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EMERGE
Efficient response to highly dangerous and emerging pathogens at EU level

Report on Exercise Salutem Outbreak Response Mode 06 & 07 November 2018

Task 4 of WP7 of the EMERGE Joint Action

Public

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About EMERGE

The Joint Action EMERGE - “Efficient response to highly dangerous and emerging pathogens at EU level” is co-funded by the European Commission within the framework of the Third EU Health Programme (2014-2020) and the Member States to enable an efficient response to serious emerging and re-emerging infectious diseases with cross-border outbreak potential. The partners are highly specialized laboratories focusing on the identification of Risk Group 3 bacteria and Risk Group 4 viruses.

The project is designed for two action modes: the “inter-epidemic mode” (IEM) and the “outbreak response mode” (ORM). Currently, all Work Packages are run in the IEM aiming to reach the best possible preparedness of all participating countries and to allow a smooth cooperation with other relevant networks. In the event of need, the EMERGE network will, on request of the Health Security Committee, be switched from IEM to ORM, according to a detailed plan for transition (see Annex, Figure 2), directing all activities towards the laboratory management of cross-border outbreaks caused by high threat pathogens. This transition plan has been agreed with the European Commission’s Directorate General for Health and Food Safety (DG SANTE) and the European Centre for Disease Prevention and Control (ECDC). A number of other laboratory networks, institutions and agencies are as well contributing to the management of cross-border infectious outbreaks. An ORM Working Group (WG) may be activated and comprises members of the SC operating in close contact with representatives of the EC and the ECDC. The coordinator takes the lead of the ORM WG or designates one member of the SC to take the lead for the ORM period unless otherwise agreed by the ORM WG. The ORM WG shall give recommendations on specific tasks required for the outbreak management, modifications of the work plan, and budget changes to be decided by the Steering Committee (SC).

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For more details please go to http://www.gov.uk/phe

About the Emergency Response Department

Public Health England's Emergency Response Department works with national and international partners to ensure that healthcare professionals are able to respond to emergencies, including the deliberate or accidental release of chemical, biological or radiological substances. Emergency preparedness specialists throughout PHE play an important role in training and exercising the healthcare community.

On behalf of the Department of Health and Social Care, training courses and exercises are delivered every year throughout England to develop resilience across healthcare organisations. In addition, the Emergency Response Department works with the European Commission, the European Centre for Disease Prevention and Control, the World Health Organisation and other major international public health partners.

For queries relating to this document, please contact: exercises@phe.gov.uk.

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The Report on Exercise Salutem

Exercise Salutem was delivered on 06 and 07 November 2018, supported by EMERGE Steering Committee and Public Health England, and sponsored by EMERGE Joint Action.

Exercise Salutem was designed to fulfil Task 4 of WP7 of EMERGE Joint Action: to evaluate the plan for transition from inter-epidemic mode (IEM) to outbreak response mode (ORM) (developed under WP1) and the operation under ORM.

This was achieved over two days: by conducting a practical wet-laboratory exercise on 06 November 2018 using five inactivated Crimean Congo Haemorrhagic Fever virus samples provided by Philipps Universität (Marburg) and two Brucella bacteria samples provided by Robert Koch Institute (RKI). The results from the analyses of these samples triggered activation of EMERGE: Outbreak response mode (ORM) on day two of the exercise on 07 November 2018.

The exercise was planned by the EMERGE Steering Committee, led by PHE, and sponsored by EMERGE Joint Action; this report signifies one of the final deliverables at the end of the Joint Action.

Exercise Salutem was intended to rehearse practical laboratory testing during an outbreak and decision-making processes of the EMERGE Steering Committee during the initial investigation, management and response to highly infectious pathogens outbreaks in European countries.

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Executive summary

On 06 and 07 November 2018 a command post Exercise Salutem was conducted to fulfil Task 4 of WP7 of EMERGE Joint Action: to evaluate the plan (developed under WP1) for transition from inter-epidemic mode (IEM) to outbreak response mode (ORM) and the operation under ORM.

The aim was to test the activation of the Outbreak Response Mode (ORM) and this was achieved over two days: by conducting a practical wet-laboratory exercise on 06 November 2018 to test five inactivated Crimean Congo Haemorrhagic Fever (CCHF) virus samples provided by Philipps Universität, Marburg and two Brucella bacteria samples provided by Robert Koch Institute. The results from the analyses these samples triggered activation of EMERGE: Outbreak response mode (ORM) on day two of the exercise on 07 November 2018.

The exercise was planned by the EMERGE Steering Committee, led by PHE, and sponsored by EMERGE Joint Action; this report signifies one of the final deliverables at the end of the Joint Action.

The scenario described a widespread CCHF outbreak across Europe following travel from a festival in the Middle East.

The representation at Exercise Salutem included:

EMERGE Steering Committee:

Erasmus, Netherlands
Istituto Nazionale Malattie Infettive (National Institute of Infectious Diseases) INMI, Italy
Institut National de la Santé et de la Recherche Médicale (National Institute of Health and Medical Research) INSERM, France
Philipps Universität Marburg, Germany
Public Health Agency of Sweden PHAS, Sweden
Public Health England PHE, UK
Robert Koch Institute RKI, Germany

EMERGE Partners:

Hungary: National Biosafety Laboratory, National Public Health Center

European Commission DGSANTE

European Centre for Disease Prevention and Control ECDC

All participants who responded to the survey felt that the aim of the exercise was met as were the five objectives. The exercise identified nine important lessons including;

- There should, within the steering committee, be a clear and open voting process to activate ORM.
- The agenda for the transition to ORM meeting could be clarified to include a checklist of what needs to be done, with an addendum of networks to be contacted.

- The EMERGE website could be used to greater effect to disseminate information widely across the network during outbreak response, but could also be updated during inter-epidemic periods to include updated contact lists of key EMERGE partners and to include a list of experts for each disease of concern for EMERGE.
- The remit of EMERGE, funding mechanisms and the links between EMERGE with the national level of each country during ORM are a little unclear and could be clarified during the inter-epidemic period.

Overall, feedback suggested that Exercise Salutem was a very realistic exercise which demonstrated a high quality of pragmatic and result-oriented ad-hoc communication among the EMERGE Steering Committee, EC and ECDC, and revealed a good analysis of the principal laboratory-side aspects which are fundamental in the event of an outbreak.

A full list of lessons identified is included at **Appendix A.**

1. Introduction

This report describes the design, delivery and outcomes of Exercise Salutem, a command post exercise designed to fulfil Task 4 of WP7 of EMERGE Joint Action: to evaluate the plan (developed under WP1) for transition from inter-epidemic mode (IEM) to outbreak response mode (ORM) and the operation under ORM.

This was achieved over two days: by conducting a practical wet-laboratory exercise on 06 November 2018 to test five inactivated Crimean Congo Haemorrhagic Fever virus samples provided by Philipps Universität, Marburg and two Brucella bacteria samples provided by Robert Koch Institute (RKI). The results from analyses of these samples triggered activation of EMERGE: Outbreak response mode (ORM) on day two of the exercise on 07 November 2018.

The exercise was planned by the EMERGE Steering Committee, led by PHE, and sponsored by EMERGE Joint Action; this report signifies one of the final deliverables at the end of the Joint Action.

2. Aim and objectives

2.1 Aim

To test the activation of the Outbreak Response Mode (ORM)

2.2 Objectives

The objectives for the exercise were:

1. To test the wet lab identification of agents
2. To test the plan for transition from IEM to ORM
3. To exercise the communication between partners of the EMERGE network
4. To document the outputs of the EMERGE network following ORM activation
5. To identify gaps or areas of uncertainty, including roles and responsibilities, and propose corrective actions

3. Scenario

Infectious disease outbreak following travel from a festival in the Middle East.

The fictional scenario was developed to achieve the aim and objectives (above) and was adapted from WHO IHR scenario exercises.

Participants were informed by a national surveillance officer about the detection of an infectious disease outbreak from travellers returning to their country from a large festival in the fictional country of Middle Arabia. Festival-goers were accommodated in a large, crowded, tented camp with poor hygiene facilities.

Each participating country was told there were six patients in capital city hospitals or large town hospitals and that they would receive their blood samples, plus one cultured sample for testing on day one of the exercise. Patients' symptoms included sudden high fever, headache, myalgia, fatigue, malaise, backache, joint and abdominal pain and vomiting.

One patient reported consuming unpasteurized camel milk and five reported being in contact with goat and/or sheep blood.

All of these patients had multiple contacts and were considered to be a high risk of onward transmission of an unknown, possibly high consequence infectious disease.

There were unconfirmed reports of similar symptoms in a number of local people, as well as unconfirmed reports from other countries. Diagnostic testing had been initiated in Middle Arabia but no results were yet available.

By the end of day one, all participating laboratories sent their preliminary results to RKI with most confirming Crimean Congo Haemorrhagic Fever in five patients and most confirming Brucellosis in one patient. The scenario was designed to initiate an audioconference on day two of the exercise to discuss EMERGE transition to ORM.

4. Exercise format

4.1 Exercise style

Exercise Salutem was designed as a practical exercise incorporated into a command post exercise which ran over two days.

Pre-exercise:
On Monday 29 October 2018 RKI shipped five CCHF positive blood samples (500ul) (provided by Philipps Universität, Marburg) and two Brucella positive samples (500ul of blood and 500ul cultured sample) (provided by Robert Koch Institute (RKI)) with accompanying clinical details and request forms to each National Laboratory for testing.

On Monday 05 November a communications check was conducted to ensure all telephone numbers and email addresses for exercise participants, facilitators and evaluators were correct.

Day One:
Alerts were circulated to participants regarding multiple cases of an infectious disease, possibly a viral haemorrhagic fever (VHF), across Europe. All cases had multiple contacts and were considered to be a high risk of onward transmission of an unknown, possibly high consequence infectious disease.

The seven samples were tested on day one of the exercise (Tuesday 06 November). Early preliminary results were reported by 4pm CET on the same day to RKI on the RKI template provided.

Day Two:
A Steering Committee meeting (audio conference) was held at 12 noon CET, co-chaired by the EMERGE coordinators: Robert Koch Institute and Istituto Nazionale Malattie Infettive (National Institute of Infectious Diseases, INMI) to activate ORM and agree onward activities. The decisions and actions from this meeting were a critical output of this exercise and are discussed below.

Post-exercise:
Final confirmed results of the virus and bacteria samples were reported post-exercise to RKI by 14 November on the RKI template provided.

Members of the planning team acted as Facilitators and/or Evaluators at their location. The Facilitator ensured the exercise ran smoothly in their area and that all participants had received the exercise information required at the right time. The Evaluator used the evaluation report template as the basis for a report on the activity at their location. This was based on the ORCE methodology: observe; record; comment; and evaluate. The evaluation report was based on the aim and objectives of the exercise.

4.2 Exercise Participants

The representation at this exercise included:

EMERGE Steering Committee:

- Erasmus, Netherlands
- Istituto Nazionale Malattie Infettive (National Institute of Infectious Diseases) INMI, Italy
- Institut National de la Santé et de la Recherche Médicale (National Institute of Health and Medical Research) INSERM, France
- Philipps Universität Marburg, Germany
- The Public Health Agency of Sweden PHAS, Sweden
- Public Health England PHE, UK
- The Robert Koch Institute RKI, Germany

EMERGE Partners:

Hungary: National Biosafety Laboratory, National Public Health Center

European Commission DGSANTE

European Centre for Disease Prevention and Control ECDC

5. Exercise Evaluation and lessons identified

The effective evaluation of exercises is key in identifying areas for improvement and the information for the evaluation provided in this report is drawn from the following sources: participant feedback provided after the exercise and feedback and evaluation provided by the exercise evaluators and planning team.

Six participating locations completed and returned evaluation templates identifying significant issues, learning points and areas for improvement with suggested actions or improvements against the five objectives.

Five participating locations completed and returned participant feedback forms (50% return). Participants were asked to strongly agree, agree, disagree or strongly disagree with the following three statements:

1. The aim of the exercise was achieved *(Not applicable for day 1)*

2. The exercise generated valuable discussions and actions

3. The exercise identified important lessons

From these, 100% of responses strongly agreed or agreed that the aim of the exercise was achieved; 100% of responses strongly agreed or agreed that the exercise generated valuable discussions and actions; 100% strongly agreed or agreed that the exercise identified important lessons.

A full analysis of participant feedback on the exercise is included at **Appendix B.**

5.1 To test the wet lab identification of agents

Participant and Evaluator feedback suggests that this objective was met and the sample test results were sufficient to activate the transition from IEM to ORM and exercise the communication between partners of the EMERGE network.

Please see **Appendix C** for the anonymised summary of results.

On 29 October 2018 RKI shipped seven inactivated exercise bacteria and virus samples to the seven participating laboratories.

Shipment was well-organised and samples arrived in good condition before or on the next day (30 October 2018) to the five laboratories who recorded time of arrival.

Exercise artificiality meant that samples had a different identifier to the clinical form which was commented on by some participants as it complicated identification of each sample.

The practical laboratory diagnostics made the exercise very real as data could be interpreted during the exercise. At the same time it revealed that more EQAEs are required to improve the diagnostics. This would have been even more pronounced if more labs had participated.

Four laboratories correctly identified Brucella species in both bacteria samples (from a single patient), one laboratory identified Brucella species in one of the bacteria samples and two laboratories did not identify Brucella species in either sample.

Six laboratories correctly identified CCHF virus in all five virus samples; one laboratory identified CCHF virus in three of the five samples, despite using two different assays (in-house and commercial). In a real outbreak scenario, this laboratory would request repeat samples from the clinicians treating the patient.

One laboratory provided results 15 minutes after the 4pm (CET) deadline.

Most participating labs only tested virus samples for CCHF and did not test further after initial results identified CCHF virus. This was questioned during the audioconference and all agreed that further testing would have been conducted if the virus samples had proved negative for CCHF. Similarly, further Brucella results were rarely further interpreted as part of this exercise. One evaluator felt that laboratories should not draw final conclusions before all diagnostics are completed and remain open to secondary outcomes which may complement the overall picture of an event.

Two evaluators felt that the wet sample testing could have been a little more challenging, with possibly a lower concentration of pathogen (higher PCR CT-value) in one or two of the samples, and perhaps the requirement to evaluate different types of samples.

It would be beneficial to disseminate the results to all members of the EMERGE network and maybe to exercise again with more participants, probably in the framework of another Joint Action.

5.2 To test the plan for transition from IEM to ORM (Deliverable 1.5)

This objective was met.

It was beneficial to apply the ORM transition procedure of EMERGE for responding adequately at EU level to the risk assessment needs in response to this cross-border outbreak of CCHF.

The decision-making process for activation of ORM by the EMERGE Steering Committee was a little unclear. It was not apparent at the beginning of the audioconference whether to first evaluate all facts and then take the decision to activate the network and transition from IEM to ORM or whether to make this decision immediately based on the known information. The advantage of the latter would be that an ORM working group leader might be assigned as early as possible to structure next discussions and steps. There should probably be a clear and open voting process within the EMERGE Steering Committee to recommend ORM activation (which does not require mandate from European Commission through the Health Security Committee). The co-ordinator of EMERGE would be able to take this recommendation to the Health Security Committee.

One evaluator felt that their country's response to an international outbreak of the magnitude demonstrated in this exercise would be organised at the national level rather than at laboratory- or epidemiological- level which generally constitute the EMERGE network. Representatives of the EMERGE network in their country would be more involved in aspects such as sample sharing, sequencing, diagnostics etc.

One evaluator noted that “as no outbreak occurred during the EMERGE project, it was very interesting to test the ORM with an exercise; perhaps for the future EMERGE (i.e. SHARP) it would be great to organise this type of exercise at the beginning of the project to be ready as soon as an outbreak occurs”.

Lesson identified 1: There should be a clear and open voting process by the EMERGE Steering Committee to recommend activation of ORM.

5.3 To exercise the communication between partners of the EMERGE network

This objective was met.

All agreed it was important to organise a realistic audioconference during Exercise Salutem in order to exchange information amongst partners and to decide a plan of action to respond to the outbreak.

Communication between the EMERGE partners worked efficiently and commitment of the participants was very obvious. Moreover the communications check on Monday 05 November 2018 to test phone numbers and email addresses was a good exercise in itself to ensure that contact details were correct. A contacts list (with phone and email) should be kept and updated regularly, perhaps on the EMERGE website to be used when necessary; this could also include EMERGE functions of the partner laboratories, DGSANTE, ECDC and HSC.

ECDC and DGSANTE are well practiced in their role in outbreak response, ensuring a timely out-break case definition and risk assessment would be prepared; that links with WHO/EURO would be established; whether there were travel-related issues; blood donation safety issues and preparing media lines to take. A Health Security Committee (HSC) meeting to discuss all these issues was arranged promptly to take place after transition to ORM was confirmed.

Many commented that the audioconference was challenging due to the number of attendees and sound quality (although this is not an issue limited to EMERGE). The audioconference system used during the HSC meetings seems to work well and perhaps could be adopted more widely.

The agenda was very detailed and could be revised to be a little clearer to show expected outputs and activities and include checklists of what needs to be done. The agenda also needs to include an addendum list of all relevant networks to be contacted so that it can be agreed exactly who will inform whom and by which communication route.

The EMERGE website could be used to greater effect to disseminate information widely across the network during ORM to include sample type, testing method, sensitivity, recommendations and anonymised EQA results. It would be very helpful for some countries to have pre-prepared documents in their language on the EMERGE website for issues such as sampling and transport as these may be common to agents of concern to EMERGE.

Lesson identified 2: A contacts list (with phone and email) should be available and updated regularly, perhaps on the EMERGE intranet/website; this could also include EMERGE functions of the partner laboratories, DGSANTE, ECDC and HSC.

Lesson identified 3:.The agenda could be clarified to show expected outputs and activities and include checklists of what needs to be done.

Lesson identified 4:.The agenda needs to include an addendum list of all relevant networks to be contacted so that it can be agreed exactly who will inform whom and by which communication route.

Lesson identified 5: The EMERGE intranet/website could be used to greater effect to disseminate information widely across the network during ORM to include sample type, testing method, sensitivity, recommendations and anonymised EQA results, with some generic documents in different languages.

5.4 To document the outputs of the EMERGE network following ORM activation

This objective was met.

There was excellent communication during the ORM audioconference regarding the next steps with good agreement between EC-ECDC-EMERGE about requests for further laboratory expert inputs into risk assessment for the EU, lab detection response capacity, gaps or areas of uncertainty and joint elaboration of possible risk mitigation options for HSC to consider.

Discussions during the audioconference suggested that it was imperative to inform network members as early as possible of an event and emphasise the urgency of the situation. This was in order to achieve a broader participation to create an EMERGE working group once ORM has been activated and who would participate in this group; the chairperson of this group may not need to be an expert in the particular outbreak disease, they could fulfil a co-ordinating role and could therefore be one of the EMERGE coordinators.

A list of experts for each of the diseases of concern for EMERGE should be agreed and drafted in advance of an outbreak. The list of experts should be subdivided into disciplines, such as clinical and isolation unit management, clinical laboratory, research etc. This would then inform who to invite to sit on the working group so that it could be set up swiftly once ORM is triggered. Roles of the key players in the Working Group should be defined ahead of

an outbreak, including who from the EMERGE partners should be Chair and Secretariat. Then in the event that ORM is triggered, they could co-ordinate the working group and invite expert members accordingly.

During the audioconference, some of the EMERGE action points for initiating specific technical outbreak support tasks were not assigned to a particular individual or organisation and were not given a time frame. Discussion occasionally diverged onto outbreak response in a more general context, including clinical patient management, preventive actions in a healthcare setting, mitigation strategies outside laboratories, clinical trials and research. There was limited discussion on public health response and the role of epidemiologists or animal health experts (for a zoonosis) in a multi-disciplinary outbreak control.

Perhaps the role of the EMERGE network during ORM should be more clearly defined and should concentrate on the clinical diagnostics side of outbreak management, particularly activities such as diagnostic assay management and sharing, sample sharing, distribution of positive control/live virus strain/ primer-probes or kits, sequencing and there should be a plan to agree this in advance. An ad hoc EQA exercise during ORM may not be practical due to laboratories working under extra pressure during an outbreak.

Lesson Identified 6: A list of experts for each of the diseases of concern for EMERGE should be agreed and drafted in advance of an outbreak (i.e. before the Joint Action concludes in December 2018). The list of experts should be subdivided into disciplines, such as clinical management, clinical laboratory, research etc. This would then inform who to invite to sit on the ORM working group.

Lesson identified 7: Clearly define the remit of EMERGE during an outbreak situation once the ORM has been activated.

5.5 To identify gaps or areas of uncertainty, including roles and responsibilities, and propose corrective actions

This objective was met under each of the objectives above.

It was generally accepted that during ORM EMERGE partners' staff time could be covered by modifying activities of the scientific working groups towards ORM activities in the management of the outbreak.

Consideration of the budget of working groups to support countries that require assistance during ORM activities, including purchase of consumables, may need to involve DGSANTE in identifying emergency mechanisms of funding during ORM.

Links with national contacts in Health, Government, National Agencies etc for each EMERGE partner could be better understood in order to identify what interactions and communications are required from the EMERGE network during ORM. It might be worth considering a questionnaire to EMERGE partners about their national plans for outbreak response.

Lesson Identified 8: Emergency mechanisms of funding during ORM need to be considered in advance of an outbreak.

Lesson Identified 9: Create a questionnaire to EMERGE partners about their national plans for outbreak response in order to identify what interactions and communications are required from the EMERGE network during ORM.

Conclusions

Exercise Salutem was very well received by the participants who were fully engaged throughout the two days of exercise. Feedback suggested that the participants in the exercise considered that the event was an ideal opportunity to test the plan for transition from IEM to ORM.

All participants (who responded) felt that the aim of the exercise was met as were the five objectives. The exercise identified nine important lessons including:

- That there should be a clear and open voting process to activate ORM.

- The agenda for the transition to ORM meeting could be clarified to include a checklist of what needs to be done, with an addendum of networks to be contacted.

- The EMERGE website could be used to greater effect to disseminate information widely across the network during outbreak response, but could also be updated during inter-epidemic periods to include updated contact lists of key EMERGE partners and to include a list of experts for each disease of concern to EMERGE.

- The remit of EMERGE, funding mechanisms and the links between EMERGE with the national level of each country during ORM are a little unclear and could be clarified during the inter-epidemic period.

Overall, feedback suggested that Exercise Salutem was a very realistic exercise which demonstrated a high quality of pragmatic and result-oriented ad-hoc communication among the EMERGE Steering Committee, EC and ECDC, and revealed a good analysis of the principal laboratory-side aspects which are fundamental in the event of an outbreak.

Appendix A – Lessons Identified

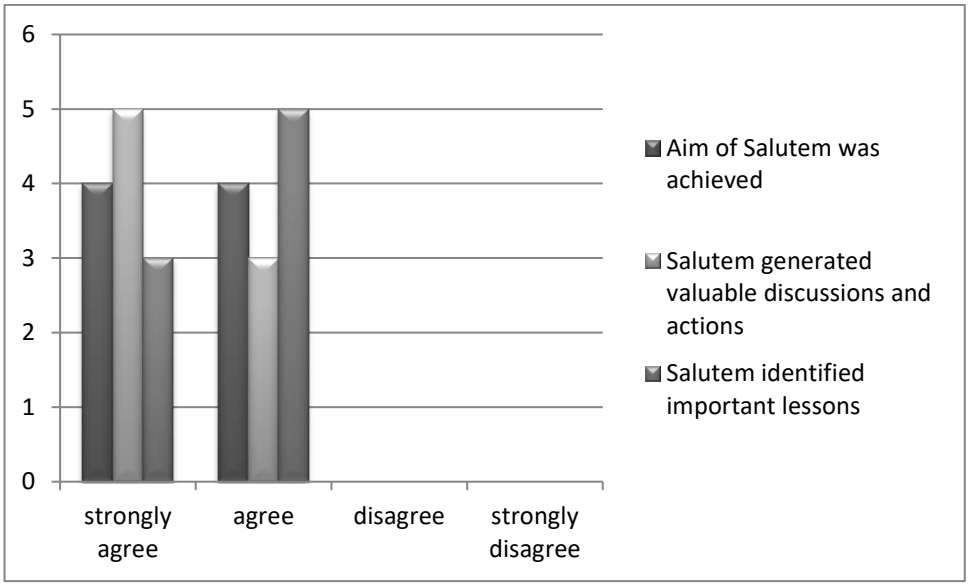
Lesson	Description of lesson identified
To test the wet lab identification of agents	
	Not applicable
To test the plan for transition from IEM to ORM (Deliverable 1.5)	
1	There should be a clear and open voting process by the EMERGE Steering Committee to recommend activation of ORM.
To exercise the communication between partners of the EMERGE network	
2	A contacts list (with phone and email) should be available and updated regularly, perhaps on the EMERGE website; this could also include EMERGE functions of the partner laboratories, DGSANTE, ECDC and HSC.
3	The agenda could be clarified to show expected outputs and activities and include checklists of what needs to be done.
4	The agenda needs to include an addendum list of all relevant networks to be contacted so that it can be agreed exactly who will inform whom and by which communication route.
5	The EMERGE website could be used to greater effect to disseminate information widely across the network during ORM to include sample type, testing method, sensitivity, recommendations and anonymised EQA results.
To document the outputs of the EMERGE network following ORM activation	
6	A list of experts for each of the diseases of concern for EMERGE should be agreed and drafted in advance of an outbreak (i.e. before the Joint Action concludes in December 2018). The list of experts should be subdivided into disciplines, such as clinical management, clinical laboratory, research etc. This would then inform who to invite to sit on the ORM working group.
7	Clearly define the remit of EMERGE during an outbreak situation once the ORM has been activated.
To identify gaps or areas of uncertainty, including roles and responsibilities, and propose corrective actions	
8	Emergency mechanisms of funding during ORM need to be considered in advance of an outbreak.
9	Create a questionnaire to EMERGE partners about their national plans for outbreak response in order to identify what interactions and communications are required from the EMERGE network during ORM.

Appendix B – Participant feedback

Five participating locations completed and returned participant feedback forms (50% return).

From these, 100% of responses strongly agreed or agreed that the aim of the exercise was achieved; 100% of responses strongly agreed or agreed that the exercise generated valuable discussions and actions; 100% strongly agreed or agreed that the exercise identified important lessons.

	strongly agree	agree	disagree	strongly disagree
Aim of Ex. Salutem was achieved	4	4	0	0
Ex. Salutem generated valuable discussions and actions	5	3	0	0
Ex. Salutem identified important lessons	3	5	0	0



Appendix C – Wet Lab Exercise Results

Exercise Salutem Results

		Clinical sample ID and Results						
ID Lab	**Lab**	**1***	**2***	**3**	**4**	**5**	**6**	**7**
1		*Brucella spp.*	*Brucella spp.*	CCHFV	CCHFV	CCHFV	CCHFV	CCHFV
2		*Brucella spp.*	*Brucella spp.*	CCHFV	CCHFV	CCHFV	CCHFV	CCHFV
3		*Brucella spp.*	*Brucella spp.*	CCHFV	CCHFV	CCHFV	CCHFV	CCHFV
4		None	None	CCHFV	CCHFV	CCHFV	CCHFV	CCHFV
5		*Brucella spp.*	None	CCHFV	CCHFV	CCHFV	CCHFV	CCHFV
6		None	None	CCHFV	CCHFV	CCHFV	CCHFV	CCHFV
7		*Brucella spp.*	*Brucella spp.*	CCHFV	CCHFV	None	None	CCHFV
most frequently identified pathogen		*Brucella spp.*	*Brucella spp.*	CCHFV	CCHFV	CCHFV	CCHFV	CCHFV
Total sum of positive identifications, analysis performed by 7 laboratories		5	4	7	7	6	6	7

CCHFV means Crimean Congo Haemorrhagic Fever Virus
* Samples from a single patient
One laboratory provided the results later than 04:00 p.m.

EMERGE targets excluded by laboratories

Target/Lab ID	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Sum of target exclusions**
- Bacillus anthracis	no	yes	yes	no	yes*	no	no	**3**
- Yersinia pestis	no	yes	yes	no	yes*	no	no	**3**
- Francisella tularensis	no	yes	no	no	yes*	no	no	**2**
- Burkholderia pseudomallei	no	yes	no	no	yes*	no	no	**2**
- Burkholderia mallei	no	yes	no	no	yes*	no	no	**2**
- Brucella spp.	yes	yes	yes	no	yes*	no	yes	**4**
- Coxiella burnetii	no	yes	yes	no	yes*	no	yes	**4**
- Hendra Virus	no	no	yes	no	yes	no	no	**2**
- Ebola Virus	no	no	yes	no	yes	yes	no	**3**
- Lassa Virus	no	no	yes	no	yes	yes	no	**3**
- Marburg Virus	no	no	no	no	yes	yes	no	**2**
- CCHFV	yes	yes	yes	yes	yes	yes	yes	**7**
- Nipah Virus	no	no	yes	no	yes	no	no	**2**
- Orthopox Virus	no	no	yes	no	yes	no	no	**2**

*only one sample was analysed for bacteria

Sum Exclusion Target

Target	- *Bacillus anthracis*	- *Yersinia pestis*	- *Francisella tularensis*	- *Burkholderia pseudomallei*	- *Burkholderia mallei*	- *Brucella spp.*	- *Coxiella burnetii*	- Hendra Virus	- Ebola Virus	- Lassa Virus	- Marburg Virus	- CCHFV	- Nipah Virus	- Orthopox Virus
Sum total exclusions	**3**	**3**	**2**	**2**	**2**	**4**	**4**	**2**	**3**	**3**	**2**	**7**	**2**	**2**

Appendix D - Glossary

CCHF	Crimean Congo Haemorrhagic Fever virus
Chafea	Consumers, Health, Agriculture and Food Executive Agency
EC	European Commission DGSANTE
ECDC	European Centre for Disease Prevention and Control
ERD	Emergency Response Department (PHE)
EQAE	External quality assurance exercise
HSC	Health Security Committee
IEM	Inter-epidemic mode
INMI	Istituto Nazionale Malattie Infettive (National Institute of Infectious Diseases), Italy
INSERM	Institut National de la Santé et de la Recherche Médicale (National Institute of Health and Medical Research), France
Marburg	Philipps Universität, Germany
ORM	Outbreak response mode
PHAS	Public Health Agency of Sweden
PHE	Public Health England
RKI	The Robert Koch Institute, Germany
SHARP	EU Joint Action Strengthened International Health Regulations and Preparedness in the EU
WP	Work Package

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Distribution

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