

Real-time laboratory exercises to test contingency plans for classical swine fever: experiences from two national laboratories

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Summary

In order to adequately and efficiently handle outbreaks of contagious diseases such as classical swine fever (CSF), foot and mouth disease or highly pathogenic avian influenza, competent authorities and the laboratories involved have to be well prepared and must be in possession of functioning contingency plans. These plans should ensure that in the event of an outbreak access to facilities, equipment, resources, trained personnel, and all other facilities needed for the rapid and efficient eradication of the outbreak is guaranteed, and that the procedures to follow are well rehearsed. It is essential that these plans are established during 'peace-time' and are reviewed regularly. This paper provides suggestions on how to perform laboratory exercises to test preparedness and describes the experiences of two national reference laboratories for CSF. The major lesson learnt was the importance of a well-documented laboratory contingency plan. The major pitfalls encountered were shortage of space, difficulties in guaranteeing biosecurity and sufficient supplies of sterile equipment and consumables. The need for a standardised laboratory information management system, that is used by all those involved in order to reduce the administrative load, is also discussed.

Keywords

Classical swine fever – Council Directive 2001/89/EC – Diagnosis – ISO/IEC 17025 – Laboratory contingency plan – Laboratory exercise – Laboratory preparedness – Transboundary diseases – Training.

Introduction

Within recent years several severe epidemics of diseases that affect domestic livestock have occurred in Europe (1), the most recent being the epidemics of highly pathogenic avian influenza (HPAI) in 2005/2006 and of classical swine fever (CSF) in 2006. Outbreaks of diseases notifiable to the World Organisation for Animal Health (OIE) have caused economic losses of several billion euros.

Within the last decade two large outbreaks have created huge financial problems in Europe: the outbreak of CSF in the Netherlands in 1997/1998 caused financial losses of 1.6 billion euros (7); and the foot and mouth disease (FMD) outbreak in the United Kingdom in 2001 resulted in a loss of 4.6 billion euros (8).

In order to eradicate newly introduced diseases as quickly as possible laboratories and competent authorities have to be very well prepared and trained, so that they can handle

the contingency effectively and efficiently without delay. Current legislation of the European Union (EU) (e.g. Council Directive 2003/85/EC for FMD and Council Directive 2001/89/EC for CSF [2, 4]) requires each Member State to have a contingency plan which has to be approved by the EU. This plan must ensure that access to equipment, resources, trained personnel (including laboratory personnel), and all other facilities that are needed for the rapid and efficient eradication of the outbreak is guaranteed.

Many contingency plans relating to various diseases and catastrophes have been published or made available on the internet by competent authorities and agencies, but little information is available on laboratory contingency planning and laboratory exercises.

Laboratory contingency planning is designed to mitigate the risk of a system breakdown and service unavailability, which would cause an unacceptable delay in the diagnosis of contagious diseases. It is a means to ensure that the laboratory is able to operate effectively and without excessive interruption or delay, even in the event of a contingency. Furthermore, it allows a laboratory to guarantee that the necessary quality standards will also be met in a crisis situation. Thorough planning of all procedures and technical measures is needed, and this planning has to be done during 'peace time' in order to be well prepared for an outbreak. A laboratory contingency plan (LCP) should include clear, quickly accessible information on the chain of commands, information on procedures to be followed and also job descriptions depicting the competence, tasks and duties of the staff.

Laboratory exercises are an excellent means of testing the LCP and evaluating the capability of the staff to implement the plan quickly and effectively. In principle, two distinct types of laboratory exercises can be distinguished: the first is a desk-top exercise, during which samples are not collected and analysed in reality, but hypothetical scenarios are simulated, and the second is a hands-on exercise as described here, during which dummy samples are submitted and analysed. Both types could also be combined in a single exercise. Whereas desk-top exercises allow for the evaluation of various scenarios with relatively low costs and little disruption of the routine laboratory work, the second type of exercise puts the laboratory into a real test situation. Thus, the focus will be narrower in the second type of exercise and just one scenario can be simulated, but pitfalls and limitations are more likely to become obvious.

The aim of this paper is to show two independent examples of how laboratory exercises could be performed. Because conditions, procedures and methods vary from laboratory to laboratory, precise figures, such as the number of samples analysed per person, are not provided.

Focus is placed upon the laboratory work during the simulated crisis, as this can be tested relatively independently of the other components of the whole crisis management chain.

Material and methods

The laboratory exercises depicted here were performed in the national reference laboratories for CSF in Denmark and Belgium in 2003 and 2005, respectively. The Danish laboratory is at the National Veterinary Institute at the Technical University of Denmark (VET – DTU), which is located at Lindholm and Copenhagen. The Belgian reference laboratory is based at the Veterinary and Agrochemical Research Centre (hereafter referred to as CODA-CERVA, the acronym taken from the French and Flemish names for the centre) in Brussels.

General procedures for the diagnosis of CSF are laid down in Commission Decision 2002/106/EC (3). In addition, a technical part accompanying this Decision, which was agreed upon by all national reference laboratories for CSF, provides more details on diagnostic methods. Yet, the specific methods employed vary between laboratories. The technical profile, scope and detailed description of procedures and methods used in an individual laboratory should be described in its LCP and should be documented for its quality management system, according to EN ISO/IEC 17025. The tests evaluated during these exercises are listed in Tables I and II; neither of the laboratories used the polymerase chain reaction (PCR), as this method was not accredited at that time.

In both laboratories, teams to perform the work in the diagnostic laboratory were defined during 'peace time' and detailed in the LCP, which requires that all personnel involved in these exercises and who would be involved in any real outbreak be well acquainted with the methods and procedures that have to be followed and have had appropriate training according to EN ISO/IEC 17025. In addition, each team is supervised by a scientist or a technician, who performs the diagnostic assays on a regular basis, so that the slightest failures and mistakes in the investigation chain can be detected immediately.

It was decided to keep both exercises within normal working hours to avoid extra payment for night or weekend shifts.

Denmark

In Denmark, all samples suspected of harbouring CSF virus (CSFV) are handled in one high containment laboratory (Laboratory Biosafety Level 3 [BSL 3]), situated on the island of Lindholm, south of Zealand. The

Table I
Factors assessed when evaluating the sample-testing procedures at the Veterinary and Agrochemical Research Centre in Belgium: aims and achievements

Check point	Description	Goal	Achieved
Virus isolation (VI)	Handling of 30 tissue samples by a team (from verification to inoculation)	2h15	3h
Staining (VI)	Washing, drying, fixation, 2nd drying, conjugate, incubation, washing	3h30	3h30
Virus neutralisation (VN) 150 sera per batch	Handling of 150 sera (from verification of the samples until incubation)	2h15	2h15
Staining of VN	1st washing, drying, adding biotin, 2nd washing, adding streptavidine, 3rd washing and staining	5h15	5h15
Capacity	Maximum capacity	120 tissues by VI 20 cryostat sections 150 sera by VN	120 tissues by VI 20 cryostat sections 150 sera by VN
Delay	Percentage of samples handled within the delay	100%	100%
Number of samples to be retested	Percentage of samples to be retested per day	0%	3%

Table II
The maximum daily test capacity of the laboratories

Test	Belgium		Denmark	
	Calculated	Tested	Calculated	Tested
Virus isolation, tissues	120	120	50	50
Antigen detection on cryostat sections using immunofluorescence	20	20	0	0
Antibody detection ELISA	8,000	4,000 ^(a)	2,500	2,595
Antibody detection high-throughput			10,000 ^(b)	880
Antibody differentiation, neutralisation test ^(c)	150	150	10 ^(c)	10

a) The antibody test for CSFV is part of another real time exercise

b) Due to limited resources the high-throughput laboratory only tested 880 samples for CSFV antibodies during the exercise, adjusting the robots to the Ceditest[®]

c) The number of samples tested by neutralisation was more than the number of samples that were expected to give dubious results in ELISA; this was done to ensure enough capacity

laboratory exercise included the entire process from receipt of samples, their registration and testing, to transmission of the results of diagnostic tests to the local and central veterinary authorities.

Accredited virus isolation and all other diagnostic tests involving the use of live virus, e.g. virus neutralisation tests (VNT) and the in-house blocking enzyme-linked immunosorbent assay (ELISA) were performed in the high containment facilities at Lindholm. However, in the case of a CSF contingency the high-throughput laboratory of the VET Copenhagen would also be included for serological investigations, mainly during the late stages of eradicating the disease for verification of freedom. This laboratory usually performs routine serology for surveillance of diseases in pigs. During an outbreak of CSFV, the restrictions on the transport of pigs and pig products would reduce the serological surveillance needed for other diseases of pigs and therefore, ample capacity for CSFV serology is foreseen. In order to handle the samples, which may have contained CSFV, the laboratory in Copenhagen had to increase its BSL during the exercise. This laboratory is usually run under BSL 2 conditions, but the safety level

was increased to BSL 3 for the time of the exercise. The laboratory area was enclosed, staff were obliged to change their shoes and lab coats, and personnel participating in the exercise were instructed not to have any contact with swine for at least 48 hours after working in an area where there was potential for exposure to CSFV.

The laboratory exercise provided training in contingency methods and was also used to implement automated methods. To this end, a commercially available ELISA test kit for the detection of antibodies (Ceditest[®]-CSFV, Cedi Diagnostics, Lelystad, the Netherlands) was implemented and validated for robot-assisted analysis of a limited number of samples. During the exercise seven technicians and two scientists were trained in virus isolation, ELISA and VNT. A further ten technicians and seven scientists were trained in robot-assisted ELISA in the high-throughput laboratory.

According to Danish legislation serum samples cannot be tested for CSFV or antibodies directed against CSFV unless the owner has previously given his approval, as false positive reactions might occur, which would cause

considerable problems for the owner. Therefore, it was decided to use only samples that were sent in for analysis of CSFV antibodies. To obtain a sufficient number of samples for the laboratory exercise, archival serum samples had to be used from previously tested herds. This sometimes resulted in the use of old and slightly deteriorated samples. The samples used for virological tests were lung tissues obtained for the virological surveillance of pigs in Denmark. For all materials an anamnesis was included and each animal was registered by its number in the Central Husbandry Register.

When planning the exercise the number of tests that might have to be performed per day in a worst-case scenario was calculated for each of the diagnostic tests, taking into account empirical data on the number of susceptible animals present in a distinct region, the location in which the outbreak is supposed to take place, data on the prevalence of other diseases that might need to be ruled out by differential diagnosis, etc.

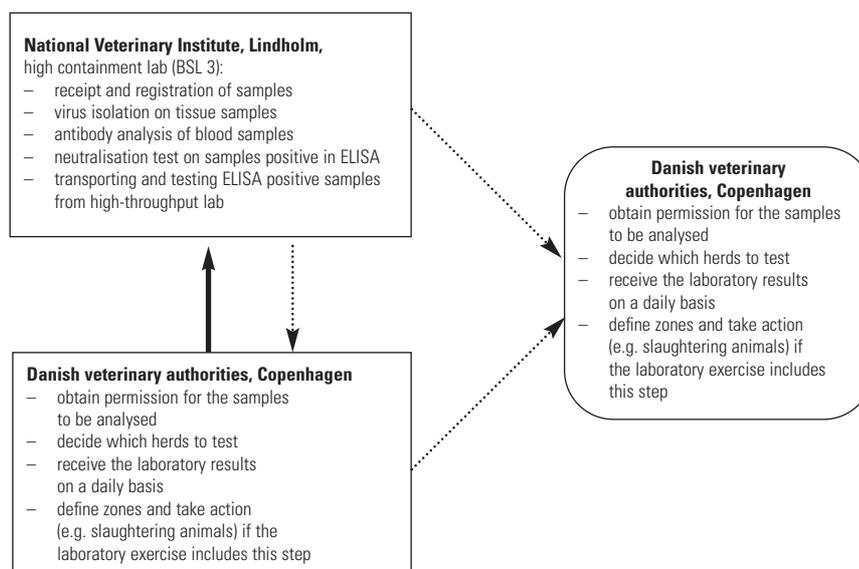
For Denmark, where bovine viral diarrhoea virus (BVDV) has been eradicated, the anticipated number of samples that have to be analysed in a differentiating VNT after having tested positive in an ELISA for the detection of antibodies against CSF is approximately 0.04%. This number is considerably lower than that observed in Belgium in 1993/1994 and the Netherlands in 1997/1998,

where 0.5% needed VNT as a confirmatory test. In the Netherlands, antibodies to BVDV and border disease virus (BDV) were abundant (1).

The transport of samples between departments had to be arranged. To assure the safe transport of samples, two persons were certified to transport dangerous goods according to national and international safety regulations (e.g. the European Agreement concerning the International Carriage of Dangerous Goods by Road [9]).

The results of the tests were communicated on a daily basis to the veterinary authorities by comma-separated files, which can be imported directly into the central animal register; the flow of samples and information is shown in Figure 1. To avoid any confusion among veterinary practitioners, all replies were sent to a veterinarian employed at VET.

Virus isolation was performed on lung tissues as described previously (10). Detection of antibodies against CSFV by VNT was performed using CSF Alfort₁₈₇ on PK-15 cells (6). Two methods of antibody ELISA were used: an in-house test at Lindholm (5), and a commercially available test free of infectious virus (CEDI® CSFV, CEDI Diagnostics, Lelystad, the Netherlands) in the laboratory in Copenhagen. The number of samples analysed is shown in Table II.



ELISA: enzyme-linked immunosorbent assay
VNT: virus neutralisation test

Fig. 1

Institutions involved in the Danish exercise

Laboratories are drawn as squares, office authorities as a square with softened corners. The flow of information is shown as dotted arrows; the flow of samples as a bold arrow

Belgium

In Belgium also, only one high containment laboratory exists (BSL 3), which handles CSFV infected materials. It is situated in Ukkel, Brussels. The laboratory exercise here included the entire laboratory process from receipt of samples, through testing of samples, to reporting of results. Registration of samples in the laboratory information management system (LIMS) of the CODA-CERVA as well as communication of the results to the veterinary authorities were excluded from the exercise, because these activities are common for all diseases and therefore were tested in a separate desk-top exercise performed by an external auditor. During a contingency, the majority of samples are transported to the CODA-CERVA by an official shuttle service fulfilling all legal requirements.

All analyses – with the exception of antibody ELISA – were performed in the high containment laboratories. Antibody ELISA was performed in another CODA-CERVA laboratory, which is located in the same building, but outside the high containment area and which conducts its own separate laboratory exercises. All analyses were performed according to EN ISO/IEC 17025. The methods employed included fluorescent antibody testing on cryostat sections and virus isolation on PK-15 cells (6), both of which were performed on tonsils. In addition, serum was used for VNT. Samples used during the exercise were taken from clinical specimens collected for surveillance of CSF in wild boar in Belgium. The number of samples analysed is shown in Table II.

In addition to the regular personnel of the section, which consists of two scientists and four technicians, four additional technicians and one scientist receive regular training and also meet the standards required by accreditation. These additional people can be called upon at any time in the case of a contingency, but they were not included in this exercise as the aim was to test the capacity of the laboratory with its usual staff.

For the Belgian laboratory, a generic LCP was elaborated beforehand for the whole CODA-CERVA. In the first chapter, this LCP contains sections which are relevant to all diseases: ‘current status’ for personnel, allocations to teams, other resources needed, documents and applications, flow of samples and the chain of command. In a second chapter, a detailed description of the whole process is laid down providing information on the procedures for each distinct disease, e.g. CSF. All manipulation steps from the receipt of a sample until diagnosis is conveyed to the authorities are taken into consideration and the estimated time schedule, people involved and documents needed are laid out. The time schedule was calculated based on experience from routine laboratory work and on evaluation of past contingency situations as shown in Figure 2. In the final section of the LCP, critical control points are described to monitor the quality and the efficacy of each process within the laboratory in order to define possible bottlenecks as represented in Table I. In addition, there is a clear description of the different teams that are required, each

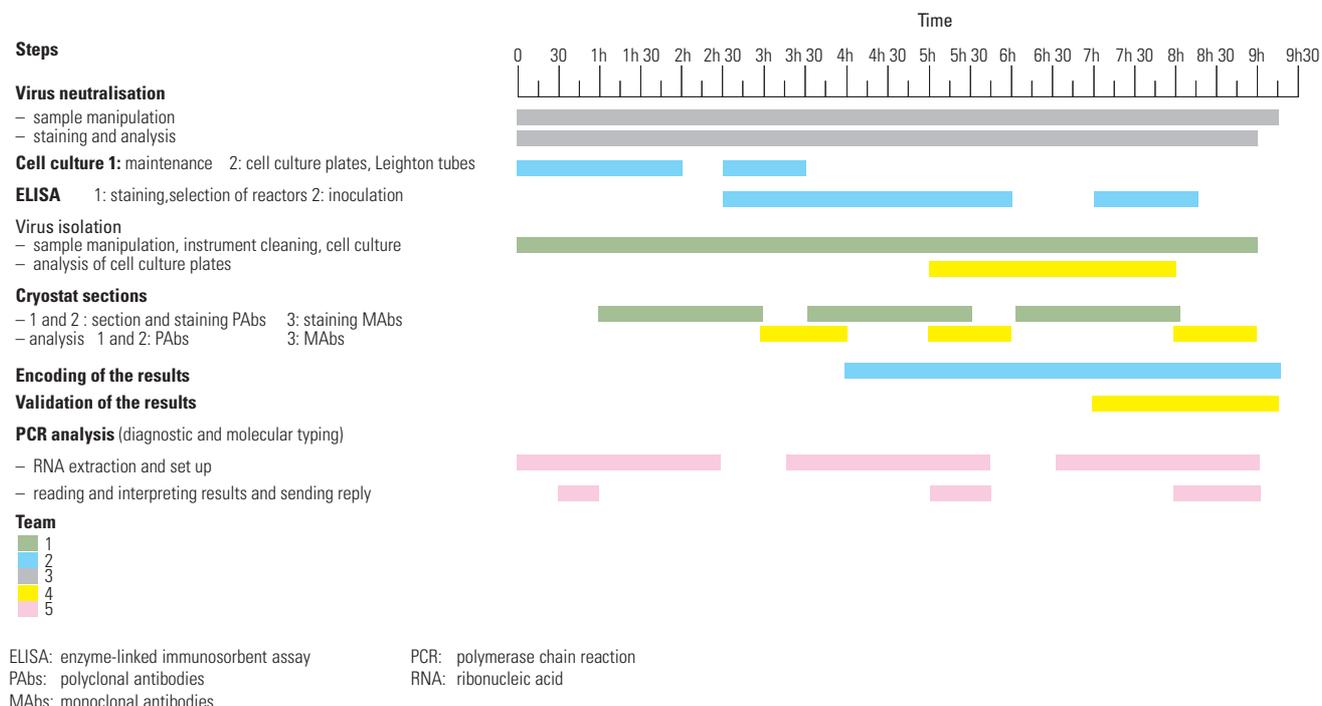


Fig. 2
Sample-testing process at the Veterinary and Agrochemical Research Centre in Belgium: teams involved and estimated time needed for each step

headed by an experienced technician at the laboratory, supplemented with additional technicians that can be called upon. Each team is responsible not only for performing the assays, but also for supervising stocks and sterilising the material they need to perform the tests. The real time exercise scenario was based on the maximum daily test capacity required by the Belgian authorities, i.e. daily capacity for the analysis of 120 organ samples to be tested by virus isolation, 20 cryostat sections and 150 serum samples for VNT (Table II). Since the Belgian pig population has decreased since the exercises were carried out this number remains realistic.

The CODA-CERVA employs sufficient, adequately trained technicians to scale up the teams to four persons in each. A similar team is described for the scientific staff.

For this exercise, three laminar flows, a cryostat, two centrifuges, two incubators, two fluorescent microscopes, one light microscope, 100 grinding sticks, scissors, pincers and regular disposable laboratory material were used. The available laboratory surface area at BSL 3 was approximately 200 m².

Results and discussion

General findings

Although there would be no advance warning in the case of a real outbreak, it might be necessary to inform staff of an upcoming exercise in order to ensure that the routine diagnostic department continues to function and run smoothly during the laboratory exercise. Whereas desk-top exercises affect the routine diagnostic work relatively little, exercises during which dummy samples are analysed may block all laboratory work and are likely to cause severe problems. Testing vast numbers of samples within an exercise is expensive (approximately 85,000 euros for the Danish exercise), but provides a realistic scenario of what might arise during an outbreak.

During a crisis, the number of samples that are to be tested at the laboratories might exceed normal numbers by far. For example, in the Netherlands, during the CSFV epidemic in 1997 and 1998, 2.15 million samples were tested for antibodies and 148,000 samples were tested for the presence of virus or viral antigen for 13 months (1). Such a workload cannot be managed by following the daily laboratory routine, so preparations for such an event have to be made well in advance. This includes, not only planning how to deal with the increased need for personnel, but also the arrangements for additional equipment, reagents and test kits. When planning the exercise it is of utmost importance to accurately calculate, for each diagnostic test, the number of tests that might

have to be performed per day in a worst-case scenario beforehand. For the Belgian exercise the estimation was based on the maximum daily capacity required by the Belgian authorities.

Sample registration and communication

For the Belgian laboratory, registration of samples was tested in a separate desk-top exercise because it was considered to be common for all diseases. This prevents overload of this section each time a simulation exercise is performed. It was concluded that the normal capacity of 304 samples could be increased by a factor of 1.25 (to 379 samples) during a crisis, but if the average increase were to exceed 454 samples (increase factor of 1.5) an additional person would be needed to keep the dispatching running smoothly.

Both the Belgian and Danish laboratories used different registration systems from the regional laboratories, which meant that each sample sent to another laboratory had to be registered again and thus received a new registration number. This caused an increased administrative effort and is also a possible source of error. It also makes it difficult to monitor testing progress and integrate results. Therefore, it is important that all parties involved (e.g. sample collection centres, laboratories, crisis management centres) use the same LIMS system, in order to avoid mistakes and to limit the administrative load. However, for many countries, including Belgium and Denmark, this common LIMS is still not available, a situation which should be improved in future.

Molecular diagnosis

Neither of the two laboratories performed PCR during the laboratory exercises described here. This was due to the fact that at that time (2003 for the Danish exercise and 2005 for the Belgian exercise) PCR had not become an accredited method for diagnosis of CSF in these laboratories. The Danish laboratory has now accredited quantitative reverse transcriptase PCR (RT-PCR) and therefore the estimated time needed for this method, by CODA-CERVA, is included in Figure 2.

Various real-time RT-PCR protocols for the detection of CSFV have been published and although so far none of the methods are fully validated according to the procedure described by the OIE, this diagnostic assay will doubtlessly be widely used in future. The high sensitivity and specificity of the method also allow samples to be pooled and will thus facilitate the mass screening of diagnostic specimens.

In contrast to RT-PCR, the use of fluorescent antibody tests on cryostat sections will probably not be used for the next

laboratory exercise nor the next real outbreak, as this test is highly dependent on experienced personnel and well-defined test conditions.

Bottlenecks and pitfalls

The bottlenecks and pitfalls encountered during the exercises were related to personnel, equipment supply, space, biosecurity and transport.

Personnel

During the exercise it proved possible to carry out the work in the required timeframe, but it was thought that a lack of sufficient trained personnel would probably have been encountered in Belgium if the exercise had been any longer; it would have been particularly difficult to find staff to cover the evening shifts or work during weekends. In order to overcome this problem an additional group of four technicians should be trained.

Any laboratory exercise provides training and familiarises personnel with procedures and these exercises are an ideal occasion to involve not only the staff that already have the qualifications asked for by the laboratory's accreditation system but also personnel that might have to be called upon in a future emergency.

Supply

In order to make sure that laboratories did not run out of supplies of reagents and commercially available test kits etc., agreements with the supplying companies regarding the supply of antibody ELISA test kits had been sought beforehand by both laboratories. If given two weeks notice the manufacturers promised to deliver a weekly supply of up to 1,000 antibody-ELISA test plates, consisting of 88 tests each, to both the Belgian and Danish laboratories. This amount is deemed sufficient as the laboratories guarantee to test up to 8,000 or 10,000 samples per day, respectively, which means a maximal demand of approximately 800 plates per week.

To analyse the high number of samples expected in an emergency, extra equipment would be needed. There were insufficient numbers of large devices such as flow benches, incubators and inverted microscopes, and shortages were also noted for small items such as pipettes. One of the problems which created bottlenecks in the Belgian exercise was the lack of a sufficient supply of sterile equipment (glassware, scissors, pincers and grinding sticks). Control and adequate planning of supplies is considered to be of enormous importance. As a corrective action, special forms have since been developed in order to monitor the stocks, and the follow up and ordering of new supplies is now the responsibility of the technician in charge of the respective task.

Space

Additional space was needed to cope with the large number of samples; in particular, the size of the areas used for receipt and registration of samples and for the storage of samples after testing proved to be insufficient. Based on the experience of the exercise it was decided that these areas would need to be enlarged to deal with contingencies.

Biosecurity

The increase in biosecurity needed for the high throughput laboratory in Denmark and the CODA-CERVA (as described in Commission Decision 2002/106/EC) was difficult to achieve. This Decision requires that only properly trained personnel enter the facilities and that staff change their shoes and outer clothing. Information was sent to guests and staff, but not all of the cleaning personnel, night guards and maintenance staff who visited the laboratory regularly were informed about these measures.

Transport

In the Danish exercise, samples that were tested positive in the laboratory in Copenhagen had to be transported 110 km to the laboratory in Lindholm for further testing. This created logistic problems, but these were finally overcome by arranging for a daily shuttle service connecting the two laboratories. Transport of samples between laboratories requires proper packaging for materials and drivers with special training in the transport of dangerous goods. Although in principle it is possible to transport clinical specimens for diagnostic purposes according to UN 3373, for samples suspected to contain CSFV it seems sensible to declare the shipment as 'Dangerous Goods' according to UN 2900 (UN numbers are used to identify hazardous products; they are assigned by the United Nations for use in the international transport of dangerous goods). Therefore, it is advisable to make an agreement with a courier company specialised in the transport of dangerous goods in order to avoid shortages, and this should be arranged during 'peace-time'.

It is an absolute necessity to regularly review contingency plans and to test their practicability in order to keep them up-to-date, to test their functionality, to identify and address their deficiencies and to evaluate their overall effectiveness. The present exercises were only evaluated at laboratory level. Real time laboratory exercises are an excellent means of testing an LCP and of evaluating the capability of the staff to implement the plan quickly and effectively. An independent assessor could improve the outcome of the final evaluation.

The ultimate challenge for any LCP is of course a real contingency situation. A thorough and careful evaluation

of each crisis is of utmost importance in detecting the shortcomings of the plan and the areas for improvement in order to be even better prepared for future contingency situations. Information and experiences from these situations must be integrated into the LCP and should be tested and evaluated during laboratory exercises.

Conclusion

By performing laboratory exercises the LCP can be tested under conditions reflecting the situation that is likely to occur in a real case (i.e. pig density, prevalence of other pestiviruses, methods used).

The experiences of the two laboratories described here highlighted the importance of a detailed LCP that is tailored to the organisation. In order to quantify or evaluate the results of an exercise evaluating the LCP, clear goals must be indicated. From the present report some recommendations on how to implement an LCP and how to conduct laboratory exercises can be deduced. For example, to perform a laboratory exercise, it is necessary to clearly define the limits of this exercise beforehand. Some of the questions that should be asked prior to the beginning of the drill include:

- How long will the exercise last?
- Will weekend and night shifts be included?
- Will the veterinary authorities also be involved?
- How and to whom shall results be transmitted?

It is important to keep the specific set up, organisation and contractual obligations of the laboratory in mind.

Each laboratory has very specific resources regarding space, equipment, materials and personnel, and its own specific procedures, which are often laid out in detail in the laboratory's documentation for its quality management system. For this reason each plan is unique and has to be tailored to the needs of the laboratory.

It must be shown that the laboratory has enough trained personnel, facilities and equipment as well as other materials (e.g. supplies with test kits and so on) to analyse the expected number of samples per day.

A clear description of the chain of commands with the distribution of tasks is also crucial.

The debriefing followed by an updating of the laboratory exercise and LCP are as important as the exercise itself.

At present, there is no standardised procedure available for the assessment of laboratory exercises or work performed during real contingency situations. This surely is an issue that needs to be worked on in future. It is highly advisable to have independent, external assessors in addition to the internal assessment done by the laboratory staff and management. Such assessors could come from other (European) laboratories working in the same field, staff from the country's crisis centre and/or from universities. Asking external consultant companies to audit the exercise is another possibility, but this would involve relatively high costs.

Laboratory exercises should be performed on a regular basis. The practical solution in Denmark and Belgium is that one annual CSFV laboratory exercise is to be performed if the contingency system for the disease has not been in use that year (the same applies for all other contagious diseases notifiable to the OIE, e.g. HPAI or FMD).

It is, however, important to keep in mind that any exercise only enables the laboratory's capacity to be tested and not its preparedness.

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Exercices de simulation en temps réel pour tester les plans d'urgence des laboratoires en cas de peste porcine classique : l'expérience de deux laboratoires nationaux

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Résumé

Afin de faire face de manière adéquate et efficace à l'apparition de foyers de maladies contagieuses telles que la peste porcine classique (PPC), la fièvre aphteuse ou l'influenza aviaire hautement pathogène, les autorités compétentes et les laboratoires concernés doivent être correctement préparés et disposer de plans d'urgence opérationnels. Ces plans doivent veiller à ce qu'en cas de nouveau foyer, le matériel, l'équipement, les ressources et le personnel qualifié nécessaires seront mobilisés afin d'assurer une éradication rapide et efficace du foyer, en suivant des procédures qui auront fait l'objet d'exercices de simulation répétés. Il est essentiel que ces plans soient conçus en période de calme sanitaire et révisés régulièrement. Les auteurs font quelques propositions pour la mise en œuvre d'exercices visant à tester l'état de préparation des laboratoires, et décrivent les expériences conduites en la matière par deux Laboratoires de référence nationaux pour la PPC. Le principal enseignement découlant de ces expériences est l'importance des informations utilisées pour élaborer les plans d'urgence. Les principaux problèmes rencontrés étaient le manque d'espace, la difficulté de garantir un niveau correct de biosécurité et l'insuffisance des équipements et des stocks de consommables stériles. Une autre question examinée est la nécessité pour les laboratoires de disposer d'un système normalisé de gestion de l'information accessible à tous les acteurs concernés, afin d'alléger le poids des tâches administratives.

Mots-clés

Diagnostic – Directive n° 2001/89/CE du Conseil – Exercice de simulation au laboratoire – Formation – Maladie transfrontalière – Norme ISO/IEC 17025 – Peste porcine classique – Plan d'urgence dans les laboratoires – Préparation des laboratoires.



Ejercicios de laboratorio en tiempo real para ensayar planes de emergencia contra la peste porcina clásica: la experiencia de dos laboratorios nacionales

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Resumen

Para hacer frente adecuada y eficazmente a brotes de enfermedades contagiosas como la peste porcina clásica, la fiebre aftosa o la influenza aviar altamente patógena los organismos públicos y laboratorios competentes deben estar bien preparados y disponer de planes de emergencia operativos. En la eventualidad de un brote, estos planes deben servir para garantizar que se pueda disponer de las instalaciones, el material, los recursos, el personal

cualificado y los demás medios necesarios para erradicarlo con eficacia y rapidez y que los procedimientos que deban aplicarse estén bien rodados. Es muy importante que esos planes se elaboren en 'tiempos de paz' y sean revisados periódicamente. Tras formular propuestas sobre la forma de llevar a cabo ejercicios de laboratorio para poner a prueba el nivel de preparación, los autores describen la experiencia de dos laboratorios de referencia nacional para la peste porcina clásica. Esas experiencias han servido ante todo para entender hasta qué punto es importante que el laboratorio cuente con un plan de emergencia bien documentado. Los principales problemas detectados fueron la falta de espacio y la dificultad de garantizar la seguridad biológica y de disponer de una reserva suficiente de material fungible y equipo de laboratorio estéril. Los autores también reflexionan sobre la necesidad de contar con un sistema normalizado de gestión de la información de laboratorio que utilicen todas las partes interesadas a fin de reducir la carga de trabajo administrativo.

Palabras clave

Diagnóstico – Directiva 2001/89/EC del Consejo de Europa – Ejercicio de laboratorio – Enfermedad transfronteriza – Formación – ISO/IEC 17025 – Peste porcina clásica – Plan de emergencia en laboratorio – Preparación de los laboratorios.

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