

Exercise Iris

12 March 2018

Report



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EXERCISE: IRIS

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Background

Between 2012 and 30 June 2018, 2229 laboratory confirmed cases of MERS-CoV were reported to the World Health Organisation (WHO)¹. At least 791 deaths have been reported. Most cases are linked to Saudi Arabia and Jordan. Overall numbers in Western Europe are low but positive cases have been documented in France, Germany, Greece, the Netherlands and the UK. The WHO report that, whilst there have been significant improvements in surveillance, there is ongoing concern about the number of transmission events occurring within health care facilities. In Western Europe, health care associated transmissions have been documented in both France and the UK.

The largest outbreak outside the Middle East occurred in the Republic of Korea in 2015 with 186 cases and 38 deaths. MERS-CoV was not initially suspected and cases were not managed appropriately. This led to a large number of secondary cases; underlining the need for ensuring clinicians are aware of the threat and initial response protocols are tested and widely understood.

Although numbers in Western Europe remain low, returning travellers from the Arabian Peninsula potentially present a serious risk to public health. To date there have been 5 diagnosed cases of MERS-CoV in the UK, the most recent of which was diagnosed in August 2018 in a traveller to the UK from Saudi Arabia. In this context, the UK Chief Medical Officer instructed the Department of Health to explore the challenges that a large outbreak of MERS-CoV could present to the healthcare system in England. On 15 February 2016 Public Health England (PHE) held "Exercise Alice" which identified a series of actions for improvement.

Exercise Iris was delivered on 12 March 2018 by Scottish Government Health Protection Division. The aim of the exercise was to assess the readiness of NHS Boards in Scotland's structures, facilities and systems to respond to a suspected outbreak of MERS-CoV.

¹http://www.who.int/csr/disease/coronavirus_infections/risk-assessment-august-2018.pdf?ua=1

Executive Summary

On 12 March 2018, a table top exercise was conducted at the Royal Court Hotel in Stirling, to explore the challenges that NHS Scotland Health Boards would face in the event of suspected - and later confirmed – cases of MERS-CoV in one or more Board areas.

Participants in the exercise represented NHS Scotland Boards, including Boards based around large population centres, rural areas and island communities. National Boards, including NHS 24 and Health Protection Scotland were also represented as were the Scottish Ambulance Service.

Delegate feedback was broadly positive. Participants welcomed the opportunity to explore the key issues with a wide range of colleagues and to think about similarities with readiness for other types of outbreaks such as Pandemic Flu or viral haemorrhagic fevers (VHFs). The majority of respondents reported feeling positive about arrangements following the event and a number of Boards have made plans to reuse the Exercise Iris materials to hold similar events within their own organisations.

A full list of actions identified during the Exercise is provided in Annex A.

Many of the issues identified had cross cutting implications and relate to work already ongoing, either through the Scottish Health Protection Network (SHPN), or in other forums. For example, much of the discussion around patient handling centred on the need for, and availability of, Personal Protective Equipment (PPE) and the challenges in ensuring members of staff are correctly trained and prepared.

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Aim and Objectives

The overall aim of the exercise was to assess the readiness of NHS Boards in Scotland's structures, facilities and systems to respond to a suspected outbreak of MERS-CoV.

The objectives of the exercise were:

- To understand the response capability of all Boards, including Boards with limited infectious disease response capacity and any mutual support offers.
- To understand the response to a presentation of a possible (and later confirmed) case(s) in primary and secondary care.
- To assess initial management arrangements for cases which may present in Primary and/or Secondary care and principles of contact management.
- To explore contact tracing and transfer arrangements and capacity.
- To confirm availability of and familiarity with infection control and clinical guidelines as well as facilities e.g. vehicles, PPE, isolation facilities, equipment, IT etc.

Exercise Format and Outline of the Day

Exercise Iris was a one-day table top exercise delivered by the Scottish Government's Health Protection Division in partnership with Scottish Government's Resilience Division. The exercise consisted of a scene-setting scenario, with two further injects. At each stage, a facilitated table discussion was held, followed by a plenary session led by a Scottish Government clinical advisor.

Participants were grouped into 10 tables to maximise opportunity for discussion between Boards and contributing organisations.

The exercise was opened by Dr Jim McMenamin, Consultant Epidemiologist at Health Protection Scotland who provided the clinical context and background. Although numbers of confirmed cases in Western Europe remain low, there is a growing awareness of the risk presented by returning travellers, sufficient to warrant committing resources to investigating Scotland's readiness for an outbreak.

The lead facilitator then took participants through the scene setting scenario, followed by plenary discussion, and this format was repeated for two additional scenario injects. Table discussion for each stage of the scenario was facilitated around a handful of key discussion points.

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Scenario

The NHS is suffering the usual winter pressures with high (although normal for the time of year) numbers of patients with flu like symptoms presenting at A+E and GP surgeries.

A patient is admitted to the A+E department of a hospital on 15 January 2018. Following an NHS 24 referral, she was unable to obtain a GP appointment despite attempting to make appointments by phone and presenting at the surgery on two occasions. The patient is 54 years old and has suffered from asthma for most of her adult life, but is otherwise healthy.

She reports with typical flu symptoms; fever, shortness of breath and a persistent, dry cough, and claims to have been symptomatic for "a few days". She is also wheezing and using her asthma medication heavily so is given nebulisation in A+E. A chest x-ray taken on admission is consistent with a diagnosis of pneumonia. Given wider staff pressures, a comprehensive travel history is not taken on admission. Throughout 15 January, she spends time in various areas of the hospital undergoing tests and discussing her condition with staff members. She also comes into contact with A+E and ward staff, fellow patients and visiting family members.

Her condition continues to deteriorate and she is transferred overnight to intensive care for ventilation. A member of the ICU team spots unusual details on the patients chest x ray and – suspecting MERS-CoV or similar – contacts the family to conduct a travel history. The travel history is taken from the family on 16 January. 10 days prior to admission she had returned from a family holiday in Dubai over the Christmas period. All travel and accommodation was arranged by the travel agent including airport transfers – a coach shared with other British holidaymakers - to and from the hotel, and excursions, including a trip to a Camel Trekking facility.

The scenario develops from here with a handful of confirmed cases and a large number of suspected cases across multiple sites with growing media and Government interest.

Scenario One (Inject)

15-16 January

The NHS is suffering the usual winter pressures with high (although normal for the time of year) numbers of patients with flu like symptoms presenting at A+E and GP surgeries.

Patient A is admitted to the A+E department of a hospital in your Board area on 15 January 2018. Following an NHS 24 referral, she was unable to obtain a GP appointment despite attempting to make appointments by phone and presenting at the surgery on two occasions. Patient A is 54 years old and has suffered from asthma for most of her adult life, but is otherwise healthy.

She reports with typical flu symptoms; fever, shortness of breath and a persistent, dry cough, and claims to have been symptomatic for “a few days”. She is also wheezing and using her asthma medication heavily so is given nebulisation in A+E. A chest x-ray taken on admission is consistent with a diagnosis of pneumonia. Given wider staff pressures, a comprehensive travel history is not taken on admission. Throughout 15 January, Patient A spends time in various areas of the hospital undergoing tests and discussing her condition with staff members. She also comes into contact with A+E and ward staff, fellow patients and visiting family members.

Patient A's condition continues to deteriorate and she is transferred overnight to intensive care for ventilation. A member of the ICU team spots unusual details on Patient A's chest x ray and – suspecting MERS-CoV or similar – contacts the family to conduct a travel history. Patient A's travel history is taken from the family on 16 January. 10 days prior to admission she had returned from a family holiday in Dubai over the Christmas period. All travel and accommodation was arranged by the travel agent including airport transfers – a coach shared with other British holidaymakers - to and from the hotel, and excursions, including a trip to the Al Marmoom Camel Trekking facility.

The return flight from Dubai lasted 8 hours including a transfer in London. All family members appeared fit and well on return and travelled home from Glasgow Airport using a combination of taxi and public transport. Following her return home, Patient A attended a funeral service in her local church.

It emerges that Patient A attended another A+E in your Board area on 14 January but, due to a long expected wait time she left without being admitted. Following the travel history, hospital staff suspect MERS-CoV and begin the process of contact tracing. Swabs are taken and sent for testing.

Initial contact tracing suggests that there could be upwards of 250 contacts spread throughout the UK and, given the ongoing flu outbreak and the late diagnosis, the number of suspected cases is considered likely to increase substantially.

There is no media or wider public interest at this time.

Scenario One Discussion

Initial Priorities

There was broad consensus on initial priorities and actions. Participants prioritised diagnosis and testing, contact tracing and implementing infection control procedures. Early, proactive internal communication would be crucial in minimising the risk of further transmission. There were, however, differing views about the appropriate time to call a Problem Assessment Group (PAG) and/or Incident Management Team (IMT). Whilst there was recognition that the situation should be communicated more widely in the system – for example to HPS – some felt that formal incident management structures should not be stood up until a positive diagnosis of MERS-CoV was confirmed. It was noted that some larger Boards regularly test patients for MERS-CoV, and it would be unrealistic and unhelpful to initiate a PAG in every case.

ACTION – HPS to include guidance on what would trigger a PAG in MERS CoV guidance.

As part of the process of contact tracing, it was noted that identifying staff members likely to have been affected would be crucial. Guidance is required on the criteria for excluding staff members if necessary and Board response plans should account for the likely impact on business continuity that this could have. Response planning should include occupational health (OH) input for this reason.

ACTION – HPS to consider a review of existing guidance to ensure criteria for excluding staff and their subsequent return to work is clearly stated.

ACTION – Boards to consider the impact of staff exclusion in response planning, including Occupational Health input.

Delegates from areas outside of the central belt felt that a key priority in the early stages of a response would be the identification of equipment and personnel that may need to be transferred to the affected location. More widely, it was felt that there was a lack of understanding of nationwide resource capacity for handling a large outbreak. For example, it was not widely understood that certain Boards had specialist facilities and personnel that could be called upon in the event of an emergency. In the early stages of an outbreak of this kind, it would be important to develop an understanding of this resource picture.

ACTION – HPS to include a register of Scotland's specialist facilities in guidance.

ACTION – Boards to consider local care pathways in response planning.

It was recognised that the availability and use of Personal Protective Equipment (PPE) would be a key consideration in the early stages of the outbreak. Issues around PPE are not unique to a MERS-CoV outbreak but on the basis of the plenary discussion would include fit testing, consistency, messaging, availability of equipment and procurement. The profile of PPE within the day's discussion underlined the need for substantive progress on PPE use within Scotland.

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ACTION – Boards should continue to promote the standard PPE requirements laid out in the National Infection Prevention Control Manual². SG/HPS will address PPE requirements for primary and secondary care, setting out a clear policy for Scotland in relation to high consequence infectious diseases (HCIDs) through the newly formed sub group of the Health Protection Preparedness Group on HCIDs. The outcome of this work will be shared with Boards through the Scottish Health Protection Network (SHPN).

Communications

There was broad agreement that there should be no proactive public messaging prior to a confirmed diagnosis. However reactive media lines should be agreed as soon as possible to enable comms leads to respond to queries. The communications strategy should prioritise the avoidance of panic and tackling misinformation if necessary. Once an IMT is stood up, all communications should be coordinated centrally by HPS.

It was noted that NHS 24 can play an invaluable comms role throughout an outbreak. NHS 24 should be engaged in the early stages to prepare scripts for call handlers and be ready to stand up a dedicated helpline.

ACTION – Boards/HPS to ensure that liaison with NHS 24 is included in comms planning.

Other

There was some disagreement around roles and responsibilities of the various agencies involved in a response. There was a clear desire for some aspects of the response to be coordinated nationally/centrally e.g. mutual aid, communications etc. Some clarity on this would be welcomed, for example clarification on when leadership of an incident shifts from a local response led by the local Board to a national response led by HPS.

ACTION – HPS to be asked to consider producing a roles and responsibilities document.

HPS has produced The 'HPS & NHS boards Public Health Response Plan for Possible, Presumptive and Confirmed Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Cases' document which is available to Boards through the Scottish Health Protection Information Resource website. This document is classified as Restricted and circulation is currently restricted to Public Health, Health Protection and Infection Control Teams.

ACTION – HPS to review Scottish and PHE MERS-CoV guidance and consider whether all differences between them are necessary and appropriate & ensure that the 'HPS & NHS boards Public Health Response Plan for Possible, Presumptive and Confirmed Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Cases' guidance is available to all relevant stakeholders.

² <http://www.nipcm.hps.scot.nhs.uk/chapter-2-transmission-based-precautions-tbps/>

Scenario Two (Inject)

16-26 January

The results from Patient A have come back positive from the local testing laboratory for MERS-CoV and her condition deteriorates over the next few days. Contact tracing has established a further 20 possible cases in the local area, 5 possible cases in the neighbouring Board and several in England.

Patient A's elderly father – who suffers from a liver condition - (Patient B) normally lives with Patient A but has gone to his Son's (Patient C) house because patient A is in hospital. Patient B is now also exhibiting flu symptoms and will need to be tested. The family live in a rural part of the Board area and Patient B is unable to travel unaided so will need to be transported by ambulance. Access to the family home is difficult due to the remote location and wintry weather conditions. When the ambulance crew arrive and begin treating Patient B, Patient C reports that he has vomited and feels generally unwell.

A member of the A+E medical staff (Patient D) that treated Patient A on admission is diagnosed with MERS-CoV and admitted to ICU in a critical condition. It is reported that a triage nurse (Patient E) that came into contact with Patient A in the other A+E department has reported for work suffering from flu like symptoms.

Following Patient C's admission, national media starts carrying reports of an A+E worker coming down with a mystery illness that is spreading throughout the hospital and the Board begins to receive queries from worried members of the public and the local MSP.

Scenario Two Discussion

Priorities

There was agreement that, by this point, case and contact definitions should be established and widely shared. Coordination of this should be the responsibility of the IMT. There should be clear advice for primary care practitioners which should be communicated effectively. Again, this may require national coordination and should be overseen by the IMT. Social care colleagues should be included in Board command and control structures. There will be escalating resource requirements for contact tracing and follow up. Board plans will need to have considered this in detail and – as in the previous discussion - national coordination may be required to organise surge capacity and mutual aid.

ACTION – Boards to ensure resource impact of extensive contact tracing has been considered.

A lack of clarity around community testing for HCIDs such as MERS-CoV and VHF was identified. Guidance is needed on who can carry out testing and when; and on process e.g. PPE requirements and transportation of samples.

ACTION – HPS to consider the feasibility of community sampling for HCIDs.

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Communications

It was agreed that there should now be proactive messaging, including statements from Health Boards and from national bodies, including Scottish Government where necessary. The IMT should be responsible for coordinating public messaging.

The IMT should decide whether an NHS 24 helpline and website should be established and all public messaging should signpost to these resources. NHS 24 will have a key role to play in managing the worried well and in reducing the numbers of members of the public reporting to hospitals and GP surgeries with symptoms.

Scenario Three (Inject)

27 January Onwards

12 days from the initial presentation, the number of confirmed and suspected cases has increased significantly with confirmed secondary and tertiary transmission. Patient B was admitted to hospital on 19 January and MERS-CoV was confirmed following testing. His condition swiftly deteriorated and he died on 20 January.

There are now 40 confirmed cases, 15 of which are in your Board area and 10 are in Intensive Care. Of the 10, 8 are considered likely to die within 3-4 days. The number of suspected and confirmed cases continues to increase but there is no more hospital capacity in your Board area and neighbouring boards are already at or close to capacity due to the ongoing outbreak and the wider pressures of flu season.

Most cases are expected to require hospital treatment for up to 6 months and will spend a significant amount of that time in critical care. A significant number will require dialysis. Contact tracing is ongoing.

Scenario Three Discussion

Priorities

Similarly to the previous discussion, it was noted that there would now be a pressing need to consider stopping all normal, non-necessary operations and sharing specialised resources across boards. This will require national coordination. Consideration should be given to redeploying non-essential staff from other areas to assist.

In order to limit the spread of infection measures should be taken – coordinated nationally if necessary – to limit attendance at healthcare facilities e.g. from staff, patients and visitors. Consideration should also be given to whether to cohort those affected within one area of the hospital.

Specific advice relating to the care of the deceased in relation to MERS-CoV is contained in 'Infection Control Advice: Severe Respiratory Illness from novel of emerging pathogens e.g. Middle East Respiratory Syndrome Coronavirus (MERS-CoV) and Avian influenza (e.g. A/H7N9, A/H5N1)'³

There was recognition of the burden that may be placed on mortuaries and burial and cremation facilities. The Scottish Government, in collaboration with the National Mass Fatalities Group is leading on work to strengthen resilience in relation to mass fatalities. National guidance on dealing with mass fatalities is contained within 'Preparing Scotland: Guidance on Dealing with Mass Fatalities in Scotland'⁴.

³ <https://www.hps.scot.nhs.uk/resourcedocument.aspx?id=2050>

⁴ <https://www.readyscotland.org/media/1417/preparing-scotland-mass-fatalities-core-document-25-october-2017-v3.pdf>

Final Plenary

In addition to discussion of the scenarios presented, each table was asked to record three key observations or learning points from the day as a whole. Many of these have been discussed above but there was clear and repeated emphasis on the need for clear command and control structures, roles and responsibilities and the need to resolve the PPE issue discussed elsewhere.

It was noted that awareness of infection control procedures should be an ongoing priority for all staff and that consistent messaging, both internally and public facing is crucial.

There was some discussion on how Boards manage resource capacity and how accessing additional capacity is handled. Capacity and resilience should be considered at each meeting of the IMT and where necessary concerns should be escalated as soon as possible. The Scottish Government noted that it would work closely with Boards to ensure that any response was appropriately resourced, for example, through means such as mutual aid from other Boards.

ACTION – SG to flag discussions regarding additional capacity to SG Resilience Unit for consideration.

Differences were identified between the PHE guidance and the current Scottish approach. An effort should be made to deconflict guidance where appropriate, while acknowledging that there may be good reasons for differences in some cases.

ACTION – HPS to review Scottish and PHE MERS-CoV guidance and consider whether all differences between them are necessary and appropriate & ensure that the ‘HPS & NHS boards Public Health Response Plan for Possible, Presumptive and Confirmed Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Cases’ guidance is available to all relevant stakeholders.

Whilst the event was well attended, not all Boards were able to attend and attendance from some Boards was limited. It was agreed that there would be value in repeating the exercise locally to allow Boards to explore local issues in more detail.

ACTION – SG to share materials and support Boards in running their own exercises.

Conclusions

Exercise Iris was well received by the participants who engaged positively and constructively in support of the aims and objectives of the day.

The exercise identified 14 actions across a broad range of themes. Despite the breadth of discussion, there were no great surprises in the issues identified as priorities. In the event of a large scale crisis, Boards will appreciate strong, national coordination and clear guidance. Scottish Government and Health Protection Scotland should endeavour to ensure that relevant guidance is up to date and communicated effectively and that processes are in place for standing up and accessing national coordination structures and that these processes are widely agreed and understood. Amongst frontline staff there is unease at the lack of clarity on PPE availability, training and testing. This is a clear gap in Scotland's preparedness for MERS-CoV and other outbreaks and needs to be addressed as soon as possible.

Participants also commented on the welcome opportunity Exercise Iris presented to network with colleagues in other Boards and organisations to discuss the challenges presented by MERS-CoV. Many commented on the similarities with ongoing work on pandemic flu planning. It will be important to deconflict and avoid duplication of effort in taking forward work on MERS-CoV.

Annex A – Summary of Actions

- 1. HPS to include guidance on what would trigger a PAG in MERS-CoV guidance**
- 2. HPS to consider a review of existing guidance to ensure criteria for excluding staff and their subsequent return to work is clearly stated**
- 3. Boards to consider the impact of staff exclusion in response planning, including Occupational Health input**
- 4. HPS to include a register of Scotland's specialist facilities in guidance**
- 5. Boards to consider local care pathways in response planning**
- 6. Boards to promote the standard PPE requirements laid out in the National Infection Prevention Control Manual. SG/HPS will address PPE requirements for primary and secondary care, setting out a clear policy for Scotland in relation to HCIDs through the newly formed sub group of the Health Protection Preparedness Group on HCIDs. The outcome of this work will be shared with Boards through the Scottish Health Protection Network (SHPN)**
- 7. Boards/HPS to ensure that liaison with NHS 24 is included in comms planning**
- 8. HPS to be asked to consider producing a roles and responsibilities document**
- 9. HPS to review Scottish and PHE MERS-CoV guidance and consider whether all differences between them are necessary and appropriate ensure that the 'HPS & NHS boards Public Health Response Plan for Possible, Presumptive and Confirmed Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Cases' guidance is available to all relevant stakeholders**
- 10. Boards to ensure resource impact of extensive contact tracing has been considered**
- 11. HPS to consider the feasibility of community sampling for HCIDs.**
- 12. SG to flag concerns regarding additional capacity to SG Resilience Unit for consideration**
- 13. SG to share materials and support Boards in running their own exercises**