EXERCISE
BROWN LAGOON

Serial 5.0
Draft Final Report

Exercise In Confidence

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1. Introduction

1.1 Exercise Brown Lagoon was a European Centre for Disease Prevention and Control (ECDC) initiative designed to provide an opportunity to review and practice internal procedures and systems to deal with major public health events.
The exercise was conducted at the ECDC premises in Stockholm as a Command Post Exercise (CPX) with some supporting activities from CEPR, HPA in the UK, on Monday 4 June and Tuesday 5 June.

1.2 Exercise Brown Lagoon was conducted by the HPA of the United Kingdom under Framework Service Contract to the European Centre for Disease Prevention and Control, for the development of five lots of simulation exercises on outbreak detection, investigation and response.

1.3 An 'Exercise Design Team' (EDT) – consisting of staff from the Emergency Response Department of the HPA – was established to design and conduct the exercise. An Exercise Planning Group (EPG) made up of staff from the Preparedness and Response Unit of the ECDC and Unisys (designers and installers of the ECDC Emergency Operations Centre), was formed to provide the Exercise Design Team with guidance for the planning and approval of the exercise documentation and conduct. The EDT and EPG met several times during the planning process and held regular teleconferences to discuss progress.

1.4 A meeting for ECDC staff took place on 13 May for Launch of Exercise Brown Lagoon, where general information on the exercise organisation and purpose where shared.

1.5 Exercise Brown Lagoon was evaluated against- the objectives of the exercise and was supported by:

- feedback forms developed by the Exercise Design Team and completed by players, observers and evaluators during the exercise, where notes, observations and comments were registered
- a hot wash-up conducted by control staff immediately after the end of the exercise. where a representative of each group of players was invited to comment on " What went well" and "Key issues or learning points"
- an evaluation meeting among the Exercise Planning Group and Observers that took place on 19 June to discuss comments from Observers and Evaluators
- a comprehensive debrief process on 19 June where players reconsidered all the issues raised during the exercise and offered further comments and possible solutions

1.6 This report presents the main aspects of the Exercise Brown Lagoon including an outline of the scenario, components of ECDC's response which were explored, format and evaluation. It presents the major observations, as well as recommendations for improvements and for future training.

2. Scenario

2.1 On the 4 June 2007 there was an ongoing outbreak of Norovirus in the European Commission. The European Commission headquarters was the most seriously affected with 267 staff reporting ill with the disease. The outbreak was believed to have started 3 days before and a drinks reception celebrating the 60th birthday of the Irish Commissioner to the EC was implicated by Belgian health officials in Brussels.

The added complications were that 3 commissioners including the health commissioner were believed to have caught the infection.

2.2 On the 5th June 2007 the Austrian health ministry reported an outbreak of diphtheria in Vienna. There were four cases and a toxin producing strain of *Corynebacterium diptheriae* was confirmed to be the cause. Only one of the cases, a Slovakian citizen, had any relevant travel history.

2.3 The Austrian Ministry of Health informed counterparts in Slovakia that they had a case of diphtheria in a Slovak national who had been recently in Slovakia. They also posted information on the outbreak on the EWRS system to inform others across Europe.

2.4 Potential cases in Bulgaria and a link to Turkey were also identified in the scenario and required further investigation.

3. Specific Components

3.1 The scenario of the exercise was designed to test the Public Health Event Operations Plan (PHEOP) procedures (including command and control), the Emergency Operations Centre's (EOC) equipment and facilities and the launching of an Outbreak Assistance Team.

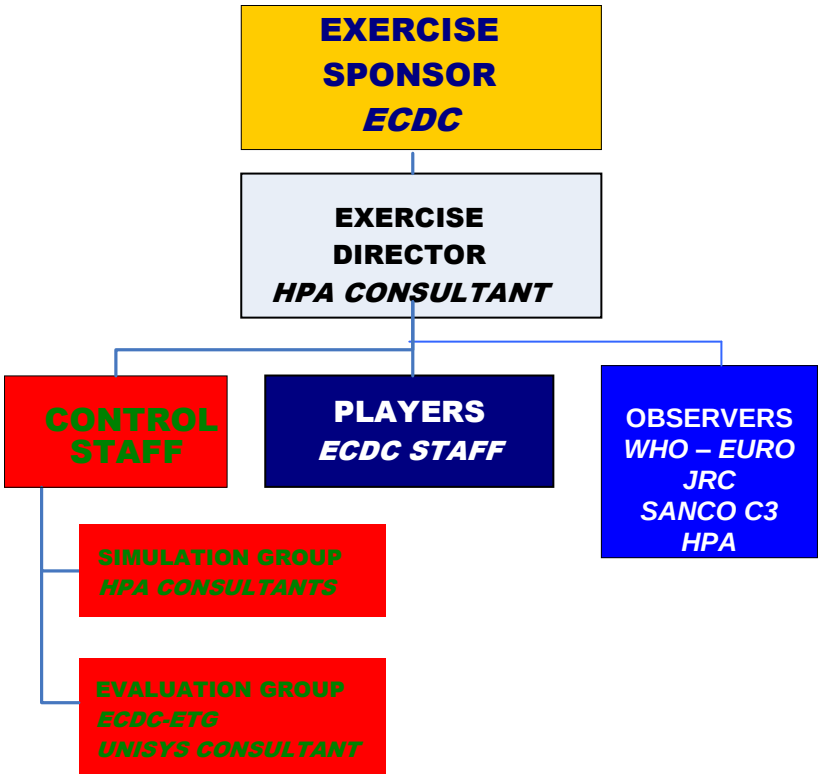
3.2 The Specific Components to be tested were

- Internal procedures facing Public Health Events at different levels of activation of the Emergency Operations Centre (EOC), regarding command and control and communication channels, equipment, mobilization of staff and surge capacity
- Functionality and technical use of all equipment at the EOC
- Timing on using equipment, including recording and archiving
- Launching and supporting the Outbreak Assistant Team (OAT)
- Use of portable kit functionality by the team on the field
- Redundancy of equipment

4. Exercise Format

4.1 Exercise Brown Lagoon was an internal Command Post Exercise conducted from the ECDC premises in Stockholm. The exercise ran in real time and was played on the 4 June (Day 1) from 09:00 to ~17:30 and on 5 June (Day 2) from 08:00 to 16:15. Players had to follow their normal plans and procedures and use their current methods of communication.

4.2 The structure for Exercise Brown Lagoon was organised as shown in Figure 1 below.



4.3 Member States and Organisations who would normally interact with ECDC were portrayed by a Simulation Group based at the Health Protection Agency (HPA) in the UK.

4.4. Observers from WHO- Euro, DG-SANCO C3, Joint Research Centre, Unisys and the Centre for Emergency Preparedness and Response from the HPA were invited to the Exercise.

4.5. Communications between players and the Simulation Group was based on a master events list and it was designed to utilise all available means of communication, such as phone, teleconference, videoconference, facsimile, e-mail and EWRS. Contact details of simulated organisations where provided as an Exercise Directory

4.6. The start of any communication to the outside world was prefaced with “Exercise, exercise, exercise – This is Exercise Brown Lagoon” (written and verbal). Exercise

Control Staff had a separate and direct communications network and the players were allowed to direct questions to Exercise Control Staff as required.

5. Exercise Evaluation

5.1 Players in Exercise Brown Lagoon were given a player evaluation form which was completed and given to Exercise Control at the end of Day 2

5.2 Each Observer presented an evaluation report two weeks after Exercise Brown Lagoon

5.3 Evaluators from EPG presented a report or completed checklist on the main aspects observed and comments on Exercise Brown Lagoon

5.4 Comments from participants and notes from feedback forms (players) and checklists (evaluators) where collect, analysed and summarised in a list of identified problems, grouped by main four areas: PHEOP procedures, Communication, Information, Equipment and facilities.

5.5 A preliminary evaluation of Exercise Brown Lagoon was presented by EPT on 18 June at the ECDC Monthly meeting of EXC and Technical Experts, based on a SWOT (Strengths, Weakness, Opportunities and Threats) approach of the areas identified above.

5.6 An evaluation meeting took place two weeks after Exercise Brown Lagoon. The evaluation meeting was organised in 2 parts:

- Evaluation meeting to discuss evaluators and observers comments and reports
- Workshop with Players to discuss possible suggestion, based on the pre listed table of problems identified

5.7 Feedback from Exercise Brown Lagoon suggested that all delegates enjoyed the exercise and thought it worthwhile. Players were very enthusiastic and played in a very committed manner.

5.8 Although strengths as having an EOC in place and having engaged and enthusiastic human resources with good capacity to face challenges, main areas for improvements were identified and are reported as suggested recommendation by objectives and communication issues. Training areas has been also identified and are described below.

6. Objectives

6.1 Objective: To test the equipment of the Emergency Operations Centre (EOC)

The emergency operations facility within the main ECDC building in Stockholm is a new dedicated facility, being in place just 1 week before Exercise Brown Lagoon, which has been designed to operate within a pre-existing building rather than within a new build. Despite the possible limitations which this format can create, the layout of the EOC has been thought out very carefully and appeared on the day of the exercise to work well. All of the equipment; telephones, faxes, computer systems and screens all functioned. Players in the exercise also entered completely into the exercise "game" with great enthusiasm and a willingness to make the exercise work. This showed through in the team working that developed during the exercise and the strong motivation of the players.

However, as with all new facilities, there were problems. The equipment itself was new to many of the players and despite some time for training some players still felt unfamiliar with the equipment. The equipment was also not utilised as fully as it could have been. The former issue can be quickly rectified providing that staff get the opportunity to use the equipment regularly either in their day to day work or through further training and exercising. The latter issue may also be resolved to some extent by further training but those that operate the EOC also need a greater understanding of the capability of the EOC and what the role of the EOC is in a crisis needs to be more clearly defined.

***Recommendation**: A continuation of training and familiarisation activities to enable increased competence with the use of the hardware in the EOC. Awareness session should also be included as part of any induction programme.*

One clear activity which was not apparent was logging of the event. No formalised logging system for major incidents was used during the exercise although on day 2 some contract tracing information was posted on one of the screens. An accurate history of the event is essential both to be able to follow the event and also for legal or evidential purposes. A situational awareness tool, which includes graphics, can also provide an immediate snapshot of the situation, and is vital in keeping people informed of the situation.

***Recommendation**: A logging system needs to be used throughout an event and displayed such that others can determine past history and current status.*
NOTE ECDC were already aware of this and have recently employed a consultant from Unisys working specifically on this.

***Recommendation**: A situational awareness tool should be used to enable a rapid assimilation of the situation for all involved. The current tool used by C3 Sanco, HEDIS, is an example of a situational awareness tool which is used in a crisis. ECDC should evaluate the tools available and decide which one most suits their needs or alternatively develop a bespoke system.*
NOTE HEDIS was developed by JRC and they have already discussed with ECDC the development of a similar tool.

The room layout of the EOC also caused some confusion. Players were unsure whether to use the EOC and other rooms within the EOC complex or return to their own rooms to carry out their work. The decision to return to a familiar environment to work was sometimes based on the lack of equipment available or the lack of familiarity with the available equipment. Finding these staff became problematic as they were not necessarily where people expected them to be.

***Recommendation**: The function of each room within the EOC complex to be clearly and simply labelled and described. Clarity needs to be given to those involved as to where they should work from and this should be communicated to all. The alternative could be to provide a mobile communication system.*

***Recommendation**: For those whose role is to work from the EOC in a crisis, they should have interoperability of their normal equipment with the equipment in the EOC.*

The ECDC planners attempted to define the players for the exercise and give those that required it access to the appropriate documentation (stored on the “S-drive”). However,

others rapidly became engaged in the exercise but were unable to access the documents. This caused some difficulties and confusion.

***Recommendation**: A simple method for enabling rapid and immediate access to those that need it to the appropriate areas and folders on the IT system eg password protection.*

The use of email also needs to be improved. Players complained of duplication, receiving multiple copies to different mailboxes and confusion over which mailboxes were in use for the exercise.

***Recommendation**: An IT solution and an email protocol need to developed to minimise the duplication and to provide the players with clarity over which functional mailboxes are in use during a crisis and who needs access to what and why.*

The working environment in the EOC seemed generally good. The exception was the air-conditioning in the meeting room next to the Operations Centre which seemed inadequate as the room got very warm. The food and beverage arrangements were also adequate but would need improvement in a prolonged or Level 2 crisis where 24 hour working is in place. There also appears to be no mechanism for a cash advance to ensure the level of arrangements is maintained.

***Recommendation**: Review the arrangements for providing food and beverages during a crisis and ensure these arrangements can be implemented in a timely fashion. These arrangements also need to be available at weekends and during public holidays.*

6.2 Objective: To test internal procedures (technical and functional) for all Public Health Event (PHE) phasing (alert phase, acute phase, maintenance phase and recovery phase) or at least the first two phases, as described in the PHE Operation plan

In commissioning the EOC, the ECDC team have put together a very comprehensive Public health event operation plan. This document contains a considerable amount of valuable

information and level of detail. However, the quality of the plan needs to be ultimately reflected in its use during a crisis. Some players said they looked at the plan prior to the crisis but at no time during the crisis itself, as it was considered too large and would take too long to find and extract the necessary information in a timely fashion.

***Recommendation**: Review the structure of the PHE operation plan. The plan exists in hard copy and there is also a folder on the S drive which contains additional information. Both contain a great deal of useful information but need to be operationalised such that players in a crisis can navigate them easily and rapidly extract the information they require.*
Whilst it may be appropriate for operational reasons to have both a hard copy plan and an electronic folder which contains additional information, the additional information available in the folder should also be indexed in the hard copy plan so all players are aware that additional information exists.

The current bureaucracy within the plan is also too complex with too many layers of committees, and managing levels. In a crisis, organisations need to respond deftly and proportionately. If this is not the case it may take too long to respond or the response may be over the top. The PHEOP identifies the PST leader as the single point of contact who receives all the information at the strategic level and acts with executive authority as the incident manager. In the exercise this enabled the Director to continue the day to day business of the organisation whilst still being kept fully informed of the situation. However during the exercise information relevant to the event was still coming into the organisation at different levels, including director level, but was not necessarily being delivered to the PST leader.

***Recommendation**: Highlight more clearly in the PHEOP the central role of the PST leader to ensure that as the strategic incident manager they are clearly identified as the single point of contact for the event who has oversight of the event and executive authority. It should be made clear to all that the incident manager should be dedicated to this task until the crisis is resolved.*

Additionally, the complexity of the plan also affected the communication through the different levels. This manifested itself in a number of ways, the most noticeable of which was the

inclination for players to hang around in the EOC or in meetings unnecessarily in an attempt to gather sufficient information to carry out their role.

***Recommendation**: Establish a task list and a task manager. As tasks identified are compiled, an owner identified and a time for delivery established. A task manager manages this process. The task list is visible to all so that everybody is aware of who is doing what. Note This should be identified as part of the crisis management tool, the specification for which the Unisys consultant is developing.*

Briefing meetings were arranged but the timings were not communicated effectively to all and perhaps were not timely enough to satisfy the curiosity and interest of the players. Whilst it is not possible necessarily to establish a battle rhythm within the first 24 hours of an event, it is important to establish it as soon as possible as players become rapidly tuned to it and are able to function more efficiently within this structure.

One aspect of the plan which worked very well was alerting. The first event was alerted through the Director in normal working hours and the decision to activate the EOC was quickly taken. On the second day the alerting was done out of hours through the on duty officer. Again the mechanism worked very well and senior staff were quickly appraised of the unfolding situation. Some players observed that they could find no reference to a second simultaneous event in the PHE plan and were therefore unsure how to proceed. However, this did not seem apparent to evaluators as both events were being managed effectively.

Several players said that the structure developed to deal with the crisis divided the players into too many functional groups and the names of the groups were not functionally defined and so their role was not immediately obvious eg the PST was functionally the crisis exec so why wasn't it called that? Players also felt that the remit of some of the functional groups appeared to overlap and they were concerned that work may be being duplicated.

***Recommendation**: Simplify the functional groups. It is suggested that they should be reduced in number from the current 9, which was considered too many, to a more manageable number and 3 was suggested. They should also be given functional names to aid identification of the role of each eg Coordination group (strategic and comms); Technical group (science, epi and operations supported by a comms person); Support group (EOC, logistic, helpdesk).*

Launching and supporting the Outbreak Assistance Team (OAT).

Though not the intention of the exercise designers, the OAT was nominally launched on Day 1 to the Commission in Brussels and on Day 2 to Plovdiv, Bulgaria. The launch on day 1 was due to a certain set of circumstances which were possibly unique to this scenario as they involved an EC building. Hence the protocols developed for the OAT did not apply readily. The launch on day 2 was according to the protocols described in the PHEOP. These protocols appeared to work very well. However there is still some further work required on the procedures which need to be considered and then developed for supporting the OAT once it is on a mission including role, reporting mechanism and clearance of reports, and others. Protocols for deploying experts from external organisations in support of ECDC also need further work. The current policy of requesting volunteers from external organisations who then need to enter an approval process would in reality take too long.

***Recommendation**: Further discussions with organisations which are used to deploying missions will help in continuing to develop robust procedures for the OAT*

6.3 Objective: To test internal procedures for the up-scaling of activity from levels 0 to 2 including staffing and functions

The exercise was designed to encourage the consideration of up-scaling the activity from level 1 to level 2. This was considered during the first day when plans were put in place to switch to 24 hour working (and therefore level 2). The players involved readily agreed to 24

hour working although this was never implemented as the exercise was not designed to run overnight. This readiness to embrace 24 hour working reflected the general enthusiasm of players for the exercise. However some pointed out they were not contracted to work out of hours.

However, it was felt by some that careful consideration should be given to why 24 hour working would ever be necessary. The principal external organisations with which ECDC would work are the member states and other European commission organisations. Unless they are working overnight, the additional resilience required to implement and maintain 24 hour working requires careful consideration. However, extending the working day is far more likely, especially in the event of having to liaise with the US or any other country with significant time differences.

Generally, during the exercise it was not clear to all players what level the EOC was operating at and what the implications of the different levels would be, if any. The levels are clearly an important benchmark for managers as it triggers access to additional resource from other areas of ECDC. However the staffing at level 1 and the surge capacity at level 2 need to be more clearly defined. At level 1 the staffing is limited to those identified in the appropriate annex within the PHEOP. At level 2 any member of staff can theoretically be co-opted to provide support to the event.

***Recommendation**: Within the plan, clarify the differences between levels 0, 1 and 2. Ensure that all those that need to know are aware of the implications, especially with respect to staffing. When level 1 is activated, those on the PHE staff list are involved. However when additional staff are required, other staff not identified on the PHE staff list are needed. This becomes level 2. By implication there is also therefore a requirement to keep the PHE staff list in the plan updated.*

6.4 Objective: To test command and control in a PHE

The exercise gave a good opportunity for command and control to be rigorously explored. Information was delivered in different ways and at different levels into the organisation. It

was noted both by players and observers that generally there was good collaboration between the functional groups and some good communication both horizontally and vertically. However, some information did get lost in the system and never reached the appropriate people. Some players were also unclear as to who they needed to give the information to. This was amplified when the Director was not personally engaged in the event. Similar points have been noted earlier (6.2) and a recommendation made around explaining the role of the PST leader. These points also apply to that recommendation. Whilst it may be considered by some that command and control is adequately explained in the PHEOP, if that information is not getting through to the players then it requires further clarification. The complexity and size of the PHEOP has already been identified before as an issue which needs addressing in order to produce an operational plan which can provide strong and clear guidance during a public health event.

Complexity was also raised as an issue by many in terms of management of the events. This manifested itself principally in the meetings. Many players felt the meetings went on too long, were crowded and that there were too many meetings, both pre-arranged and ad hoc. This slowed the flow of information and caused frustration among players who required answers to questions from meeting participants.

Recommendation: *Keep meetings and teleconferences as short as practicable with a clear aim and agenda. Publicise, to all, these timings, so they are aware of availability of attendees.*

Players thought that collaboration was better on day 1 than day 2 although they were unclear why. This could have been simply due to the newness of the exercise on day 1 and the additional enthusiasm that this engendered.

7. External Communications

This section considers both the external communications to other organisations and the public as well as engagement with the media.

It is always important in exercises to ensure they are as realistic a test as possible. This exercise also therefore included a significant amount of pseudo-media play, where HPA communications managers played the part of journalists and presented difficult questions to the spokesperson at ECDC. It became very clear that the spokesperson was rapidly overwhelmed with the pressure being placed upon him and in a real event this pressure would have been unrelenting. It was assumed by many that the communications team would support the spokesperson but it was only clarified after the exercise that the communications team was involved principally in preparation of scientific communications and had no role or expertise in communicating with journalists.

Recommendation: *Ensure that the Spokesperson has additional support during a public health event where the event is likely to have significant media interest*

During the exercise the players produced a very good mock website which contained a lot of useful information for the benefit of the public and the media. Unfortunately the existence of this website was never communicated to the spokesperson or any evaluation staff. This would have helped ease the pressure on the spokesperson considerably as the pseudomedia would have been able to gather the information from the website.

Recommendation: *Ensure that in an event the comms elements of ECDC work closely with the other functional groups like SCI to ensure that any outputs eg website information is rapidly and effectively promoted outside*

With respect to sister organisations it was observed that they would not have been made aware that the ECDC EOC was activated and operating until very late on the first day. This may have been an exercise artificiality but highlights the need for a robust communications link with stakeholders to ensure they are fully engaged and aware.

8. Training

The following recommendations for further training are based on observations made during the exercise by evaluators and observers as well as from the player evaluation forms which included a section on further training.

- The use of outlook and all its functionality for sending e.mails
- The use of all the technical equipment in the EOC
- Principles of crisis management
- Case studies on diseases which are likely to require action by ECDC
- Further media training – how to handle questions from journalists
- Key elements for risk assessments
- How to develop guidelines/templates
- Regular exercises at least once a year
- Explore coordination roles
- Training for the communications team in support of the spokesperson

9. Other

Security. The security of ECDC was challenged during the exercise. Two HPA staff posed as “journalists” and tried to gain access to staff at ECDC through the main reception. The security staff refused the “journalists” entry but remained polite and courteous at all times until the journalists gave up and left the building.

EWRS. The pre-production version of EWRS which was used in this exercise seems to have suffered from several manifest problems. This led to some difficulties in exercise control with the delivery of those limited parts of the exercise. Future planned command post exercises will evaluate the functionality of EWRS in a crisis more thoroughly.

Wireless gaps were identified in some of the rooms used peripheral to the EOC.

10. Conclusion

The enthusiasm and engagement of the players in the exercise ensured that this was an extremely valuable and useful assessment of the capabilities of the new EOC and associated plan. It was ambitious of the planning group to schedule an exercise evaluating the performance of the EOC so close to its completion. However, the players appeared to cope very well working in this novel environment and only very few of the recommendations made reflect the level of unfamiliarity with the EOC and its equipment. A positive outcome of this is that the players have been able to evaluate the plan and associated command and control arrangements in a peacetime situation, before the plan has been used extensively in a real world event. Hence many of the issues which may have arisen in a real world event and could potentially have affected ECDCs performance have now been identified and can be resolved in peacetime.

Some of the recommendations made in this report do have resource implications to ensure that they are resolved in a timely fashion. The need to review the PHEOP procedures, mainly in the organisation of command and control, reducing the number of functional groups, and in communication is a major task. The plan also needs to be constructed so that it is either more operational or so that the operational elements can be more easily extracted. A crisis management tool which monitors and allows an easy understanding of the situation is crucial. Allied to this is a need for better operational management of incoming and outgoing information. ECDC have already recognised this prior to the exercise and commissioned Unisys to do an analysis of user requirements.

Finally it is important to note that this exercise should not be considered a one-off event but as one of the first steps in improving the response capability of ECDC. Once the recommendations have been implemented and the training completed it will be important to take part in other exercises which involve the EOC to ensure that the lessons have been learned and that the revised PHEOP is evaluated again. This is clearly part of ECDC's intention as they commissioned a 5 lot exercise programme, but we recommend they strongly consider another EOC exercise as one of their future exercises.