



**MINISTRY OF HEALTH**  
SINGAPORE

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**MOH CIRCULAR 57/2009**  
**INTERIM BIOSAFETY GUIDELINES FOR LABORATORY WORKERS DIAGNOSING**  
**INFLUENZA H1N1-2009 AND EMERGING VIRAL INFECTIONS WITH UNKNOWN**  
**RISK**

An Interim Biosafety Guidelines to protect laboratory workers transporting, processing or performing diagnostic tests on clinical specimens or performing viral isolation from patients with suspected H1N1-2009<sup>1</sup> or any other emerging virus infection has been developed by the Ministry's Biosafety Legislation Branch.

2 A copy of the Guidelines is attached. It will be updated as more information on the characteristics of the H1N1-2009 becomes available.

3 Laboratories performing tests on such specimens may be subjected to inspection to ensure that biosafety practice is appropriate.

4 Please disseminate this circular to all laboratory staff in your institution.

5 For clarification, please contact Dr. Se Thoe Su Yun (6325-8459) or Dr. Suzette de Leon (6325-9205)

PROF K SATKU  
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cc. A/Prof Raymond Lin, Head, National Public Health Laboratory

<sup>1</sup> The virus is also technically termed as Influenza A/H1N1v (v for variant)



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## Interim Biosafety Guidelines for Laboratory Workers Diagnosing Influenza A(H1N1-2009)<sup>2</sup> and Emerging Viral Infections with Unknown Risk

27 May 2009

This guidance is for laboratory workers who may be transporting, processing or performing diagnostic testing on clinical specimens from patients with suspected H1N1-2009 or any other emerging influenza virus infection, or performing viral isolation.

Please note that these guidelines serve as interim recommendations and are subject to changes as more information becomes available.

### Packaging and Transporting

1. Transport within Singapore
  - Clinical specimens for diagnosis  
Triple packaging, label with biohazard logo and send to diagnostic lab in unbreakable, leaked proof container. No public transport is allowed
  - Samples or specimens confirmed to be positive for the virus, or isolate from live culture should be treated as a First Schedule Part I biological agent and follow the requirements stipulated in the Biological Agents and Toxins (Transportation) Regulations (<http://www.biosafety.moh.gov.sg/bioe/ui/pages/content/BATA%20Transportation%20regulation.pdf>)
2. International air shipment – Follow IATA Regulation
  - Clinical specimens - Send as UN3373 biological substances
  - Viral cultures – Send as UN2814 infectious substances affecting humans

### Diagnostic Test other than Viral Isolation

Diagnostic Assay		Biosafety Level	Biosafety Practices
Immunofluorescence Assay (for steps that involved infectious materials or samples)		BSL-2 Lab	BSL-3 practices
Molecular Testing (PCR)	Nucleic Acid Extraction	BSL-2 Lab	BSL-3 practices
	Amplification & Detection	BSL-2 Lab	BSL-2 practices

<sup>2</sup> The virus is also technically termed as Influenza A/H1N1v (v for variant)

**Notes:**

All lab personnel must be trained and competent in BSL-3 practices; and these (e.g. SOPs for lab techniques and safety; staff training, competency checklist for staffs, and etc) should be documented.

Some of the BSL-3 practices include the use of:

- Solid-front gown
- Gloves
- Shoes covers or dedicated shoes
- Eye protection (goggles or face shields)
- Fit-tested N95 respiratory protection
- Manipulation in certified biosafety cabinet
- Centrifugation using sealed centrifuge cups or rotors
- Unload specimens in a certified biosafety cabinet

**References**

- WHO Laboratory Biosafety Manual; and
- Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5<sup>th</sup> Edition

**Viral Isolation**

Virus isolation on clinical specimens from suspected cases of H1N1-2009 virus (or emerging viral infection with unknown risk) infection should be conducted in a BSL-3 Lab where available. Otherwise, the work should be carried out in a BSL-2 Lab with BSL-3 practices, and all staff must be trained and competent in BSL-3 practices.

**Appropriate Disinfectants**

- 70% Ethanol
- 5% Lysol
- 10% Bleach
- Any other disinfectant that is proven to be effective for the specific pathogen

**Waste Management**

Follow procedure outlined in a BSL-2 or BSL-3 laboratory

**Occupational Health**

All laboratory personnel should practice self monitoring for fever and any symptoms. Personnel who present with influenza-like illness should immediately report to their supervisor or the medical authorities so that they can be given appropriate medical advice, prophylaxis and/or treatment.

Any adverse incidents or accidents involving potential or actual exposure to the virus should immediately be reported to the supervisor for evaluation and advice. The Biosafety Legislative Branch of MOH should also be notified.

## **Other useful links**

- WHO website: <http://www.who.int/csr/resources/publications/swineflu/LaboratoryHumanspecimensinfluenza/en/index.html> and <http://www.who.int/csr/resources/publications/swineflu/Laboratorybioriskmanagement.pdf>
- CDC website: [http://www.cdc.gov/swineflu/guidelines\\_labworkers.htm](http://www.cdc.gov/swineflu/guidelines_labworkers.htm)
- Health Canada website: [www.phac-aspc.gc.ca/ols-bsl/banhsl-abnhgp-eng.php](http://www.phac-aspc.gc.ca/ols-bsl/banhsl-abnhgp-eng.php)