Continual testing is critical to avoid a virus ‘pole-vault’

A multi-layered approach comprising vaccines, testing, lockdowns where necessary and medication will be essential for the foreseeable future in combatting COVID-19 – described as an “extraordinarily transmissible virus,” during the **NovaTalk webinar** on May 7th. “In fact, there’s no going back to normal,” said Professor Alex Welte, Research Professor at The South African Centre for Epidemiological Modelling and Analysis (SACEMA). “People will have to get used to a viable new normal, as we co-exist with a mutating virus.” Talking about the importance of virus mitigation measures in society, and the need for a robust global vaccination programme, Prof. Welte said: “We must accept the notion of responsibility, and realise that how the future pans out is dependent on the choices we make. We all need to take this very seriously, so the future is sleeved to a less disastrous version.” Prof. Welte was among a panel of four invited to debate ‘COVID-19 Mutations, the ultimate test’ in a webinar organised by clinical diagnostic company, the Novacyt Group. A fast-moving debate was chaired by Professor Mary Black, medical director and public health leader in the UK. Other experts included Dr Eric Feigl-Ding, Chief Health Economist for Microclinic International and Co-founder of COVID Action group, USA, plus Prof Roberto André Kraenkel, Professor at São Paulo State University (UNESP) and a member of the Covid-19 Brazil Observatory. Prof Black said: “We are a long way off normal. We must learn to co-exist with this virus and understand that even when we’re vaccinated, we can still have a level of transmission.”

Crucial testing

“Testing is absolutely crucial,” she continued. “We will never see a world where we have less testing. Testing enables us to see where we are in a pandemic. We need more testing - cleverer ways of testing – cheaper tests, that can be delivered closer to people and are easier to administer. We must continue to screen for the virus, be able to detect new variants, and test for antibodies to determine vaccine efficacy. Unless we act as a global community, we’re not going to get out of this.” Dr Feigl-Ding, speaking from the US, said: “We’re on fast-shifting sands, in terms of the pandemic. Where we saw cases dropping, we’re seeing them increasing again – even in places that have been heavily vaccinated. We’re in turbulent times.”

Rising variants

Dr Feigl-Ding said the US was at a plateau, where the majority of adults willing to be vaccinated had received their inoculations, but the pace of vaccination was slowing, as “we’re running out of willing people”. There had been some unusual surges, he said, as variants took hold – particularly P1, which was responsible for 50% of all cases in Washington state. Prof Kraenkel, speaking from Brazil, said the P1 variant there was also causing alarm, and was believed to be twice as transmissible as the original virus. It was also infecting young people in their 20s and 30s. “We don’t yet know whether it causes more severe disease, but if it’s more transmissible, it will generate a burden for hospitals and public health, which will increase mortality.” In South Africa, Prof Welte said “We are seeing amazing numbers of people getting infected with a new variant that emerged here in October/November, so it must be more transmissible. This is an extraordinarily transmissible virus.”

Travel risks

There were plenty of questions from the virtual audience about the implications for foreign travel. Prof Black said: “Quarantine is never 100% effective, because different countries do it in different ways – some advisory – some mandatory – and you will always get virus leakage across borders.” One of the challenges, the panel agreed, was that some emerging variants kept infection in the body for longer, which pushed against quarantine boundaries, and could see countries importing more contagious variants. “People are carrying the virus for longer,” said Dr Feigl-Ding. “The UK variant, instead of being contagious for 8 days, as the original virus was, can be contagious for 13.5 days, which really pushes the edge of the usual 14-day quarantine period. The evolution of mutations was difficult to qualify, he said. “We don’t know where this virus will go. I know of one patient who was carrying the virus for 151 days, and during that time, the virus in his body mutated hundreds of times.”

Tracking variants

Genetic sequencing and testing were vital, reiterated Prof. Black, to track mutations and establish when they became Variants of Interest and then Variants of Concern when it was known whether they were more transmissible, caused more severe disease and escaped vaccines. Dr Feigl-Ding added a fourth dimension to the classification of a Variant of Concern – when it's difficult to detect. "For instance we currently have a French variant in Brittany, the Breton variant, which is difficult to detect - more evasive to PCR testing - and if we can't detect a variant, we can't take measures to isolate it." He likened the evolving pandemic to a pole vault. "The virus is looking for ways to pole vault over our existing immunity and the measures we're taking to establish immunity. The variant that jumps the highest, and successfully pole vaults, will be the one that ensures the virus survives. We expect variants to increase as the pressure on the virus increases with our actions, so we have to keep tracking variants and testing for them to minimise this selective pressure on the virus, and stop it jumping."

Learnings to date

Asked about learnings from the pandemic to date, Dr Feigl-Ding said: "We've learned that trying to take the natural herd immunity approach was disastrous. Some countries, such as the UK, changed halfway, but countries like Sweden, who adopted this herd immunity approach, now have some of the highest mortality rates". Countries such as Australia, New Zealand and Taiwan, that adopted an aggressive zero COVID policy, and moved very quickly on testing and bubbling themselves with border closures, were the most successful, he explained. "And it wasn't just island countries. Vietnam has 100 million people in a small land mass, but by testing rapidly and muzzling the epidemic through social restrictions, they were amongst the most successful. Policy leadership is key. Lockdowns work but as a last resort, and support for restrictions is essential too, as is an aggressive vaccination programme. The key to coping with the next phase of the pandemic will be how aggressively we do a global vaccine roll-out." Prof Kraenkel said: "I see a very long trajectory with this virus, and the vaccine roll-out has been very slow. There's a divide between richer and poorer nations. The richer countries, with a better vaccination programme, may reach a level of new normality, but a lot of countries will see eternal ups and downs of the pandemic, until we have global vaccination at scale." Continual screening was essential, said Dr Feigl-Ding. "The number one most effective mechanism is screening – both symptom screening and testing. We'll miss some cases, but we'll find the most contagious ones. We need to keep testing in waves. It's like raking leaves off the lawn. At first pass, some leaves don't get picked up in the gaps of the rake. But if you keep raking, eventually you'll get a lawn free of leaves. We need rapid tests to pick up the virus and PCR tests to confirm. We need to keep developing tests for variants, and testing is part of the mix. It's like the layering in a Swiss cheese – vaccines, testing, lockdowns, medications. One thing on its own is not enough - but put them altogether, and we can win this."