



MINISTRY OF HEALTH
SINGAPORE

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16 April 2013

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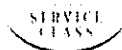
**MOH CIRCULAR 10/2013
INTERIM BIOSAFETY ADVISORY FOR HANDLING AND
PROCESSING SAMPLES ASSOCIATED WITH NOVEL
CORONAVIRUS AND INFLUENZA A SUBTYPE H7 VIRUS**

Two new viruses associated with severe morbidity and mortality had recently been identified.

2 First, the novel coronavirus (nCoV), was first identified from a patient in Saudi Arabia in Sep 2012. Other cases were subsequently reported in Saudi Arabia and Jordan. The last case was reported to the World Health Organization (WHO) on 26 Mar 2013, involving a UK patient with travel history to Saudi Arabia.

3 Second, the influenza A (H7N9) virus, has caused human infections in China since Feb 2013. As of 15 Apr 2013, the number of laboratory confirmed cases caused by this virus reported to WHO has reached 63 with 14 deaths.

4 At this time, although there is little known about the pathogenicity and transmission dynamics of the nCoV and influenza A (H7N9) virus, there is no evidence of ongoing human-to-human transmission.



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5 However, laboratories may be exposed to materials and samples which could contain the influenza A (H7N9) virus and nCoV in their day-to-day operations.


6 Until more information becomes available on the transmission and pathogenicity, the necessary precautions have to be taken when collecting, handling and disposing samples that contain or suspected to contain such viruses. This will ensure that Singapore can safely establish diagnostic capabilities to detect and identify diseases due to influenza A (H7N9) virus and nCoV and hence help to augment our public health response to such infections.

7 The Ministry of Health has prepared an interim Biosafety Advisory (Annex A) to protect personnel in transporting, processing or performing diagnostic testing or research work on samples suspected or confirmed to contain nCoV or Influenza A Subtype H7 virus.

8 Laboratories performing tests on such samples may be subjected to inspection to ensure that the necessary biosafety practices are appropriate and that the necessary precautions are in place.

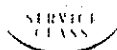
9 Please ensure that the contents of this circular are brought to the attention of all relevant staff in your institution.

10 For clarification, please contact the officers from the MOH Biosafety Team (63259205 or 63258459).



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INTERIM BIOSAFETY ADVISORY, April 2013 Novel Coronavirus and Influenza A Subtype H7 Virus

This advisory is for laboratory workers who may be transporting, processing and performing diagnostic testing or engaged in research work on samples which contain or suspected to contain novel coronavirus (nCoV) or influenza A (H7N9) virus

I. Packaging and Transportation of Samples:

Transport within Singapore

1. Clinical samples. The primary and/or the secondary container must be unbreakable and leak proof. The external packaging must be labelled with the biohazard logo. During transportation, the samples shall be placed in an upright position, whenever possible. Public transport is strictly prohibited.
2. Virus isolates or cultures confirmed to contain the virus shall be packaged and transported according to the Biological Agents and Toxins (Transportation) Regulations [<http://www.biosafety.moh.gov.sg>].
3. Necessary precautions would also need to be taken when other hazardous materials (such as dry ice or liquid nitrogen) are used for packaging of the clinical samples.
4. Shipper¹ must be trained and are liable to ensure all items are properly and safely packaged.

International Air Shipment

For international air shipment, the requirements of the International Air Transport Associations (IATA) shall be followed –

- (a) Clinical samples: Ship as Category B, UN3373 biological substance.
- (b) Viral cultures: Ship as Category A, UN2814 infectious substances affecting human.

II. Processing and Laboratory Testing of Samples:

The following precautions are to be taken when handlings and processing samples which contain or suspected to contain such viruses:

¹ The person who prepared the packaging of the samples to be transferred or exported.

Procedures	Precautional Requirements
<p>Serology assay (e.g. antigen or antibody detection)</p> <p>or</p> <p>Molecular assay (e.g. PCR or sequencing)</p> <p>or</p> <p>Pathological examination and processing of formalin-fixed or otherwise inactivated tissues</p> <p>(Note: If the above procedures are carried out for non-diagnostic purposes, the Biosafety Team of MOH should be consulted before commencement of the procedures)</p>	<p>Only to be carried out in Biosafety Level-2 (BSL-2) Laboratory Plus</p> <ul style="list-style-type: none"> • Standard personal protective clothing includes laboratory coat/gown and gloves; and mucosal and respiratory protection (e.g. eye protection and N95 respirator or equivalent), if indicated by risk assessment • Procedures or manipulation involving potentially infectious materials (e.g., handling of clinical samples) and/or generate aerosols are to be carried out in certified Class II Biological Safety Cabinet (BSC) • Centrifugation of samples should be carried out using sealed centrifuge cups or rotors that are unloaded in a Class II BSC • Secondary leak-proof containers must be used to transport or store potentially infectious samples within the laboratory • Personnel handling such samples or carrying out such procedures must have demonstrated proficiency in microbiological practices and techniques • Emergency response procedures are in place and staff are familiar with the procedures
<p>Virus culture and manipulation (e.g., virus isolation, virus neutralisation assay, packaging of positive cultures)</p>	<p>Can only be carried out in a Certified Biosafety Level-3 (BSL-3) Laboratory with BSL-3 practices</p>
<p>Laboratory procedures other than the ones listed above</p>	<p>Perform risk assessment and notify the Biosafety Team of MOH before commencement of any work</p>

III Disinfectants

The following disinfectants that are effective on Severe Acute Respiratory Syndrome (SARS) coronavirus² and influenza A Subtype H7 virus³ should be used:

Virus	Recommended Disinfectant
Novel Coronavirus	<ul style="list-style-type: none">• Sodium hypochlorite• Ice-cold acetone• Ice-cold acetone/methanol mixture (40:60)• Ethanol (70%)• Paraformaldehyde• Glutaraldehyde
Influenza A Subtype H7 virus	<ul style="list-style-type: none">• Sodium hypochlorite• Ethanol (70%)• Glutaraldehyde• Formalin• Iodine compounds

All disinfectants should be used at the correct concentration with an appropriate contact time. Work surfaces to be decontaminated immediately after work.

IV Waste Management

Follow procedure in accordance to requirements laid down by the relevant local authorities.

V Occupational Health

All laboratory personnel should practice self-monitoring for fever or any other symptoms. Personnel who present with respiratory infection and/or has reason to believe that they were exposed to the virus should report immediately to their supervisor or the medical authorities so that they can be given appropriate medical advice or management.

Any adverse incidents or accidents involving potential or actual exposure to the virus should be reported to the supervisor for evaluation and advice. The Biosafety Team of MOH must also be notified as soon as possible, within 24 hours.

² Public Health Agency of Canada Pathogen Safety Data Sheet for Severe Acute Respiratory Syndrome (SARS) Associated Coronavirus (<http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/sars-sras-eng.php>)

³ Public Health Agency of Canada Pathogen Safety Data Sheet for Influenza A Virus Subtypes H5, H7 and H9 (<http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/influenza-grippe-a-eng.php>)