



ISWAVLD 2023

International Symposium of the World Association of Veterinary Laboratory Diagnosticians

29 JUNE-1 JULY
2023
Congress Centre
Lyon

Towards
the veterinary
diagnostics
of the
future

Main topic : Feedback on the role of veterinary laboratories in the COVID-19 crisis

Challenges faced by a veterinary laboratory contributing to COVID-19 diagnostics

GRAHAM H.¹, TACKEN M. ¹, VAN DER GOOT J. ¹

¹ Department of Diagnostics and Crisis Organization, Wageningen Bioveterinary Research, Lelystad, Netherlands

Introduction

Wageningen Bioveterinary Research (WBVR) is the Dutch National Reference Laboratory (NRL) for notifiable animal diseases. Several outbreaks of such diseases in animals have led to a solid crisis organization, which enables fast upscaling of diagnostics, without any compromises to the ISO17025 quality system. The first confirmed COVID-19 case in the Netherlands occurred in February 2020. Shortly thereafter, a huge increase in the need for testing followed and the capacity of the medical laboratories alone quickly became too small. Early on in the pandemic, WBVR offered to contribute, but initially this offer was met with resistance from the medical laboratories. As a result, WBVR initially had to wait several weeks before it was given the green light by the government to start testing.

Later, increased mortality was observed on two mink farms in the Netherlands in April, 2020. SARS-CoV-2 was detected in mink samples from these farms by real time PCR. In May 2020, SARS-CoV-2 became a notifiable disease in mink in the Netherlands, which meant that WBVR had to be ready to test suspected farms on a 24/7 basis, in addition to an increasing number of human samples submitted by public health services.

Challenges

WBVR implemented and validated a new test within weeks, for which thousands of samples would be submitted. During this process, WBVR, like other laboratories, had to deal with the global shortage of supplies for the isolation of RNA, as well as other materials. Most (medical) laboratories depended on a specific lysis buffer for viral RNA extraction, that was scarce worldwide. To overcome this, WBVR used a different nucleic acid isolation platform independent of this specific lysis buffer. Centers for swab collection were provided with tubes filled with lysis buffer, which they could return to WBVR for further testing, allowing safe transport and analysis of the samples. However, being the only laboratory doing this, communication about the logistics proved to be a challenge. In addition, systems already in place at WBVR (such as a Laboratory Information Management System), were not always compatible with the systems used by the public health sector.

Being the Dutch NRL for notifiable diseases in animals, WBVR had to be prepared for outbreaks while heavily involved in Covid-19 testing. Shortly after the testing thousands of human samples began, the SARS-CoV-2 outbreak in mink became more serious. The pressure was high to test suspected mink farms as quickly as possible. The same employees who processed human samples, also had to be available 24/7 to test mink samples. Later that year (October 2020), an outbreak of bird flu put even more strain on supplies and staff for molecular analysis.

Conclusions

The challenges faced by WBVR during this particular period of COVID-19 proved to be valuable lessons not only for future pandemics, but also led to a significant gain in momentum when it comes to the automatization and digitalization of diagnostics. The important role of veterinary laboratories across the globe has been confirmed and reaches further than veterinary diagnostics alone.