

# Rapid advice note on home care for patients with Middle East respiratory syndrome coronavirus (MERS-CoV) infection presenting with mild symptoms and management of contacts

8 August 2013

## Contents

Preamble ..... 1

Background ..... 1

Home care for patients with MERS-CoV infection presenting with mild symptoms..... 1

Management of contacts..... 4

Acknowledgements..... 5

References ..... 6



## Preamble

WHO has developed this rapid advice note to meet the urgent need for recommendations on the safe home care for patients with Middle East respiratory syndrome coronavirus (MERS-CoV) infection presenting with mild symptoms and public health measures related to management of asymptomatic contacts. The document is informed by evidence-based guidelines published by WHO, including the *Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care (1)*, and review of the current evidence on MERS-CoV infection. The recommendations have been reviewed by members of the WHO Global Infection Prevention and Control Network (GIPCN) and other experts (see Acknowledgements for names and affiliations).

These recommendations reflect current understanding of MERS-CoV infection related to infection prevention and control (IPC) and public health measures. Specific WHO guidance on clinical management, infection control in healthcare, laboratory diagnostics, and surveillance has already been published (2). This rapid advice is intended for public health and infection prevention and control (IPC) professionals, healthcare managers, and healthcare workers. WHO continues to monitor the situation closely for any new data that may warrant revision of the contents of this rapid advice note or other documents (2). Should any factors change, WHO will issue a further update. Otherwise, this document will expire 12 months after the date of publication. Links are given here to additional sources and evidence. If you have further questions, send an e-mail message to [outbreak@who.int](mailto:outbreak@who.int), with “MERS home care question” in the subject line.

## Background

To date, several clusters<sup>1</sup> of human infection with MERS-CoV have been recognized (3-9). The investigation into these clusters suggests that human-to-human transmission of the virus seems to have occurred mostly in the circumstances of close contact<sup>1</sup> with severely ill patients in healthcare or household settings<sup>2</sup>. Evidence of the virus transmission from non-severe cases is limited, and no evidence of transmission from asymptomatic cases has been reported so far, but the role of such cases in the transmission of the virus remains uncertain(11).

## Home care for patients with MERS-CoV infection presenting with mild symptoms

In view of the currently limited knowledge of the disease and its transmission, it may be prudent to hospitalize confirmed and probable (2) symptomatic cases of the MERS-CoV

---

<sup>1</sup> Definition is available in WHO *Interim surveillance recommendations for human infection with novel coronavirus (2)*

<sup>2</sup> The Italian cluster reported in June 2013 (10) represents the first time that a co-worker has become infected in a work setting other than a healthcare facility

infection. This would ensure both safety and quality of healthcare and public health security. However, for several possible reasons, including situations when inpatient care is unavailable or unsafe, or in a case of informed refusal of hospitalization, alternative settings<sup>3</sup> for health care provision may need to be considered.

Depending on the local circumstances and resource availability, symptomatic contacts with milder symptoms<sup>4</sup> and without underlying conditions that put the patient at increased risk of developing complications, may be cared for in the home environment. The same principle of care in the home environment applies to symptomatic patients not requiring or no longer requiring hospitalization. This decision requires careful clinical judgment and should be informed by assessing the safety of the patient's home environment<sup>5</sup>.

Because of the possibility of rapid progression to the acute respiratory distress syndrome (ARDS) and other severe, life-threatening complications, even otherwise healthy, symptomatic contacts or probable cases should be placed under close medical observation when receiving care at home. The patients and the household members should be educated on personal hygiene and basic infection prevention and control measures, and they should adhere to the following recommendations:

- Limit contact with the ill person as much as possible<sup>6</sup>. The household members should stay in a different room or, if that is not possible, maintain a distance of at least one metre from the ill person (e.g. sleep in a separate bed).
- Ensure that anyone who is at increased risk of severe disease does not care for the ill person or come into close contact with the ill person. The current groups considered at increased risk for the MERS-CoV infection<sup>7</sup> include those with chronic heart, lung or kidney conditions; diabetes; immunosuppression; blood disease; and older adults. If contact with the ill person cannot be avoided by those with an increased risk of severe disease, alternative housing should be considered.
- Perform hand hygiene (12) following all contact with the ill person or his/her immediate environment. Hand hygiene should also be performed before and after preparing food, before eating, after using the toilet, and whenever hands look dirty. Perform hand hygiene

---

<sup>3</sup> These may include home settings and community isolation facilities. The latter are not covered in this document.

<sup>4</sup> Low-grade fever, cough, malaise, rhinorrhea, sore throat without shortness of breath or difficulty in breathing, without increased respiratory secretion, i.e. sputum or hemoptysis, any gastro-intestinal symptoms such as nausea, vomiting, and/or diarrhoea.

<sup>5</sup> A sample checklist is available on page 60 of the WHO interim guidelines *Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care (1)*

<sup>6</sup> An exception may be considered for a breastfeeding mother. Considering the benefits of breastfeeding and insignificant role of the breast milk in transmission of other respiratory viruses, the mother could continue breastfeeding. The mother should wear a medical mask when she is near her baby and perform careful hand hygiene before close contact with the baby. She would need also to apply the other hygienic measures described in this document.

<sup>7</sup> Currently there is no evidence to suggest increased risk for the MERS-CoV infection for pregnant women, but it may be prudent to prevent them from contact with the ill person.

using soap and water. If hands are not visibly soiled, alcohol-based hand rub can be used. Assistance for the ill person to perform regular hand hygiene may be provided as needed. Paper towels to dry hands are desirable; if they are not available, use dedicated cloth towels and replace them when they become wet.

- Respiratory hygiene should be practiced by all, especially the ill person. Respiratory hygiene refers to covering the mouth and nose during coughing or sneezing using medical masks, cloth masks, tissues or flexed elbow, followed by hand hygiene.
- Discard materials used to cover the mouth or nose, or clean them appropriately after use (e.g. wash handkerchiefs using regular soap or detergent and water).
- The caregiver should wear a medical mask fitted tightly to the face when in the same room with the ill person. Masks should not be touched or handled during use. If the mask gets wet or dirty with secretions, it must be changed immediately. Discard the mask after use and perform hand hygiene after removal of the mask.
- Ensure that shared spaces (e.g. kitchen, bathroom) and the ill person's room are well ventilated (e.g. keep windows open).
- Avoid direct contact with body fluids, particularly oral or respiratory secretions and stool. Use disposable gloves to provide oral or respiratory care and when handling stool and urine, if possible. Perform hand hygiene after removing gloves.
- Gloves, tissues, masks, and other waste generated by the ill person or in the care of the ill person should be bagged (placed in a lined container in the ill person's room) before disposal with other household waste.<sup>8</sup>
- Avoid other types of exposure to the ill person or contaminated items in the immediate environment of the ill person; for example, avoid sharing eating utensils, drinks, towels, washcloths or bed linen. Eating utensils and dishes should be cleaned with soap and water after use.
- Clean frequently touched surfaces such as bedside tables, bedframe, and other bedroom furniture daily with regular household cleaners or a diluted bleach<sup>9</sup> solution (1 part bleach to 99 parts water).
- Clean bathroom and toilet surfaces daily with regular household cleaners or a diluted bleach<sup>9</sup> solution (1 part bleach to 9 parts water).
- Clothes, bedclothes, bath and hand towels, etc., of the ill person can be cleaned using regular laundry soap and water, and dried thoroughly. Place contaminated linen into a laundry bag. Soiled laundry should not be shaken and direct contact of the skin and clothes with the contaminated materials from the ill person should be avoided.

---

<sup>8</sup> Countries may consider measures to ensure that the waste is disposed at a sanitary landfill, and not at an unmonitored open dump, wherever possible. Additional measures may be needed to prevent unhygienic re-use of gloves, masks, syringes and other items, and other hazards occurring from scavenging at waste disposal sites.

<sup>9</sup> Most household bleach solutions contain 5% sodium hypochlorite.

- Consider use of disposable gloves and protective clothing (e.g. plastic aprons) when cleaning or handling surfaces, clothing or linen soiled with body fluids. Hand hygiene should be performed after glove removal.
- The symptomatic person should remain at home until satisfactory resolution of the symptoms. The decision to remove the ill person from home observation should be made based on either clinical or laboratory findings or both.
- All household members should be considered contacts and their health should be monitored as described below.

## Management of contacts

In view of the current evidence of limited human-to-human transmission of MERS-CoV and, in particular, the lack of evidence that the disease is transmissible in the pre-symptomatic or early symptomatic stages, neither quarantine nor isolation of asymptomatic contacts seems necessary at this time.<sup>10</sup> Persons (including health care workers) who may have been exposed to individuals with confirmed or probable MERS-CoV infection, should be advised to monitor their health for 14 days from the last day of possible contact and seek immediate medical attention if they develop symptoms, particularly fever, respiratory symptoms such as coughing or shortness of breath, or diarrhoea.

A communication link with a health care provider should be available for the duration of the observation period. Health care personnel should be involved in reviewing the current health status of the contacts by phone and, ideally, by scheduled visits on a regular (e.g. daily) basis, performing specific diagnostic tests as necessary.

The healthcare provider should give advance instructions on where to seek care when a contact becomes ill, what should be the most appropriate mode of transportation, when and where to enter the designated health care facility, and what infection control precautions should be followed.

The receiving medical facility should be notified that a symptomatic contact will be coming to their facility. While traveling to seek care, the ill individual should wear a medical mask if available and tolerated. Public transportation to the health care facility should be avoided, if possible. If the ill contact is transported with a private vehicle, open the windows of the vehicle if possible. The ill contact should be advised to perform respiratory hygiene and stand or sit as far away from others as possible (at least 1 m), when in transit and when in the health care facility. Appropriate hand hygiene should be employed by the ill contact and caregivers. Any

---

<sup>10</sup> If asymptomatic contacts were tested and the virological tests proved to be positive, it may be prudent to encourage the asymptomatic cases to stay at home until tested negative. The same precautions as described above should be applied to asymptomatic MERS-CoV positive cases in home settings.

surfaces that become soiled with respiratory secretions or body fluids during transport should be cleaned with regular household cleaners or a diluted bleach solution, whichever is most appropriate.

## Acknowledgements

This document was developed in consultation with WHO Global Infection Prevention and Control Network and other international experts. WHO thanks the following individuals for providing review (in alphabetical order):

- Abdulla Assiri, Director General, Infection Control, Ministry of Health, Saudi Arabia
- Michael Bell, Deputy Director, Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, GA, USA
- Nan Cleator, National Practice Consultant, Practice Quality & Risk Team, Victorian Order of Nurses Canada and member of the Infection Prevention and Control Expert Working Group, Public Health Agency of Canada, Ottawa, Canada
- Barry Cookson, Division of Infection and Immunity, University College, London, United Kingdom
- John M Conly, Departments of Medicine, Microbiology, Immunology and Infectious Diseases, Calvin, Phoebe and Joan Snyder Institute for Chronic Diseases, Faculty of Medicine, University of Calgary, Calgary, Canada
- Katherine Defalco, Nurse Consultant, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada, Ottawa, Canada
- Brenda Dyck, Program Director, Infection Prevention and Control Program, Winnipeg Regional Health Authority, Manitoba, Canada and member of the Infection Prevention and Control Expert Working Group, Public Health Agency of Canada, Ottawa, Canada
- Joanne Embree, Head, Department of Medical Microbiology and Infectious Diseases; Professor, Department of Pediatrics and Child Health, Department of Medical Microbiology and Infectious Diseases, University of Manitoba, Manitoba, Canada and member of the Infection Prevention and Control Expert Working Group, Public Health Agency of Canada, Ottawa, Canada
- Elaine Furukawa, Director of Training, Infection Control, Ministry of Health, Saudi Arabia
- B. Lynn Johnston, Hospital Epidemiologist, Queen Elizabeth II Health Sciences Centre, Halifax, Nova Scotia and Chair of the Infection Prevention and Control Expert Working Group, Public Health Agency of Canada, Ottawa, Canada
- Jeffrey Hageman, Deputy Chief, Prevention and Response Branch, Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, GA, USA
- Bonnie Henry, Medical Director, CD Prevention and Control Services and Public Health Emergency Services, BC Centre for Disease Control and Associate Professor, School of Population and Public Health, University of British Columbia, Vancouver, Canada
- Benedikt Huttner, Infection Control Program and WHO Collaborating Center on Patient Safety, University of Geneva Hospitals and Faculty of Medicine, Geneva, Switzerland
- M Mushtuq Husain, Principal Scientific Officer & Head, Department of Medical Social Science, Institute of Epidemiology, Disease Control & Research (IEDCR), Dhaka, Bangladesh
- David T. Kuhar, Medical Officer, Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, GA, USA

- Anna Lubimova, Professor, North-Western State Medical University, St. Petersburg, Russian Federation
- Ziad A Memish, Deputy Minister for Public Health, Ministry of Health, Riyadh, Saudi Arabia
- Laurie O'Neil, Nurse Consultant, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada, Ottawa, Canada
- Maria Clara Padoveze, School of Nursing, University of São Paulo, Brazil
- Filomena Pietrangelo, Manager-Prevention Sector, Occupational Health and Safety, McGill University Health Centre, Quebec, Canada and member of the Infection Prevention and Control Expert Working Group, Public Health Agency of Canada, Ottawa, Canada
- Natalia Pshenichnaya, Professor, Rostov State Medical University, Rostov, Russian Federation
- Nandini Shetty, Consultant Microbiologist, Reference Microbiology Services, Colindale, Health Protection Agency, United Kingdom
- Jane Stafford, Consultant – Infection Prevention and Control, Hospital Services Branch, Department of Health, Government of New Brunswick, New Brunswick, Canada and member of the Infection Prevention and Control Expert Working Group, Public Health Agency of Canada, Ottawa, Canada
- Geoff Taylor, Medical Director, University of Alberta Hospital/Stollery Children's Hospital Infection Control Unit, Professor, Division of Infectious Diseases, University of Alberta, and member of the Infection Prevention and Control Expert Working Group, Public Health Agency of Canada, Ottawa, Canada
- Cathie Walker, Director of Health Protection, Elgin St. Thomas Health Unit, Ontario, Canada and member of the Infection Prevention and Control Expert Working Group, Public Health Agency of Canada, Ottawa, Canada
- Thomas Weaver, Director, Professional Practice, APIC and the Association for Professionals in Infection Control and Epidemiology
- Robert D. Weinman, National Medical Advisor, Public Service Occupational Health Program, Health Canada

## References

- 1 World Health Organization. *Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care : WHO interim guidelines*. Geneva, World Health Organization, 2007 ([http://whqlibdoc.who.int/hq/2007/WHO\\_CDS\\_EPR\\_2007.6\\_eng.pdf](http://whqlibdoc.who.int/hq/2007/WHO_CDS_EPR_2007.6_eng.pdf)).
- 2 World Health Organization. *Coronavirus infection*. ([http://www.who.int/csr/disease/coronavirus\\_infections/en/index.html](http://www.who.int/csr/disease/coronavirus_infections/en/index.html)).
- 3 Memish ZA, Zumla AI, Al-Hakeem RF et al. Family cluster of Middle East respiratory syndrome coronavirus infections. *N Engl J Med*, 2013, 368(26):2487-2494 (<http://www.ncbi.nlm.nih.gov/pubmed/23718156>).
- 4 Mailles A, Blanckaert K, Chaud P et al. First cases of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) infections in France, investigations and implications for the prevention of human-to-human transmission, France, May 2013. *Euro Surveill*, 2013, 18(24) (<http://www.ncbi.nlm.nih.gov/pubmed/23787161>).
- 5 Hijawi B, Abdallat M, Sayaydeh A et al. Novel coronavirus infections in Jordan, April 2012: epidemiological findings from a retrospective investigation. *Eastern Mediterranean Health Journal*, 2013, 19(Supplement 1):S12-18 ([http://applications.emro.who.int/emhj/v19/Supp1/EMHJ\\_2013\\_19\\_Supp1\\_S12\\_S18.pdf](http://applications.emro.who.int/emhj/v19/Supp1/EMHJ_2013_19_Supp1_S12_S18.pdf)).

- 6 The Health Protection Agency (HPA) UK Novel Coronavirus Investigation Team. Evidence of person-to-person transmission within a family cluster of novel coronavirus infections, United Kingdom, February 2013. *Euro Surveill*, 2013, 18(11):20427 (<http://www.ncbi.nlm.nih.gov/pubmed/23517868>).
- 7 Guery B, Poissy J, el Mansouf L et al. Clinical features and viral diagnosis of two cases of infection with Middle East Respiratory Syndrome coronavirus: a report of nosocomial transmission. *Lancet*, 2013, 381(9885):2265-2272 (<http://www.ncbi.nlm.nih.gov/pubmed/23727167>).
- 8 Assiri A, McGeer A, Perl TM et al. Hospital Outbreak of Middle East Respiratory Syndrome Coronavirus. *N Engl J Med*, 2013, (<http://www.ncbi.nlm.nih.gov/pubmed/23782161>).
- 9 Omrani AS, Matin MA, Haddad Q et al. A family cluster of Middle East Respiratory Syndrome Coronavirus infections related to a likely unrecognized asymptomatic or mild case. *International Journal of Infectious Diseases*, (2013) (<http://www.sciencedirect.com/science/article/pii/S1201971213002257>).
- 10 World Health Organization. *MERS-CoV summary and literature update – as of 20 June 2013*. WHO, 2013 ([http://www.who.int/csr/disease/coronavirus\\_infections/update\\_20130620/en/index.html](http://www.who.int/csr/disease/coronavirus_infections/update_20130620/en/index.html)).
- 11 World Health Organization. *MERS-CoV summary and literature update – as of 09 July 2013*. WHO, 2013 ([http://www.who.int/csr/disease/coronavirus\\_infections/update\\_20130620/en/index.html](http://www.who.int/csr/disease/coronavirus_infections/update_20130620/en/index.html)).
- 12 World Health Organization., WHO Patient Safety. *WHO guidelines on hand hygiene in health care*. Geneva, World Health Organization, 2009 ([http://whqlibdoc.who.int/publications/2009/9789241597906\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf)).