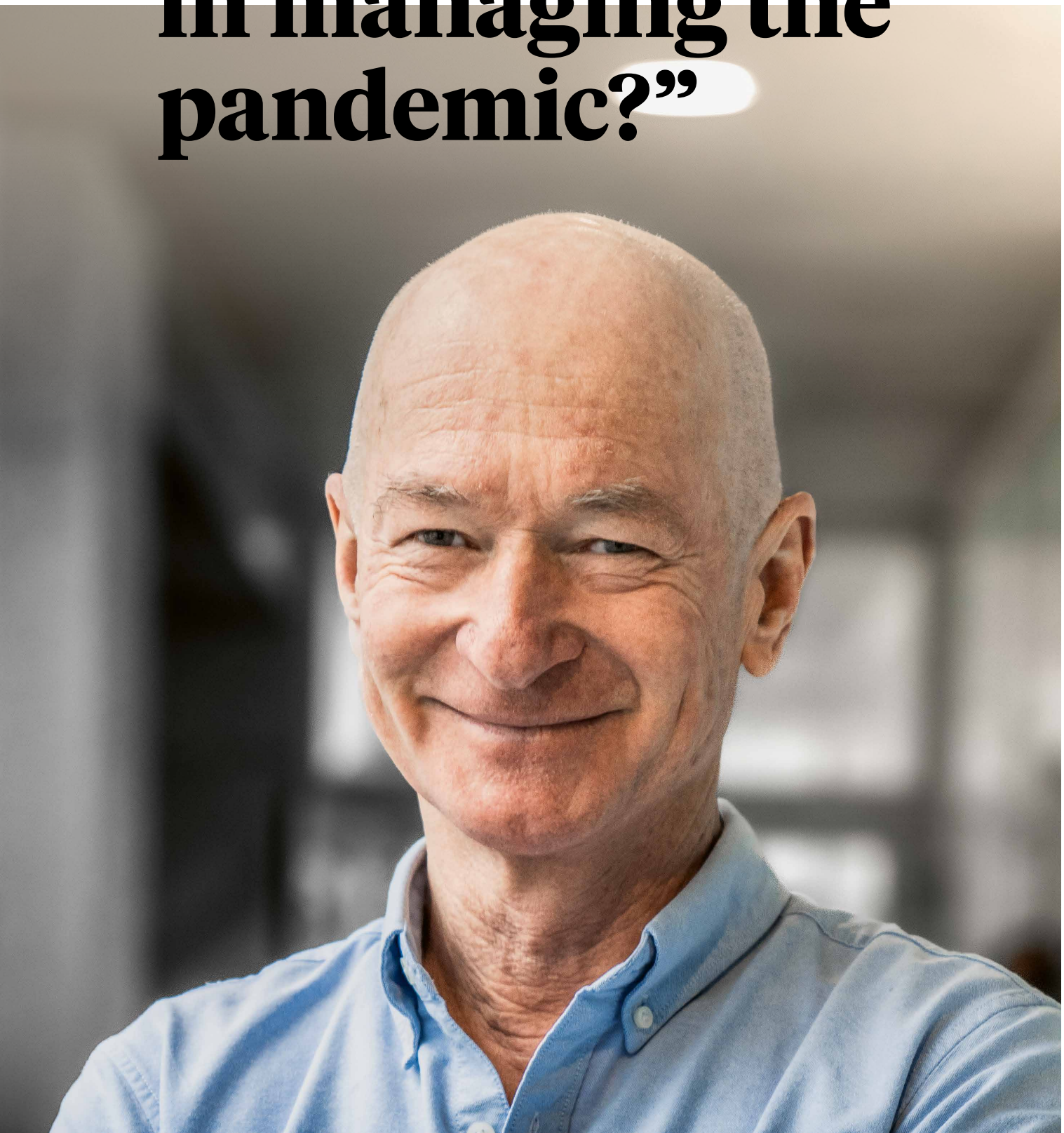
LK: We promptly invested probably up to one million francs ourselves, and we had a full support from the hospital. To be a reference center of course helps but also has a cost: we need to be ready before anyone else and take risks. A close collaboration and contact with companies involved in SARS-coV-2 diagnostic was also important. There were companies that were extremely eager to help to collaborate and behaved correctly in terms of pricing, but there were also companies that wanted to earn a lot and demanded fantasy prices and surfed on the waves. Reimbursement has come back in through the revenues and this was a complicated story. The initial conventional price of 180 francs per RT-PCR was of course way above what was acceptable given the number of tests and the situation. In addition, in most cases tests were not done for medical reasons but for public health reasons. That is why I was one of the first to support the idea of a reduction in tax points for this specific test. This probably did not make me always popular with other colleagues. ●

PD Dr. Angelika Hammerer, Chefärztin Labormedizin, Kantonsspital Aarau: Das Beste an unserem Laborneubau ist, dass wir mehr Platz für Modernisierungen haben und bei den Räumlichkeiten mitgestalten konnten. Wir konnten alle Standorte integrieren, die Wege verkürzen und Prozesse vereinfachen. Ausserdem konnten endlich zwei Laborbereiche den heutigen Zulassungskriterien entsprechend gestaltet werden. Wie so immer beim Bauen kann nicht immer alles umgesetzt werden - so trauern wir heute noch dem Pizzalift nach.

PD Dr Angelika Hammerer, médecin-chef du laboratoire, Hôpital cantonal d'Aarau: l'avantage de notre nouveau laboratoire est que nous avons plus de place pour la modernisation et que nous avons pu participer à l'aménagement des locaux. Nous avons pu intégrer tous les sites, raccourcir les trajets et simplifier les processus. En outre, deux zones du laboratoire ont enfin pu être aménagées conformément aux critères d'autorisation actuels. Comme toujours dans la construction, il n'est pas toujours possible de tout réaliser – c'est ainsi que nous regrettons encore aujourd'hui l'ascenseur à pizza.

Didier Trono, full professor at the École Polytechnique Fédérale de Lausanne (EPFL) and head of the Laboratory of Virology and Genetics. He was chair of the expert group diagnostics and testing of the Swiss National COVID-19 Science Task Force.

“How did we do in managing the pandemic?”



Interview **Michael Nagler, editor-in-chief pipette**

The pandemic has demanded decisive collaboration between medical laboratories, experts from different disciplines, policy makers and authorities. We asked the previous chair of the expert group diagnostics and testing of the Swiss National COVID-19 Science Task Force if that worked out.

MN: Professor Trono, you were chair of the expert group diagnostics and testing of the Swiss National COVID-19 Science Task Force. How do you see the role of laboratory medicine during the pandemic?

DT: Laboratory medicine should really be at the forefront. It has a crucial role in monitoring the pandemics and also in monitoring levels of protective immunity in the population, particularly as new variants arise. But it could not be at the forefront at the beginning because preparedness was insufficient and national coordination largely absent. People just didn't realize they needed to do something quickly. The situation markedly improved later, even though it took more than a year for the federal administration to admit that sequencing viral isolates was an important tool to control the pandemic and to start funding this effort.

MN: Regarding the problems in coordination and national organization, who do you think should be responsible here? What should a national organization look like?

DT: In Switzerland, we have one particularity that concerns the biomedical area: there is a disconnect between health management on the one side, and innovation, research and development on the other side. The two sectors are actually the responsibility of two separate federal departments, and there does not seem to be much of a dialogue between the two. Yet it is at this interface that things should be coordinated and arranged, whether to face a pandemics such as COVID-19 or to put Switzerland at the forefront of health management through new personalized approaches and so-called precision medicine, as done in other economically advanced countries. The FOPH, as it currently exists, is simply not qualified to take over this mission. Another critical weakness of Switzerland was revealed by the pandemics: the country lives really in pre-historic times when it comes to data management. This was obvious from the beginning of the epidemics, where one immediately saw that it was just impossible to map the propagation of the virus in the population, which would have helped design measures tailored to stop its progression. This was a major flaw.

MN: You pointed out that it is difficult to translate research into practice. And this also refers to testing strategies as we have seen in the pandemic. Do you think we have implemented rational strategies to answer the clinical and health care questions?

DT: No, at the beginning of the pandemic it was very chaotic. Actually, it was chaotic in many places of the world. I simply think that Switzerland can ambition to be better, considering the state of our economy and the intelligence of our population. But Switzerland did not do that badly, notably because the Swiss population was quite respectful of recommendations and used common sense. This in spite of instructions that were often incomprehensible because differing from canton to canton for no reason other than political.

MN: Similarly, you could see many different experts with different opinions in the media. This resulted in a significant confusion.

DT: Initially, there were many things we did not know. Some experts made the mistake of affirming things which later turned out not to be right. Others employed themselves to convey the principle of uncertainty, and to explain that this was not a proof of incompetence, on the contrary. Unfortunately, in Switzerland we do not have a culture of interaction between science and government. It just happens accidentally, and at the beginning the government thought it could rely only on the FOPH. We would be better, much better off if a constant dialogue between science and government allowed the country to make decisions that make sense scientifically and are applicable politically.

MN: Do you think we should create a new organization or board to support the government?

DT: In the United States for instance, the government taps into the expertise of the National Academy of Sciences, the National Institutes of Health or a few other equivalent bodies. Also, the US Center of Disease Control has a higher level of competence than the Swiss FOPH. Thus, the government can easily find resources. There are also in the US Senate and Congress politicians who champion research for specific medical conditions. Thus, science is far more present in the US political world than in Switzerland.

MN: I would like to turn to another point. Several research groups have tried to obtain support for clinical projects investigating testing strategies. None of these projects have been funded by the SNSF.

DT: The SNSF had a little outburst of funding for COVID-19 shortly after the pandemics started and that was it, even though the amount of money distributed was not very impressive. In more general terms, clinical investigation often suffers from insufficient anchoring in basic research. We need a continuum. A marked effort should be invested by our country to build bridges between the clinics and basic research laboratories and specialists of engineering. This is true not only for COVID but also in all other sectors of biomedical research and health management. ●