Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
SECONDARY CARE ALGORITHM – Version 19 (based on PHE case algorithm v31) – February 2019

For a **POSSIBLE CASE,** patients must fulfil the conditions 1, 2 OR 3.

1 Any person with severe acute respiratory infection requiring admission to hospital with symptoms of fever (≥ 38°C) or history of fever, and cough **plus** evidence of pulmonary parenchymal disease (e.g. clinical or radiological evidence of pneumonia or Acute Respiratory Distress Syndrome (ARDS))[1]

AND AT LEAST ONE OF:

- history of travel to, or residence in an area[2] where infection with MERS-CoV could have been acquired in the 14 days before symptom onset[3]
- close contact[4] during the 14 days before onset of illness with a symptomatic confirmed case of MERS-CoV infection
- person is a healthcare worker based in ICU caring for patients with severe acute respiratory infection, regardless of history of travel or use of PPE[5]
- associated with a cluster of two or more epidemiologically linked cases requiring ICU admission within a two week period, regardless of history of travel

2 Acute influenza-like-illness symptoms (ILI), **plus** contact with camels, camel environments or consumption of camel products (e.g raw camel milk, camel urine) **OR** contact with a hospital, in an affected country[2] in the 14 days prior to onset.

ILI is defined as sudden onset of respiratory infection with measured fever of ≥38°C and cough

3 Acute respiratory illness (ARI) plus contact with a confirmed case of MERS-CoV in the 14 days prior to onset.

ARI is defined as sudden onset of respiratory infection with at least of one of : shortness of breath, cough or sore throat.

Yes → **Does patient fulfil case definitions?** → No → Unlikely to be MERS-CoV, treat, investigate and review as clinically indicated.

- Clinical risk assessment to be undertaken in conjunction with Health Protection Team (HPT) and Infectious Disease Consultant (ID). Discuss case with Infection Control Team (ICT) [5], ensure that staff attending to the patient is wearing PPE[5] and that patient is managed in accordance with IC guidance for MERS-CoV[5].
- HPT informs HPS [6].
- If a cluster is suspected, HPT establishes if there is an epidemiological link between cases.
- HPT ensures that **initial samples**[7] are collected and sent to West of Scotland Specialist Virology Centre (WoSSVC) (or Royal Infirmary of Edinburgh (RIE) for Lothian/Borders/Fife patients) - lab guidance [8]. The lab should be contacted prior sending the samples.
- HPT collects possible case dataset (***Form 1***) [9] and emails HPS [6] - "contact line list" is not required until the case is WoSSVC/RIE MERS-CoV lab test positive.

Yes → **WoSSVC/RIE UpE lab test positive for MERS-CoV** → No → Laboratory informs HPT/HPS. Treat, investigate and review as clinically indicated.

- Ensure HPS [6], HPT, ICT, ID and clinicians are notified. Convene an Incident Management Team as soon as possible.
- Ensure that staff attending to the patient is wearing PPE[5] and that patient is managed in accordance with IC guidance for MERS-CoV[5].
- HPT identifies and collates list of contacts[4] using contact line list (***Form 1***) [9] – email to HPS [6].
- HPT follow up close contacts[4] using "Close Contact Algorithm" [8]. Email list of close contacts to HPS.
- WoSSVC/RIE sends residual untreated aliquots **URGENTLY** to Respiratory Virus Unit (RVU) PHE Colindale for confirmatory testing - lab guidance [8].

Yes → **Reference lab test positive for MERS-CoV** → No → Laboratory informs HPT/HPS. Treat, investigate and review as clinically indicated.

Baseline – following reference lab confirmatory test:

- Ensure HPS [6], HPT, ICT, ID and clinicians are notified.
- Ensure that staff attending to the patient is wearing PPE[5] and that patient is managed in accordance with IC guidance for MERS-CoV[5].
- HPT ensures case **baseline samples**[10] are collected and sent to RVU PHE Colindale - lab guidance [8].
- HPT completes initial case form (***Form 1a***) [9] – email to HPS [6].

Follow up – 14-21 days after reference lab confirmatory test:

- Ensure that staff attending to the patient is wearing PPE[5] and that patient is managed in accordance with IC guidance for MERS-CoV[5].
- HPT completes case follow up form (***Form 1b***) [9] **14-21 days after Form 1a completed** – email to HPS [6].
- HPT ensures sequential **follow up samples** are taken after discussion with the incident control team and sent to RVU PHE Colindale - lab guidance [8].

CONSIDER CO-INFECTIONS: Any patient meeting the possible case definition should be tested for MERS-CoV regardless of test results for other respiratory pathogens

1 - **Clinicians** should additionally be alert to the possibility of atypical presentations in patients who are immunocompromised, atypical presentations may include absence of fever.

2 - MERS-CoV area: Bahrain, Jordan, Iraq, Iran, Kingdom of Saudi Arabia, Kuwait, Oman, Qatar, United Arab Emirates and Yemen – see map and UK Risk Assessment

3 – Please consider testing for Legionnaires' disease if indicated

4. Contact definitions (from date of illness onset in index case and throughout their symptomatic period): A) Health and social care workers: workers who provided direct clinical or personal care or examination of a symptomatic confirmed case or was within 2m of a symptomatic case or had direct contact with body fluids from a symptomatic case, for any length of time. B) Household or close contact: any person who has had prolonged face-to-face contact (>15 minutes) with a symptomatic confirmed case any time during the illness after onset in a household or other closed setting.

5 – **In secondary care**, for all patient contact, Personal Protective Equipment (PPE) includes correctly fitted filtering face piece respirator (FFP3), long sleeved, fluid-resistant disposable gown, gloves and eye protection. For guidance on PPE and infection control precautions, please refer to the National Infection Prevention and Control Manual and Infection control guidance for MERS-CoV.

6–**HPT to inform HPS** by phone: 0141 300 1100 (day) or 0141 211 3600 (out of hours) and e-mail (NSS.HPSCoronavirus@nhs.net).

7 – **Initial samples**: an upper respiratory tract sample (combined nose and throat viral swabs, or nasopharyngeal aspirate AND if obtainable, a lower respiratory tract sample (sputum, or an endotracheal tube aspirate if intubated).

8 – **For more information** on lab guidance and other algorithms see: HPS algorithms for MERS-CoV

9 - **Forms** will be provided to the HPT by HPS on being alerted to a possible case.

10- – Baseline samples: upper and lower respiratory tract samples, serum & EDTA blood, and in addition, for hospitalised patients, urine & faeces - lab guidance[8].