



Interim Guidance Regarding Influenza A(H1N1) for the Maritime Community

For Information – Dr Suresh Idnani Vice President - IMHA

The information is sourced from published research and recommendations (see references) and compiled by IMHA members. Information is edited and adapted to the maritime environment by Dr. Nebojša Nikolić, President of The International Maritime Health Association and Dr. med. Clara Schlaich MD, MPH, Head of Hamburg Port Health Center, Institute of Occupational and Maritime Health, WHO Collaborating Center for the Health of Seafarers.

Disclaimer: Please note that this information does not negate the seaman's responsibilities to notify the competent Port Health Authority and to ask for radio-medical advice or see a port doctor should they require medical assistance. The information contained here is for general reference only. The information contained in this report is time sensitive and accurate to the best of our knowledge at the time of production.

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1. Influenza A(H1N1) – An Overview

The novel influenza A (H1N1) virus (formerly called “swine flu”) is a new virus subtype of influenza that has not previously been identified in the world. Cases are now reported from different regions of the globe. The current situation regarding outbreaks of Influenza A H1N1 is evolving rapidly, and more countries are expected to be affected in the future. While the resulting illnesses from Influenza A H1N1 in Mexico have been severe in a substantial number of cases and deaths have occurred, most of the cases in the United States and other countries have been mild not even requiring hospitalization.

The World Health Organization has currently announced phase 5 of alert in *The WHO Global Influenza Preparedness Plan*, which is characterized by human-to-human spread of the virus into at least two countries in

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one WHO region. The declaration of Phase 5 is a strong signal that a pandemic is imminent and is thought to trigger the finalization of the organization, communication and implementation of the planned mitigation measures. The maritime industry is challenged to implement measures to protect the health of its employees and passengers, to maintain the safety of ship operation and to avoid the international spread of disease through shipping.

To our knowledge most cruise ship companies have developed detailed influenza pandemic preparedness plans, while the level of preparedness in cargo shipping is less advanced. Since it is known that the ship's isolated environment provides special risks for the transmission of respiratory diseases in general including influenza, and an outbreak may adversely affect the safe operation of ships, IMHA strongly recommends that shipping companies implement generic influenza pandemic plans beyond the current situation caused by novel Influenza A(H1N1).

IMHA heartily subscribes to the philosophy of being prepared. We believe that being prepared starts with being educated. Educated about the present state of risk, educated about the precautions one can take to reduce or minimize that risk and educated about the treatment options available. In the pages that follow we present a compilation of the current information on Influenza (A H1N1) as relevant to the Maritime environment. We encourage you to review the material provided here and to use it as a springboard for discussion within your company in order to develop a response plan that is appropriate for your needs and situation.

IMHA is continually monitoring the epidemiological situation and will provide information as it becomes available on its website at www.imha.net. More information on Influenza A (H1N1) and influenza pandemic preparedness in general is available at the websites of the World Health Organization <http://www.who.int/csr/disease/swineflu/en/index.html>.

Flu Terms Defined

Seasonal influenza (or common flu) is a viral respiratory illness that can be transmitted from person to person. Most people have some immunity, and an annual vaccine is available. Influenza epidemics occur yearly during autumn and winter in temperate regions. In some tropical countries, influenza viruses circulate throughout the year with one or two peaks during rainy seasons. Seasonal influenza is characterized by a sudden onset of high fever, cough (usually dry), headache, muscle and joint pain, severe malaise (feeling unwell), sore throat and runny nose. The time from infection to illness, known as the incubation period, is about two days.

Seasonal influenza spreads easily and can sweep through schools, nursing homes or businesses and towns. Studies have shown that respiratory infections are common in travellers on board cargo or passenger ships. A review of studies of seasonal influenza outbreaks on ships showed that attack rates may range between 1 and 42% in crew and passengers despite control measures such as active and passive case finding, antiviral prophylaxis and therapy, vaccination, isolation and disinfection.

The most effective way to prevent the disease or severe outcomes from the illness is vaccination. Since Influenza outbreaks are documented to result in substantial morbidity of crew and passengers and may have negative consequences on the ship's operation **yearly vaccination against seasonal influenza is recommended by IMHA as a routine preventative measure for seafarers.**

Antiviral drugs for influenza are available in some countries. They may be used for treatment and (post-exposure) prophylaxis. Some influenza viruses develop resistance to the antiviral medicines, limiting the effectiveness of treatment. WHO monitors antiviral susceptibility in the circulating influenza viruses.

Further information on seasonal influenza and symptomatic treatment on board ships is available in the WHO International Medical Guide for Ships 3rd edition pages 263-265, available on most international ships. See also "International travel and health" available on www.who.int/ith.

Pandemic influenza is a virulent human flu that causes a global outbreak (pandemic) of serious illness. Because there is little natural immunity, the disease can spread easily from person to person. A pandemic influenza will have consequences not only for public health but is expected to seriously interrupt travel and trade.

Although WHO has not yet announced a pandemic (phase 6 of alert in the WHO global influenza preparedness plan), a phase 5 alert has been announced. This means that a pandemic of Influenza A(H1N1) is imminent. See also www.who.int/csr.

Influenza A(H1N1) is a respiratory disease of pigs caused by a new virus subtype of influenza affecting humans, which contains genes from pig, bird and human influenza viruses, in a combination that has never been observed before anywhere in the world. Human-to-human transmission of novel Influenza A(H1N1) virus has occurred.

Symptoms of the Influenza A(H1N1) in humans are usually similar to regular human seasonal influenza, such as:

- fever
- respiratory symptoms such as cough or runny nose
- Sore throat
- Possibly other symptoms such as body aches, headache, chills, fatigue, vomiting or diarrhoea.

People become infected with the influenza virus A(H1N1) in the same way as for normal seasonal influenza. It spreads from person to person via droplets from an infected person who is coughing or sneezing, indirectly when droplets from the nose and throat settle on hands and other surfaces which are then touched by other people who touch their own mouth or nose. The virus is not transmitted by properly handled and cooked pork and pork products.

The Influenza A(H1N1) virus is susceptible to neuraminidase inhibitors (oseltamivir and zanamivir). Vaccinations for the novel Influenza virus are still in development. It is not known if the currently available seasonal influenza vaccine provides protection to the novel Influenza A(H1N1).

2. How a Pandemic Would Affect Maritime Travel and Trade

If an influenza pandemic occurs we expect:

- the pandemic virus to spread rapidly due to the high level of global traffic;
- vaccines, antiviral agents and antibiotics to treat secondary infections to be in short supply, with a period of several months before any vaccine becomes available;
- medical facilities to be overwhelmed with demands to care for both influenza and non-influenza patients;
- widespread illness to result in sudden and potentially significant shortages of personnel to provide essential community services.

Shipping companies and seafarers should be aware that National and Port Health Authorities may issue advice on specific protocols for notification and / or screening of disease for ships at local ports following the requirements of the International Health Regulations 2005 and national regulations. These need to be followed, where practical.

Most likely, Public Health Authorities will decide to designate medical facilities for isolation and treatment of affected patient and will establish rules and protocols for patient movement. Apart from restrictions on movement and on medication supplies, it is to be expected that the local healthcare systems **may well become over-burdened**, influencing the quality of treatment of disembarked seafarers. Proper repatriation measures need to be put in place promptly.

3. Recommendation to Ships Which May Travel to Areas Where There is Sustained Transmission of Influenza A(H1N1) Virus

How do shipping companies and captains receive information on areas where there is sustained transmission of Influenza A (H1N1) virus?

The WHO, the European Centers for Disease Control the US Centers for Disease Control (see references) and your government's public health authority websites will publish any travel advisories that may be issued for the country in question. One of these sources should be checked continuously by your company and information given to your fleet of ships.

Be aware that local authorities may be concerned with business continuity in their country and possibly understate the severity of the situation in order to reduce attention to the threat. As such, shipping companies should not rely solely on local governments for objective and accurate updates.

Public health and government agencies offer several levels of travel advisories based on the threat to travellers. For example the CDC classifies their advisories in an ascending order of danger or concern:

- I. In the News
- II. Outbreak Notice
- III. Travel Health Precautions: travel does not need to be postponed, but the travellers should follow some basic health and hygiene precautions.
- IV. Travel Health Warning: postpone all non-essential travel

How are travel restrictions implemented?

WHO is currently not recommending travel restrictions related to the outbreak of Influenza A(H1N1).

However, Seafarers and other travellers by sea can protect themselves and others by following simple recommendations related to travel. Individuals who are ill should delay travel plans (embarking) and returning seafarers/travellers who fall ill should seek appropriate medical care.

As a large group of travellers travel on cruise ships and ferries, for them it is important to be aware that travel limitations may be corporately established, created by disruption of travel services, or imposed by government authorities under pandemic conditions. They may range from delays and cessation of travel to quarantine of passengers on board.

Companies need to determine when and how to establish limitations on non-essential travel to affected areas. This is based upon business needs, travel destinations, and events surrounding the illness itself. Cruise companies may want to suspend travel to affected locations.

Repatriating expatriates and seafarers during a public health emergency may be difficult. To facilitate a speedier departure, agents should be informed and make early arrangements (such as purchasing an open *Business Class* ticket). Education and training is essential for seafarers, those employees of shipping companies who travel internationally and for shipping agents charged with providing travel and health related support services to them. *It should be conducted as soon as possible and updated as situations and/or employees change.*

3.1 Non-pharmaceutical Measures

Shipmasters travelling to an area where there is sustained transmission of Influenza A(H1N1) virus are advised to implement personal precautionary measures among crew and passengers to prevent transmission of respiratory infections.

Advise to seafarers or passengers to protect themselves from infection

- Avoid close contact with people who are sick with influenza symptoms ashore and aboard.
- Avoid crowds or mass gatherings if possible.
- Cover your mouth and nose with a tissue when coughing or sneezing. It may protect those around you. Throw the tissue in the bin after use.
- Washing or disinfecting your hands often will help protect you from germs. Wash them often for at least 20 seconds with soap and water, especially after you cough or sneeze.
- Alcohol-based hand cleansers may also be effective.
- Refrain from touching mouth and nose.

- Improve airflow in your cabin by opening windows as much as possible.
- Practise good health habits including adequate sleep, eating nutritious food, and keeping physically active.
- Clean hard surfaces, such as door handles, frequently using a normal cleaning product.

Unless there are specific travel restrictions by World Health Organization and/or recommendations by national or port health authorities, shore leaves of crew and/or passengers for recreational purposes, such as visiting a seaman's club or to go shopping on local markets and malls, disembarkment for medical treatment and/ or to return home should not be limited unnecessarily.

Use of face masks: The World Health Organization has issued a current advice on the use of masks in the community setting <http://www.who.int/csr/disease/swineflu/en/index.html>. WHO does not currently recommend the routine use of masks or other personal protective equipment while in public areas. WHO recommends the use of face masks in health-care settings.

IMHA does not recommend the routine use of face masks by healthy seafarers and/or passengers while visiting a port area unless specifically recommended by WHO and/or national or port health authorities.

IMHA does recommend that all ships have a supply of masks available to use in the event of appearance of cases of Influenza-like illness.

The WHO International Medical Guide for ships 3rd ed. recommends the stockpiling of face masks in the ship's hospital as a routine measure for a variety of communicable disease. However, the quality and number of face masks available on board should be checked to ensure that they are appropriate for use in case of the occurrence of influenza-like illness on board. The term "mask" is used here to include home-made or improvised masks, dust masks and surgical masks (sometimes called "medical masks"). Masks have several designs. They are often single use and labelled as either surgical, dental, medical procedure, isolation, dust or laser masks. Masks frequently used outside health-care settings may also be made out of cloth, paper or similar material. Masks, names and standards differ among countries. The most commonly used masks for the purpose of protection from respiratory infections are the NIOSH certified particulate respirators rated N-95 or better.

Crew or passengers caring for ill persons on board ideally should wear a NIOSH certified particulate respirators rated N-95.

Crew or passengers affected by influenza-like illness need to wear a face mask (such as surgical face mask) when leaving the cabin.

If masks are worn, proper use and disposal is essential to ensure they are potentially effective and to avoid any increase in risk of transmission associated with the incorrect use of masks.

The following information on correct use of masks derives from the practices in health-care settings:

- place mask carefully to cover mouth and nose and tie securely to minimise any gaps between the face and the mask
- while in use, avoid touching the mask
- whenever you touch a used mask, for example when removing or washing, clean hands by washing with soap and water or using an alcohol-based handrub
- replace masks with a new clean, dry mask as soon as they become damp/humid
- do not re-use single-use masks
- discard single-use masks after each use and dispose of them immediately upon removing.

Although some alternative barriers to standard medical masks are frequently used (e.g. cloth mask, scarf, paper masks, rags tied over the nose and mouth), there is insufficient information available on their effectiveness. If such alternative barriers are used, they should only be used once or, in the case of cloth masks, should be cleaned thoroughly between each use (i.e. wash with normal household detergent at normal temperature). They

should be removed immediately after caring for the ill. Hands should be washed immediately after removal of the mask.

Food preparation precautions for cooks on board

Influenza A(H1N1) has not been shown to be transmissible to people through eating properly handled and prepared pork (pig meat) or other products derived from pigs. The influenza A(H1N1) virus is killed by cooking temperatures, corresponding to the general guidance for the preparation of pork and other meat:

- Separate raw meat from cooked or ready-to-eat foods. Do not use the same chopping board or the same knife for preparing raw meat and cooked or ready-to-eat foods.
- Do not handle either raw or cooked foods without washing your hands in between.
- Do not return cooked meat to the same plate or surface it was on before it was cooked.
- All foods from should be cooked thoroughly. Because influenza viruses are destroyed by heat, the cooking temperature for pork meat should reach of 160°F/70°C.
- After handling pork meat, wash your hands and all surfaces and utensils thoroughly with soap and water.
- Use a mask when preparing food in the case of epidemic or febrile illness suspected to be Swine Flu on board (even if you are without symptoms).

Ship's Medical Chest All ships must have an appropriately stocked medical chest according to national or international regulations. The WHO Medical Guide for Ships 3rd edition does require the stocking of some sanitary products and symptomatic treatment. The medical chests should be augmented with the additional supplies listed below:

Recommendations for additions to the WHO International Medical Guide for Ships 3rd ed. to prevent and control an outbreak of influenza onboard

<i>Measures for preventions and control of pandemic influenza</i>	<i>International Medical Guide for Ships 3rd ed.</i>
Stockpiling of antiviral drugs	Not recommended by IMGS Consider the carriage of supplies of specific influenza treatments such as <i>Tamiflu</i> or <i>Relenza</i> .
Digital thermometer	Recommended by IMGS Check quantity and function
Face masks	Recommended by IMGS Check amount and make of face masks Stock appropriate amount of face masks such as N-95 particulate respirators and surgical masks
Disinfectants	Recommended by IMGS Check amount and effectiveness of products towards Influenza virus. Additional supply of antibacterial hand wipes, alcohol-based hand sanitizer gel and surface disinfectant is recommended
Gloves	Recommended by IMGS Check quality and quantity

Influenza rapid test	Not recommended by IMGS
Drugs for symptomatic treatment	Consider stockpiling on passenger ships On cargo ships only after consulting a Medical Doctor Recommended by IMGS Ensure that you have sufficient quantities of required palliatives for raised temperature and headaches, such a paracetamol
Influenza vaccination	Not recommended by IMGS Consider administration of seasonal vaccine by a Medical Doctor

Individual measures:

If seafarers wish to conduct personal precautions a "Flu Prevention Kit" that easily fits inside a purse or briefcase they consider the following kit:

List of Flu Prevention Kit Contents:

- Niosh rated N-95 Particulate Respirator Mask or equivalent
- Hard Surface Cleansing Wipes (6)
- 2 oz. waterless , alcohol-based hand gels
- Pair impermeable, disposable Gloves (need not be sterile)

Other measures

In the case of an imminent pandemic, shipping companies may decide to screen all embarking crew, visitors and passengers prior to joining the ship and therefore minimize the risk of infecting those onboard. Persons joining a vessel may be screened and if they have any flu like symptoms themselves or if they have been in close contact with someone who has had such symptoms in the last seven days, they should not be taken aboard, unless they have themselves already had flu and fully recovered from it. Some Cruise Line Companies have adopted screening procedures on a global basis requiring all passengers to complete and sign a written questionnaire prior to boarding

3.2 Antiviral Medication

Antiviral medications attack the influenza virus and prevent it from spreading inside your body. The novel influenza virus is susceptible to Oseltamivir (Trade name *Tamiflu*) and Zanamivir (Tradename *Relenza*). The virus is not susceptible to Amantadine.

Oseltamivir (Trade name: *Tamiflu*)

Tamiflu is used for treatment and prophylaxis of influenza, it is *not a flu vaccine*.

Tamiflu is available in two formulations: as a 75mg capsule (taken orally) and as a 12mg/mL liquid, typically used for paediatric patients at least one year of age and adult patients who cannot swallow a capsule.

Treatment of Influenza:

Dosage and Administration (per the package insert):

- *Tamiflu* Capsule (75 mg): The recommended oral dose of Tamiflu for treatment of Influenza A(H1N1) in adults and adolescents 13 years and older is 75mg twice daily for five days. Treatment should begin within two days of onset of symptoms of influenza.
- *Tamiflu* Oral Suspension (12mg/mL): Dosage for adults and adolescents 13 years and older is 75mg twice daily and is easily measured using a combination of the 30 mg and 45mg dispenser that comes with the liquid *Tamiflu*.

In all cases, the full five-day treatment should be completed even if the patient feels better.

Prophylaxis of Influenza

Currently, a general use of prophylaxis with *Tamiflu* is not advised. However under special circumstances prophylaxis may be recommended. In the environment of a ship, post exposure prophylaxis is an option to prevent a major outbreak on a ship which may hamper the ship's operation. Post exposure prophylaxis should be given as early as possible after first contact with a person who was in contact with an infected person (within 48 hours). For adults the recommended dosage is 1 Capsule (75 mg) once a day for 10 days. Dose adjustment is needed in persons with renal insufficiency and children. Radio medical or port medical advice is needed to decide on the necessity of prophylactic treatment and for Dosage and Administration.

Capsule

Tamiflu capsules are grey and light yellow gelatin capsules. "Roche" is printed in blue ink on the grey body and 75 mg is printed in blue ink on the light yellow cap. *Use only properly prescribed and reliably sourced medications.*

Storage

- Capsules: Store at 77°F (25°C); excursions permitted from 59° to 86°F (15° to 30° C).
- *Tamiflu* suspension should be stored under refrigeration from 36° to 46°F (2° to 8°C). *Do not freeze.*

The shelf life of *Tamiflu* capsules is 5 years, so be sure to check the expiration date if purchasing.
The shelf life of *Tamiflu* Suspension (liquid) is 12 months.

Zanamivir (Trade name: *Relenza*)

Relenza is used for treatment and prophylaxis of influenza, *it is not a flu vaccine.*
Relenza has to be taken by inhaler.

Treatment of Influenza:

Dosage and Administration (per the package insert):

The recommended dose for treatment of influenza in adults and pediatric patients age seven and older is two inhalations twice daily, approximately 12 hours apart, for five days (one 5mg blister per inhalation for a total daily dosage of 10mg). Treatment should be initiated within two days of the appearance of flu symptoms. *Relenza* should be initially administered under the supervision of a nurse or respiratory technician to ensure that the medication is fully and properly inhaled.

Prophylaxis of Influenza

Currently, a general use of prophylaxis with *Relenza* is not advised. However under special circumstances prophylaxis may be recommended. In the environment of a ship, post exposure prophylaxis is an option to prevent a major outbreak on a ship which may hamper the ship's operation. Post exposure prophylaxis should be given as early as possible after first contact with a person who was in contact with an infected person (within 48 hours). For adults and children 5 years or older the dose is 2 inhalations once a day for 10 days. Radio medical or port medical advice is needed to decide on the necessity of prophylactic treatment and for Dosage and Administration.

Supply:

Relenza is packaged in a tube containing five Rotadisks (circular foil packs), the treatment regimen's full five day supply. Each Rotadisk contains four individual 5mg blisters of the medication, which is the recommended full daily adult dosage. The full five-day treatment should be completed even if the patient feels better.

Storage:

Store at 77°F (25°C); excursions permitted from 59° to 86°F (15° to 30° C). The shelf life for *Relenza* is 3 years.

NOTICE: *Tamiflu* and *Relenza*, as well as other antiviral medications, should NOT be self-administered. The advice and expertise of a physician is essential to protect the health of the individual and the community. **We strongly suggest that you contact Radio-medico service in the case of Influenza on board.**

Availability may be contingent upon government regulations, such as a restriction allowing only the local medical community to purchase Tamiflu and/or Relenza.

Any mutation of the Influenza A(H1N1) virus may reduce or eliminate the effectiveness of Tamiflu and/or Relenza, as well as other antiviral medications.

Recommendations and Comments: Should you Stockpile Antiviral Medications on Board of Your Ships?

Shipping companies need to decide on the stockpiling of antiviral medication aboard of their ships. Currently no international and/or national recommendations require antivirals such as Oseltamivir or Zanamivir to be carried on board of ships. Companies need to be aware that organizational stockpiling of Tamiflu and Relenza is occurring in some areas and may well result in a shortage of these medications. In the event of an immediate pandemic, such drugs will be in high demand and short supply.

Your company will want to evaluate where you stand on the following:

- Implications to ship safety of not being prepared if a pandemic does break out
- Human Resource Issues: Who will be in charge of the stockpile? Who will set up the policy for its use?
- Who will benefit from the medication? And who will not?
- The shipping company will need to develop a policy for the most effective use of the stockpile.
- The decision about how to estimate your total medication supply is delicate and involves ethical dilemmas and corporate decisions on how to select individuals and what criteria is to be used. Your shipping company will need to decide this according to business continuation considerations (essential or non-essential persons) and/or according to health considerations (high-risk vs. low-risk individuals). For instance a shipping company may decide to supply only ocean going ships with antiviral medications and opt not to supply those in coastal traffic. The company will need to decide if antiviral stocking onboard is aimed to early treatment of all sick persons (consider storage of antivirals for a 20% or more of crew and/ or passengers) or for post-exposure prophylaxis after a case of Influenza A (H1N1) has occurred (consider storage of antivirals for all crew members and/or passengers).
- Shipping company should find a pharmacy which supplies antiviral medications and clarify legal issues. This is a prescription drug in many countries and stockpiling onboard ships or ashore may require special permissions. It is important to make a decision now as the medication will become unavailable if a pandemic is imminent.
- The shipping company will need to make sure that the storage facility onboard and ashore is secure and compliant with the medication's requirements (e.g. temperature control). Supplying the Ship Medicine Chest on board company's ships is the preferable solution in maritime environment. In that case even if the port health facility in a port is not supplied with the drug, crew member can be protected using ship's supplies.

3.3 Vaccination

Since this Influenza A(H1N1) virus is new, there is no vaccine currently available made with this particular virus.

While there is no evidence that the current seasonal influenza vaccine is effective against this influenza A(H1N1) virus, it is still recommended that seafarers at home and abroad are vaccinated against seasonal influenza. This is because the seasonal influenza transmission season is still going on. Such vaccination will only reduce the risk of catching ordinary influenza, and not of Influenza A(H1N1).

Work is already underway to develop an Influenza A (H1N1) vaccine. Making a completely new influenza vaccine can take five to six months from identification of the pandemic strain. When a vaccine for Influenza A(H1N1) becomes available National Authorities will implement vaccination campaigns according to their National Pandemic Preparedness Plans. The National Authorities will decide who is likely to receive priority for vaccination with a future pandemic vaccine. Depending on national planning Port Health Authorities, Port Medical Doctors will be providing the pandemic vaccine to seafarers in ports upon availability.

Shipping companies may interrogate the National Authorities of the flag state to establish whether ship doctors or company doctor will be entitled to be supplied the pandemic vaccine. The vaccine will need to be stored under refrigerated conditions at between 2°C to and 8°C.

4. Management of Suspected Cases on Board a Ship

Masters should recognise if the pattern of illness is such that the safe manning of the vessel is compromised. If so, they should be advised by the operator that they are free to adjust voyage patterns and avoid tasks such as complex cargo handling that may require the full complement of crew. They should also be aware that those with symptoms are likely to have impaired performance when doing demanding safety critical tasks and they should ensure, for instance, that they are not the sole bridge watchkeeper.

Seafarers suspected or confirmed to have Influenza A (H1N1), should be disembarked as soon as possible. Port Health Authorities must be asked to arrange infection control measures as necessary. Further procedures concerning transport and repatriation will be handled by medical services on shore.

If you believe you have been exposed to Influenza A (H1N1):

- Crew members or passengers should inform captain or ships doctor (if onboard) of suspected exposure
- You should monitor your health for 7 days after a possible exposure.
- You should seek immediate medical care if you experience the following symptoms:
 - Fever higher than 100°F (38°C) associated with sore throat
 - Difficulty breathing and other respiratory symptoms such as coughing
 - Dry or hacking cough
 - Feeling of exhaustion
 - Severe muscle aches
 - runny nose
- The captain should be informed immediately if you experience any named symptoms
- If you are in port, the captain will arrange for a consultation with a physician immediately. If you are off shore, he will secure contact with a Radio medical provider.
- Act immediately - *Antiviral treatments must be initiated within 2 days of initial symptoms.*

- Before visiting a health-care setting, or contacting Radio medical, tell the provider:
 1. *Your symptoms*
 2. *If you have had direct contact with someone with flu like symptoms*
 3. *Where you travelled.*

- Isolation measures should be started immediately according to the procedures described in WHO's International Medical Guide for Ships 3rd edition.
- Ill persons should wear surgical face masks in common areas if it is essential that they leave isolation.
- Do not travel or embark ship while sick, and limit contact with others as much as possible to help prevent the spread of any infectious illness.

What else can you do if you develop symptoms of flu while on board:

- Stay in your room, and keep away from the rest of the crew.
- Do not attempt to "work through the illness".
- Rest and take plenty of fluids.
- If possible, improve airflow in your living space by opening windows as much as possible.
- Cover your mouth and nose with disposable tissues when coughing and sneezing, and dispose of the used tissues properly immediately after use. Clean hands immediately after contact with respiratory secretions.
- Wash your hands with soap and water often and thoroughly, especially after coughing or sneezing.
- Cover your nose and mouth during travel to health facility or during repatriation.

Specific guidelines to crew and passengers from cruise ships have been published by the Centers for Disease Control www.cdc.gov/h1n1flu/guidance/cruiseships.htm

Infection Prevention and Control for Influenza A(H1N1) Patients on Board

Infection control precautions for patients with suspected or confirmed Influenza A(H1N1) and those with influenza-like symptoms need to prioritize the control of the spread of respiratory droplets. The precautions for influenza virus with sustained human-to-human transmission (e.g. pandemic-prone influenza) are described in detail in the document “Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care WHO Interim Guidelines” available at their website page http://www.who.int/csr/resources/publications/WHO_CD_EPR_2007_6/en/index.html.

Isolation

- Isolation measures should be started immediately according to the procedures described in WHO’s International Medical Guide for Ships 3rd edition
- Place patient in adequately-ventilated room of the ship's medical ward.
- If space is limited in the ship’s hospital, isolate sick persons in their cabin if the medical condition is stable.
- If space is limited cohort patients in wards or cabins keeping at least 1 metre distance between beds or maximum separation of beds and head-to-toe positioning of patients
- Ill crew members should be cared for by a designated caregiver (with appropriate care instructions communicated in advance).
- Have the ill person wear a surgical face mask in common areas and during transport ashore, if it can be tolerated. Surgical face masks should not be reused.

Personal Protective Equipment

- Rigorous attention to *droplet precautions* (medical face masks such as N-95 particulate respirators when close to patients with respiratory symptoms) is required to reduce the opportunities for transmission in the health-care setting.
- Use of masks should be prioritized to ensure that those at highest risk of exposure have access to available protection. They should be worn as a priority by caregivers, and other essential staff when in close contact (within approximately 1m) with sick patients. Where supplies are limited, it is more important that the patient wears the face mask than the caregiver. If enough face-masks are available, caregivers should use them to cover their mouth and nose when in close contact with ill persons.
- Patients and caregivers should be trained to wear and dispose of masks during the infectious period of the patient.
- The caregiver should use clean gloves.
- Masks and gloves should be disposed of safely if wet with secretions.
- The caregiver should always wash hands after patient contact and removal of mask and gloves. Alcohol based disinfectants may be used for hand hygiene.

Health monitoring of contacts

- It is necessary to monitor the health of caregivers exposed to Influenza A(H1N1) patients. Designated care giving persons should monitor their temperature twice daily. Fevers should be reported to the Captain and the care giving person should confine himself to his room. If a care giving person becomes unwell, treatment with antivirals as well as supportive care as for other patients should be provided in his room.

Disinfection and Cleaning procedures

- Treat any waste that could be contaminated with Influenza A(H1N1) virus as infectious clinical waste, e.g. used masks, gloves.
- Wash dishes and eating utensils using routine procedures with water and detergent. Use non-sterile rubber gloves.
- Wash linen and laundry with routine procedures, water and detergent; avoid shaking linen/laundry during handling before washing. Use non-sterile rubber gloves.
- Clean soiled and/or frequently touched surfaces regularly with a disinfectant. e.g. door handles. Be aware that Influenza viruses can persist on nonporous surfaces for 25 hours or more.
- Make sure that labels of disinfectants claim efficiency for Influenza A virus.

- Dedicate separate equipment to Influenza A(H1N1) patients. If not possible, clean and disinfect before reuse in another patient.

The Centers for Disease Control have published an *Interim Guidance for Cleaning Passenger and Cargo Vessels during an Influenza Pandemic* www.pandemicflu.gov/travel/cleaning_vessels.html

Clinical care

Inpatient treatment in ship settings should include:

- If available, start antiviral treatment with *Tamiflu* or *Relenza* immediately! Therapy must be initiated within 2 days of initial symptoms;
- treatment of dehydration with IV or oral rehydration fluids;
- supplemental oxygen therapy (if available) by face mask rather than nasal prongs;
- antibiotics (oral or parenteral) for secondary bacterial infections;
- non-aspirin antipyretics for pain and fever;
- nutritional supplementation as needed.

The majority of influenza cases may be cared for on board with the simple supportive care outlined above. However, if there is deterioration or severe symptoms, then Radio medical advice should be sought, as patients may need to access a health-care facility on shore. These symptoms may include: weakness/not able to stand, lethargy, unconsciousness, convulsions, very difficult/obstructed breathing or shortness of breath, inability to drink fluids and dehydration, high fever.

Post exposure prophylaxis for close contacts of human case(s) of Influenza A(H1N1) on board

Post exposure antiviral prophylaxis with *Tamiflu* or *Relenza* may be indicated for close **unprotected** contacts who were exposed to the case during the **period when case was symptomatic**. This is a decision which will need to be made by a ship doctor or after radio-medical advice taking into account the supply of antivirals on board and availability in pharmacies. In the context of the onboard environment every case of illness with the symptoms of Influenza A(H1N1) Flu after contact with a laboratory confirmed case will need to be classified as confirmed case, regardless of the fact that the diagnosis is not been confirmed in the laboratory. The use of rapid tests for Influenza A and B may be of help in decision making. Post exposure prophylaxis should be started as soon as possible unless 7 days have elapsed since the last exposure. Post exposure prophylaxis should be taken for 10 days.

Death on board

In the case of death on board follow the procedures described in International Medical Guide for Ships and apply standard precautions i.e. perform proper hand hygiene and use appropriate protective measures (use of gown, gloves, facial protection if there is a risk of splashes from patient's body fluids/secretions onto crew member's body or face).

International notification requirements in the case of ill person on board – role of Port Health Authority

Under Article 28 IHR 2005 the shipmaster is required to notify the next port health authority of any non-traumatic case of disease or death on board ship as early as possible before arrival at the port (use Maritime Declaration of Health). Port Health Authorities will decide on further control measures, such as disinfection, quarantine, health monitoring, screening procedures and travel restrictions of contacts.

Under IHR 2005 ships shall not be refused *free pratique* by State Parties for public health reasons, in particular they shall not be prevented from embarking or disembarking, discharging or loading cargo or taking on fuel, water, food and supplies.

The State Parties may subject the granting of free pratique to an inspection of the vessel and –if necessary- health measures. Shipmasters shall facilitate inspections of the cargo, containers and conveyance, medical examinations of persons on board, application of health measure and provide all relevant information requested.

Concerning the current outbreak of Influenza A (H1N1) the Port Health Authority may perform health screening by asking health question and performance of temperature screening. If disease is present, throat and nose swabs may be taken, possibly blood samples for serology. Passengers who have been in contact with sick persons may be asked to provide their private information by passenger locator cards for contact tracing if necessary. The Port Health Authority will decide on further quarantine and infection measures and inform the shipmaster

5. Generic Influenza Pandemic Planning in the Maritime Environment

Many national governments under the leadership of WHO have prepared their health systems to the occurrence of pandemic influenza. National plans do exist in most countries.

While general recommendations relating to travel activities and corporate planning are provided in most plans, none of the published influenza pandemic plans give specific advice to the maritime industry. While the current situation necessitates urgent measures as given in this advice, a more generic planning for influenza pandemic preparedness for the travel and trade industry is needed in the long-term. Therefore, recommendations on corporate preparedness planning need to be adjusted to the specific maritime conditions and will need to consider the existing requirements for the medical equipment.

The main steps of corporate influenza pandemic planning in the maritime environment are:

- Plan for the impact of an influenza pandemic on your business continuity, your seafarers and other employers and -if applicable- your passengers.
- Establish a communication plan to be implemented during an influenza pandemic
- Procure adequate infection control and treatment supplies, such as disinfectants, masks, antiviral medication
- Pre-arrange medical care in ports, think of how to repatriate employees.
- Educate your seafarers and other employees.

See also: www.pandemicflu.gov/plan/workplaceplanning/Travelchecklist.html and other sources

IMHA will provide further guidance on its website at www.imha.net.

6. References

International Medical Guide for Ships: including the ship's medicine chest 3rd ed.
World Health Organisation, ISBN 978924154720

World Health Organization (WHO) - Influenza A(H1N1) website:
<http://www.who.int/csr/disease/swineflu/en/index.html>

Centers for Disease Control and Prevention (CDC) – H1N1 Flu (Swine Flu) website:
<http://www.cdc.gov/h1n1flu/>

European Centers for Disease Control
<http://www.ecdc.europa.eu/en/Health%5Ftopics/novel%5Finfluenza%5Fvirus/2009%5FOutbreak/>

Complete Tamiflu Product Information:
<http://www.rocheusa.com/products/tamiflu/pi.pdf>

GlaxoSmithKline, manufacturer of Relenza Website:
http://us.gsk.com/products/assets/us_relenza.pdf