



United Nations Medical Directors
Influenza Pandemic Guidelines

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PREFACE

The United Nations (UN) Medical Directors developed this document to provide guidance to UN organizations to prepare and respond to an influenza pandemic. Technical input was provided by the World Health Organization (WHO) and other public health and infectious disease experts.

These Guidelines provide a foundation for planning to ensure a timely, consistent and coordinated medical response across the UN system to a possible global threat. This new version updates, and replaces the United Nations Medical Directors Influenza Pandemic Guidelines May 2008, as well as the previous editions of the “*United Nations Medical Services Staff Contingency Plan Guidelines For An Influenza Pandemic*” (March 2006 and October 2005).

This revision is informed by the recent experience of the 2009 H1N1 influenza pandemic, during which the provisions of the previous version were tested under actual pandemic conditions. It also extends the concept of the previous version regarding mainstreaming of many crucial non-medical aspects of planning (especially business continuity) into the responsibilities of management and administration, allowing medical services to focus more on their primary areas of expertise and responsibility. The emphasis of this revision is therefore on streamlining the guidance and providing outward links to sources of information which were previously addressed in the annexes.

This revision of the Guidelines also incorporates experience gained in implementing the guidance contained in preceding versions, particularly that of field duty stations, which in many instances have developed noteworthy solutions to their specific problems. These Guidelines remain a “living” document and as new research and information emerge, it will be incorporated into future updates.

EXECUTIVE SUMMARY

1. The present “*United Nations Medical Services (UNMS) Influenza Pandemic Planning Guidelines*” has been prepared to assist those responsible for public health and medical preparedness in UN offices to respond to threats and occurrences of pandemic influenza. It updates and replaces the United Nations Medical Directors Influenza Pandemic Guidelines, May 2008, as well as the previous editions of the “*United Nations Medical Services Staff Contingency Plan Guidelines For An Influenza Pandemic*” March 2006 and October 2005. This revised version draws on lessons learned from previous preparedness efforts as well as the influenza A(H1N1) 2009 pandemic, and incorporates new scientific and technical information which has evolved since May 2008.

2. While the guideline is mainly intended for use by persons responsible for the development and implementation of health services in UN offices, particularly that of field duty stations, partners in areas outside of the health sector (e.g. human resources, finance, security, communications) should also have knowledge of the health-related strategies used to mitigate the consequences of a pandemic. Additionally, pandemic plans should be individualized to take into account the local situation and pandemic plans of local and/or national authorities. **Recommendations that are superseded by the actions of local and/or national health authorities should be adapted accordingly.**

3. This guideline focuses on the medical aspects of pandemic planning and less on administration and business continuity. This does not diminish the importance of business continuity planning, which remains a cornerstone of organizational preparedness. Information from the previous version of this guideline has been streamlined. While some of the annexes have remained others have been converted to links to appropriate reference sites as recommendations during this period continue to be updated according to lessons learnt and new knowledge as it appears in the scientific literature.

4. The following provides a summary for each of the Sections.

Sections I-III

I: Introduction

Section I describes the purpose of the guidelines and provides the background and context for medical services pandemic planning within the wider UN organization, with emphasis on the importance of business continuity planning as part of overall pandemic preparedness. Verification with the United Nations Senior Influenza Coordinator’s (UNSIC) office regarding the planning assumptions (Table 2) as a basis for operational planning of health service provision has been undertaken and for this edition no changes have been advised. The five objectives for medical services pandemic planning are also outlined and remain unchanged from the previous edition of 2008.

II. Elements of a Preparedness Plan

Section II details four key areas that offices need to consider when planning for an influenza pandemic. These are:

1. Planning and Coordination

The UN Medical Directors have developed an action plan for duty stations to serve as a platform for coordinating their actions. The action plan consists of three modes of response, taking into consideration progressively increasing levels of risk. While this is likely to be associated with changes in the WHO global pandemic alert levels, decisions on which preparedness mode is appropriate for a particular duty station will be made according to local circumstances.

The use of the six-phased approach has been retained by WHO in their 2009 revision of their guidance. However, [the pandemic phases](#)¹ have been re-defined and grouped (Table 1) to facilitate planning at national and global levels. The groupings are as follows, phases 1-3, phase 4 and then phases 5-6 and allow for the inclusion of common action points.

It is important to note that the phases were not developed as an epidemiological predication but rather to provide guidance on the implementation of activities. Phases 1-3 correlate with preparedness, while phases 4-6 signals the need for response and mitigation efforts based on the geographical spread of the virus. As further revisions of the WHO global pandemic phases occur this guidance will be updated accordingly.

Table 1. WHO pandemic phase descriptions and main actions by phase

	ESTIMATED PROBABILITY OF PANDEMIC	DESCRIPTION	MAIN ACTIONS IN AFFECTED COUNTRIES	MAIN ACTIONS IN NOT-YET-AFFECTED COUNTRIES
PHASE 1	Uncertain	No animal influenza virus circulating among animals has been reported to cause infection in humans.	Producing, implementing, exercising, and harmonizing national pandemic influenza preparedness and response plans with national emergency preparedness and response plans.	
PHASE 2		An animal influenza virus circulating in domesticated or wild animals is known to have caused infection in humans and is therefore considered a specific potential pandemic threat.		
PHASE 3		An animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.		
PHASE 4	Medium to high	Human-to-human transmission of an animal or human-animal influenza reassortant virus able to sustain community-level outbreaks has been verified.	Rapid containment.	Readiness for pandemic response.
PHASE 5	High to certain	The same identified virus has caused sustained community-level outbreaks in at least two countries in one WHO region.	Pandemic response: each country to implement actions as called for in their national plans.	Readiness for imminent response.
PHASE 6	Pandemic in progress	In addition to the criteria defined in Phase 5, the same virus has caused sustained community-level outbreaks in at least one other country in another WHO region.		
POST-PEAK PERIOD		Levels of pandemic influenza in most countries with adequate surveillance have dropped below peak levels.	Evaluation of response; recovery; preparation for possible second wave.	
POSSIBLE NEW WAVE		Level of pandemic influenza activity in most countries with adequate surveillance is rising again.	Response	
POST-PANDEMIC PERIOD		Levels of influenza have returned to the levels seen for seasonal influenza in most countries with adequate surveillance.	Evaluation of response; revision of plans; recovery.	

¹ [WHO, Pandemic Influenza Preparedness and response, a WHO guidance document, April 2009;](#)

2. Public and Occupational Health Measures

This section details the non-pharmaceutical measures (e.g. personal hygiene, social distancing, infection control measures, use of personal protective equipment, and travel restrictions) that staff need to adhere to during a pandemic. Staff have been categorized into five Risk Categories depending on their risk of exposure to the virus in an occupational context. Specific type/s of personal protective equipment (PPE) should be made available to staff depending on the Risk Category that they fall under.

3. Medical Interventions

This section gives guidance to medical staff on medical consultation and advice, as well as information on the use and procurement of medications (antiviral drugs, antipyretics, antibiotics and vaccines). This section includes a recommendation to ensure access to antivirals² for 25% of staff and dependents, with stockpiling only if local supply possibilities are assessed to be inadequate or unreliable. For children pediatric strength oseltamivir (Tamiflu) capsules are available or alternatively instructions for [extemporaneous compounding of suspensions using adult capsules](#)³. Details regarding replenishment of supplies can be found in paragraph 51.

4. Communication and Training

This section emphasizes the importance of staff education and communication to effect behavior change.

III: Action Plan

Section III outlines a series of recommended measures to be taken by duty stations in accordance with three pandemic response modes: Level 1 Readiness Mode, Level 2 Crisis Response Mode, and Level 3 Emergency Mode. The recommended actions focus primarily on the medical aspects. Please note that these three modes are not directly linked with the WHO Global Pandemic Phases, and movement from one mode to another is dependent on local circumstances. All offices should update their current pandemic preparedness plans or business continuity plans with information from the action plan in Section III.

This guideline is a living document intended to promote a consistent and harmonized approach to medical services pandemic planning in the UN System. Robust preparedness for the next pandemic also requires coordination with partners outside of the health area. Active engagement of all stakeholders to refine and better coordinate planning is strongly recommended.

² Antivirals stockpiles, if necessary, could comprise of all Oseltamivir, or a mixture of oseltamivir and zanamavir in a 80:20 ratio.

³ Instructions for extemporaneous compounding of suspension using adult dosage:
http://www.tamiflu.com/hcp/prescribing/hcp_prescribe_mix.jsp

INTRODUCTION

1. The purpose of this document is to provide guidance for protecting the health of staff and their dependents under the circumstances of an influenza pandemic. A timely and effective medical response across the UN system will be an important part of the UN's overall response to a pandemic, and will contribute to the enabling of Organizations to fulfill their mandates.
2. As these Guidelines focus on the medical aspects of planning and coordination, they should be seen in the context of organization wide plans. Differences between Organizations, and from location to location, will require local adaptation or modification of these guidelines. Each UN Headquarters and duty station should develop its own plan within its customary Emergency Management structures and functional groups.

Background

3. Influenza is a viral respiratory disease affecting humans and certain animals. Normally, people are infected by human influenza viruses and rarely with animal influenza viruses. Clinical disease ranges from infection with no symptoms to mild nonspecific illness to a variety of life threatening complications, including pneumonia.
4. On occasion, influenza virus from one species can trade genetic material with influenza viruses from another species in a process known as "re-assortment". When viruses re-assort, a new hybrid is produced. This is known as antigenic "shift". If this new subtype has genes from human influenza viruses that make it readily transmissible from human to human, the virus can spread worldwide within months (perhaps even weeks), leading to higher levels than usual of severe illness and mortality. In this situation, all age groups are vulnerable to infection, and there could be disruption to all sectors of society. Such a situation is called an influenza "pandemic". Pandemics are different to usual influenza seasons and happen relatively infrequently.
5. Many of the prerequisites for the start of a new influenza pandemic remain in place. The threat of new influenza viruses, crossing species boundaries and gaining the ability to spread from person to person is still present.
6. Recent history has shown us that given the high level of global travel in modern times, pandemic viruses can spread across much of the world within weeks, leaving little time to prepare.
7. In all three 20th Century pandemics, substantially more young people died from pandemic influenza than when compared with regular influenza seasons. In the 1918 pandemic, the highest death rates and the largest total numbers of deaths occurred in previously healthy young adults. Despite advances in medical technology, these patterns suggest that the next pandemic could have a substantial impact on the workforce. More recently, figures regarding A (H1N1) 2009 shows that there appears to have been more deaths in those under the age of 65 years with the most severe illness being reported in persons with underlying medical conditions, including chronic lung disease, diabetes, cardiovascular disease, neurologic disease, and pregnancy. Further advice regarding pregnant women and influenza can be found at WHO⁴.

⁴ http://www.who.int/csr/resources/publications/swineflu/h1n1_guidance_pregnancy/en/index.html

8. Depending on widely varying local medical infrastructures, vaccines and antiviral agents for pandemic influenza, as well as antibiotics to treat secondary infections could be in short supply during the initial phases of a pandemic. New advances in vaccine development such as cell-based manufacturing technology has the potential to cut weeks off the time required to begin vaccine production. However until this technology is widely adopted it will still take several months or longer, using egg-based approaches, for a new pandemic specific vaccine to become widely available.

9. Depending on the severity of the viral strain, medical facilities could be overwhelmed by patients. Moreover, the health care workforce is likely to be reduced, since health care workers will also become ill and stay home to care for ill family members, as with other workers. For weeks at a time, significant shortages of personnel may occur, disrupting essential community services.

10. Offices in the United Nations need to continue planning for the possibility of a pandemic, and to consider how they will reduce the risk to their staff, and continue to function under such conditions.

11. For more background information on influenza, see:

Global

[WHO, Communicable Disease Surveillance & Response⁵](#)

[WHO, Pandemic Preparedness⁶](#)

[Centre for Disease Control and Prevention, pandemic influenza⁷](#)

Pandemic Preparedness Planning

12. In the organizational context, effective business continuity planning is the cornerstone of preparedness. Active reduction of the numbers of staff on site is the most effective strategy an employer can implement to reduce the risk of staff exposure to sources of infection. Conversely, the capability of an organization to function with only minimal numbers of staff available will ensure its ability to continue with critical functions when a pandemic (or any crisis) causes fewer staff to be able to come to work. It is critical that effective business continuity planning involves all functional units of an organization, and should be coordinated and led from the highest levels of management.

13. Organizations that will be most resilient under pandemic conditions are those whose staff are knowledgeable in methods to reduce their risk of exposure, and that are prepared to adapt their activities and processes to maintain critical functions with significantly reduced staff presence. Again, this can only be achieved through whole-of-organizational planning coordinated from the highest level, and taking into consideration the local situation.

⁵ WHO Communicable Disease Surveillance & Response: <http://www.who.int/csr/disease/en/>

⁶ WHO, Pandemic preparedness: http://www.wpro.who.int/health_topics/pandemic_preparedness/

⁷ Centers for Disease Control and Prevention, Avian Influenza: <http://www.cdc.gov/flu/avian/index.htm>

14. As a guide to planning, particularly of health service provision to staff, the following United Nations System Influenza Coordinator (UNSIC) assumptions on infection rates and impact of the illness should continue to be utilized by duty stations.

Table 2. UNSIC Planning Assumptions

<u>Parameter</u>	<u>UNSIC Estimates</u>		<u>Cases per 1000 persons</u>
	<u>Range</u>	<u>Likely Estimate</u>	
Illness rate (% total population)	15-50%	25%	250
Outpatient visit (% of ill cases)	5-50%	10%	25
Hospitalisations (% of ill cases)	0.5-10%	2%	5
Deaths (% of ill cases)	0.25-10%	0.5%	1.25

Objectives of Medical Planning

15. In the case of a pandemic, there are specific areas of planning that are the responsibility of the Medical Services.

16. The overall objectives of medical planning are that:

- Staff are aware of the most effective methods they and their dependants can personally use to avoid infection, namely personal hygiene and social distancing;
- Staff know when, where, and how they and their dependants should access medical advice and treatment in the case of suspected infection, and are able to receive advice and treatment when required;
- Staff who are expected to perform critical functions with high risk of occupational exposure have the knowledge and are appropriately equipped to minimize their risk of infection;

- Travelers are aware of the risks of contracting avian or pandemic influenza, and methods to minimize the risk of infection;
- Staff are vaccinated against seasonal influenza, and when available, pandemic influenza.

17. Methods and activities required to achieve these objectives will vary according to local circumstances, and especially according to the capabilities of local medical services to provide for the needs of UN staff. Medical staff at country level should therefore select from and adapt recommendations from these guidelines which are relevant to their individual circumstances.

ELEMENTS OF A PREPAREDNESS PLAN

18. In order to achieve the above objectives, the following elements will need to be considered:

- Planning and Coordination
- Public and Occupational Health Measures
 - Personal Hygiene
 - Social Distancing
 - Infection Control Measures
 - Use of Personal Protective Equipment
 - Guidance for Safe Travel
- Medical Interventions
 - Medical Consultation and Advice
 - Medications
- Communication and Training

Planning and Coordination

19. The Medical Directors Working Group recommends a 3-level pandemic response framework for coordination of medical actions at duty stations: a Level 1 Readiness Mode, a Level 2 Crisis Response Mode and a Level 3 Emergency Mode. Changes from one mode to another will be triggered by several factors, including the epidemiological behaviour of the disease and its geographical distribution. It is possible that duty stations at different regions would be designated a different mode, depending on need. The Action Plan in Section III utilizes this 3-level framework and outlines specific actions to be taken by duty stations for each of the three modes.

Public and Occupational Health Measures

Personal Hygiene

20. Respiratory illnesses such as influenza are predominantly spread by coughing, sneezing or touching contaminated surfaces. One of the most effective ways to reduce the risk of infection in any setting is to practice effective [personal hygiene](#)⁸

Social Distancing

21. As influenza is predominantly spread through close contact with others, a cornerstone of avoiding infection under pandemic conditions is to reduce contact with potentially infected persons. As a general guideline, staff should attempt to ensure that they do not come into close contact (< 1 meter or 3 feet) with any individual who is not known to be free of respiratory symptoms.

22. Through the implementation of business continuity plans, the UN will ensure that only the minimum number of staff necessary is at the workplace and that activity planning will minimize their contact with others. During times of restricted staff at work, strict attention to [commuting procedures will be required](#)⁹.

23. All UN staff and their dependants must also follow the public health measures as advised by their local and/or national authorities (e.g. restrictions regarding public gatherings, schools, cinemas, public transportation etc.).

Infection Control Measures

24. Planning for a pandemic necessitates the appropriate and thorough application of infection control measures, particularly in health care settings and in home health care. [WHO's infection control recommendations in health care settings](#)¹⁰ includes advice on the use of personal protective equipment for health care workers, design of isolation rooms, family member/visitor recommendations, transport outside of health care facilities and recommendations on environmental cleaning and disinfection. Further advice regarding caring for the ill at home can also be found at CDC's "[Guidance relating to care of pandemic influenza patients in the home](#)"¹¹.

25. Given some uncertainty about the exact characteristics of a new pandemic strain, all aspects of preparedness planning for pandemic influenza must allow for flexibility and real-time decision-making that take new information into account as the situation unfolds. If the new virus is unusual in transmissibility, virulence, or in any other way, the UN Medical Service will provide updated infection control guidance.

Use of Personal Protective Equipment (PPE)

⁸ CDC, Guidelines for the key aspects of personal hygiene relevant to the spread to influenza: <http://www.cdc.gov/flu/protect/habits.htm>

⁹ Guidance for minimizing risk of exposure to the virus during transport to and from work is provided in: http://www.un.org/wcm/webdav/site/pandemic/shared/Documents/H1N1%20Flu%20Booklet_2009-05-08_Final.pdf

¹⁰ [WHO infection control recommendations in health care settings](#): http://www.who.int/csr/disease/swineflu/guidance/healthcare_management/en/index.html

¹¹ CDC, Guidance relating to care of pandemic influenza patients in the home: <http://www.cdc.gov/h1n1flu/homecare/>

26. Personal protective equipment (PPE) refers to specialized clothing or equipment used to prevent direct contact with the pandemic influenza virus and to provide protection against direct contact with body fluids when providing care for patients. Examples of PPE include surgical masks (as recommended for droplet precaution) and gloves and gown (as recommended for standard and contact precaution). Recommendations for the selection and use of PPE by staff depends on the characteristics and circumstances of their potential exposure to the virus, body fluids and [contaminated environments](#)¹².

27. An employer who requires certain staff to conduct activities which may constitute a risk to health and safety (especially when other staff are being advised to avoid those activities), is obligated to undertake all reasonable measures to reduce the risk to acceptable levels. While the first option to be explored should always be avoidance of high risk areas, if exposure cannot be avoided, appropriate PPE should be used.

28. During times of minimized staff presence, the non-medical workplace is not necessarily a high risk area. It can, in fact, be considered as an environment of reduced risk, providing that:

- Numbers of staff are substantially reduced;
- Staff who come to work only do so if they are symptom free, and have no known recent contact with infected persons;
- Staff coming to work ensure avoidance of close contact with others at all times, including during commuting. Commuting should not involve public transport, or any other close contact (< 1 meter or 3 feet) with the general public;
- Working procedures are adapted to ensure that there is no close contact with staff performing critical functions with high risk of occupational exposure, and if there is any sharing of equipment (e.g. telephones / keyboards etc), that they are cleaned between users.

29. Staff are considered to be in a higher risk occupational group if they are expected to perform activities bringing them into contact with known infectious hazard potential, which others are being advised to avoid.

30. Table 3 details the five basic Risk Categories that staff can be classified into depending on the nature of their exposure to the virus. These are:

Risk Category 1:

Medical staff who manage patients clinically and have direct or close contact (<1 meter or 3 feet) with known/suspected pandemic influenza patients or their infectious material.

Risk Category 2:

¹² WHO, Infection prevention and control in health care for confirmed or suspected cases of pandemic H1N1 2009 and influenza –like illnesses: <http://www.who.int/csr/resources/publications/swineflu/swineinflcont/en/index.html>

Other staff with supportive duties in an area where close contact (<1 meter or 3 feet) with known/suspected pandemic influenza patients or their infectious material occurs (e.g. fever clinic). Examples of staff include:

- Medical administrative staff;
- Security staff in that area;
- Cleaning staff required to clean potential contact surfaces in such areas.

Risk Category 3:

Staff who have close contact (<1 meter or 3 feet) with persons of unknown pandemic status. An example is that of “essential travelers” who will come into close contact with the general public in closed spaces, e.g. trains and airplanes.

Risk Category 4:

Staff who are symptomatic or infected with pandemic influenza (e.g. staff seeking consultation at the fever clinic).

Risk Category 5:

Staff with no known close contact (<1 meter or 3 feet) with known/suspected pandemic influenza patients or their infectious material.

31. Even in these risk groups, the risk is variable, and protective strategies should be graded and selected according to the specific circumstances of each group.

32. Once the need for PPE has been established, the type should be tailored to the nature of the risk experienced by any particular group and on the type of activities performed. Table 3 below details the type of PPE that should be made available to staff depending on their [Risk Category for PPE](#)^{13 14}

¹³ WHO, Guidance Health Care Management:

http://www.who.int/csr/disease/swineflu/guidance/healthcare_management/en/index.html

¹⁴ CDC, Prevention Strategies for Seasonal Influenza in Health Care Settings:

<http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm>

Table 3. Staff Risk Categories for PPE

Risk Cat.	Characteristic of Exposure of Staff	Examples of Staff	Surgical Masks	Gloves	Gown	Particulate Respirators (e.g. N95 masks)	Eye Protection (e.g. Goggles/ Face Shield)
1	Health care workers who manage patients clinically and have close contact (<1 meter) with known/suspected pandemic patients or their infectious material	E.g. Doctors, nurses who work in the fever clinic	✓	✓	✓	✓ [†]	✓
2	Non-health care worker staff who have close contact (<1 meter) with known/suspected pandemic patients or their infectious material	E.g. Security personnel, receptionist, cleaning staff who work in the fever clinic	✓	✓	✓	✗	✗
3	Staff with close contact (<1 meter) with persons of "unknown" pandemic status	E.g. Essential duty travelers	✓	✗	✗	✗	✗
4	Staff infected with pandemic influenza	E.g. Patients in the fever clinic	✓	✗	✗	✗	✗
5	Staff with no known close contact (<1 meter) with known/ suspected pandemic patients or their infectious material	E.g. Critical staff "quarantined" in work space, and not working in the fever clinic	✗	✗	✗	✗	✗

(* See paragraph 41 on the use of particulate respirators)

33. Given the above guidance, staff should be made aware that simply being at the workplace does not constitute an indication to use PPE, and that specific types of PPE will be made available to staff depending on their risk of exposure to the virus.

34. Additionally, the use of any PPE in occupational context must be accompanied by training which includes procedures for donning on and off, handling and disposal of potentially contaminated items as well as effective hand washing.

Use of Surgical Masks

35. There is very limited information on the use of surgical masks for the control of pandemic influenza in [community settings \(or at work\)](#).¹⁵ Thus, it is difficult to assess their potential effectiveness in controlling influenza in these settings. What is clear, however, is that the use of surgical masks is only one part of a combination of interventions that can be used to help reduce the spread of virus from an infectious to non-infected persons. As new information becomes available about the effectiveness of surgical masks in controlling influenza in community settings, this guidance document will be revised accordingly.

36. Whenever possible, rather than relying on the use of surgical masks, close contact (<1 meter or 3 feet) and crowded conditions should be avoided during an influenza pandemic.

37. Surgical masks may be considered for use by individuals who enter crowded settings, both to protect their nose and mouth from other people's coughs and to reduce the wearers' likelihood of coughing on others. The time spent in crowded settings should be as short as possible.

38. Surgical masks should be worn by infected individuals when in contact with others, to reduce the spread of infective droplets when coughing and sneezing. For this reason, surgical masks may be recommended for use by infected individuals during their time of contact with medical staff ([Table 3](#)).

39. Depending on availability, surgical masks may be provided to staff caring for ill household members.¹⁶ Results from studies assessing the use of masks at home to decrease the spread of infection, or the use of surgical masks by the caregiver during interaction with ill household members are not conclusive. However some trials indicate that wearing masks may have some effect on the reduction of transmission¹⁷. This advice may change depending on the mode of transmission of the pandemic virus once it has emerged and therefore the guidance on the use of masks will be updated accordingly. Use of surgical masks in other circumstances will be guided by the most recent evidence based recommendations from infectious disease control authorities.

40. Any recommendation of the use of surgical masks must be accompanied by instruction on its proper use and disposal.

¹⁵ CDC, "Interim Public Health Guidance for the Use of Facemasks and Respirators in Non-Occupational Community Settings during an Influenza Pandemic", May 2007. Available at <http://www.pandemicflu.gov/plan/community/maskguidancecommunity.html>

¹⁶ <http://www.who.int/csr/resources/publications/Adviceusemaskscommunityrevised.pdf>

¹⁷

http://journals.cambridge.org/download.php?file=%2FHYG%2FHYG138_04%2FS0950268809991658a.pdf&code=64c73edec223dbc75d1724b76fbc7feb

Use of Particulate Respirators (e.g. NIOSH-certified N95, EU FFP2 or equivalent masks)

41. Particulate respirators (e.g. NIOSH-certified N95, EU FFP2 or equivalent masks) provide a high degree of protection against infection if fitted properly and are appropriate for persons who are at unusually high risk of infection, particularly medical staff in close contact with infected patients when performing high risk procedures such as some aerosol generating procedures. Of note, WHO has updated its infection control guidelines¹⁸ and recommended that particulate respirators (e.g. NIOSH-certified N95, EU FFP2 or equivalent masks) be used by health care workers only when aerosol-generating procedures are performed, and not during routine care of pandemic influenza patients.¹⁹ Particulate respirators must be specially fitted for the wearers (“fit-tested”)²⁰ and wearers should be provided with a health assessment and training to use the device. A particulate respirator that has not been fitted properly may leave unprotected gaps between the respirator and the wearer’s face, which impairs its effectiveness.

Guidance for Safe Travel

42. UN Offices should strictly follow WHO travel recommendations at the time of a pandemic. . However, staff should keep updated²¹ for any travel restrictions and advisories.

43. If an organization feels that particular travel is essential at times when Level 2 Crisis Response Mode or Level 3 State of Emergency Mode have been declared, and if travel is possible, these “essential duty travelers” may be exposed to increased risk of infection through increased contact with other individuals. In such cases personal hygiene measures and the provision of appropriate PPE is recommended. The provision of post exposure prophylactic medication to travelers may be considered based on the individual’s medical history and their risk of complications from influenza (those in high risk categories), their degree of exposure and the medical recommendations at that time (depending on the severity of the illness).

44. Due to the risks of infection during travel, and potential problems of travel availability during the time of a pandemic, it is likely that UN staff would be required and advised to stay at their duty station. Staff members should ensure that they have sufficient emergency food supplies, water, prescribed medication, medical kits and other essentials to last 6 weeks until a pandemic wave has passed. Guidance on the types of personal supplies to stockpile is provided in [UN Pandemic booklet²²](#):

¹⁸ WHO, “Avian Influenza, Including Influenza A (H5N1), in Humans: WHO Interim Infection Control Guideline for Health Care Facilities”, 10 May 2007. Available at

http://www.who.int/csr/disease/avian_influenza/guidelines/infectioncontrol/en/index.html

¹⁹ http://www.who.int/csr/disease/swineflu/guidance/healthcare_management/en/index.html

²⁰ http://www.who.int/csr/resources/publications/SEALCHECK_EN_A2s.pdf

²¹ WHO Travel Advisories are available at www.who.int

²² UN Pandemic Booklet:

http://www.un.org/wcm/webdav/site/pandemic/shared/Documents/H1N1%20Flu%20Booklet_2009-05-08_Final.pdf

Medical Consultation and Advice

45. If possible, the preferred option for staff to obtain medical consultation and advice is through the standard local medical infrastructure. Each duty station needs to provide clear guidance to staff on how to do that. Each country team, in consultation with the appropriate government offices, should already have identified the most appropriate local health care facilities to treat UN staff and dependents in case of an influenza pandemic, Information including what to do if they or family members have flu-like symptoms, which healthcare facilities to go to, who to notify etc should be clearly communicated to all staff. As influenza pandemics can continue for over a year it is important that this information is reiterated during the course of the pandemic and whenever new staff join the office.

46. If the local medical infrastructure is inadequate, or proves unable to cope with demand in pandemic circumstances, the UN medical service should prepare to provide support to the extent practicable. Again, clear guidance should be available for staff on how to access such services. Requests for medical evacuation of severe cases that cannot be dealt with locally will be dealt with according to the established practice, rules and regulations. It should be noted, however, that medical evacuation in the event of a pandemic may not be possible due to public health regulations, and the extraordinary logistic difficulties of transporting infectious persons safely.

47. Depending on circumstances, it may be appropriate to establish [a consultation area \(fever clinic\)²³ established on UN premises](#). This should be in an area that allows separation of staff coming to the building for consultation, and healthy staff coming to work to perform essential activities. Staff at fever clinics would for example, give advice on infection control, dispense antiviral therapy and organise referrals to designated Influenza hospitals as appropriate. Guidance for medical staff for setting up such a consultation capability can be found at <http://un-influenza.org/node/4521>²⁴.

48. Guidance for medical staff with respect to assessment and treatment of pandemic influenza cases is available on the [UN Staff Pandemic Information Portal](#)²⁵ and at [WHO](#)²⁶

49. From the time that pandemic influenza cases appear in the region of a duty station and until the pandemic alert has been officially ended, all UN staff in the affected area should check their body temperature at least once daily. If they note a temperature of 38°C or higher, or are experiencing other symptoms of influenza, they should seek medical assessment through the channels identified in the Country Team plan. The management of staff recently exposed to infected cases (i.e. “contacts”) will be provided to duty stations as the situation changes. However the general principles of managing contacts are based upon tracing and monitoring the contacts. Identified contacts should take their temperature twice a day, and if they develop fever or other flu like symptoms they should notify their healthcare provider.

²³ Western Australia Department of Health, “Guidelines for Establishing a Fever Clinic During an Influenza Pandemic”, 2007. Available at <http://www.public.health.wa.gov.au/cproot/186/2/feverclinic.pdf>

²⁴ And <http://www.un.org/staff/pandemic/>

²⁵ <http://www.un.org/staff/pandemic/>

²⁶ http://www.who.int/csr/resources/publications/swineflu/imai_h1n1.pdf

Medications

Antiviral Medications

50. Neuraminidase inhibitors, a group of antiviral medications, are widely considered to be the best available option for the pharmacological mitigation of the morbidity and mortality of an influenza pandemic. It is important to note that the effectivity and sensitivity of a viral strain that has not yet emerged cannot be assessed with any certainty. At this time, the evidence that is available suggests that oseltamivir can reduce the duration of viral replication and improve prospects of survival, provided it is administered within 48 hours from the time of onset of symptoms. Information regarding the safety and efficacy of treating children and pregnant women is now available^{27 28}. In general in a pandemic situation, the use of antiviral medicines provides benefits which significantly outweigh any theoretical risks in these patient groups, and that antiviral medicines could be given, in appropriate doses, to treat pregnant women and children under the age of one year with clinically diagnosed influenza.²⁹

51. In an occupational health context, an employer requiring a particular group of staff to be exposed to risk has a duty to take measures to reduce that risk to the extent feasible. The use of antivirals should never be considered as an “activity enabling” strategy (i.e. the activity is considered acceptable due to the protective effect of medication). As has been described above, the primary and most effective measure is behavioral avoidance of exposure, followed by use of Personal Protective Equipment (PPE).

52. Pharmacological prophylaxis, either pre or post exposure could provide additional protection for staff at high risk of complications from influenza. Decisions on use (or not) under such circumstances will depend on information available at the time of a pandemic regarding virulence of the prevailing viral strain, its sensitivity to the medication, and taking account of public health recommendations that may be released by WHO. Other facts that will influence the decision could include evaluating the risk of exposure related to undertaking activities that could produce infective aerosols.

53. Guidance for medical practitioners regarding the use of medications such as oseltamivir and zanamivir as treatment and prophylaxis can be found at WHO³⁰

54. When a pandemic emerges, supplies of medications useful against influenza, particularly antivirals, will be in high demand. Depending on local medical infrastructure and resources, supplies could be exhausted rapidly. UN offices should assess local supply possibilities, and ensure that their staff will have access to sufficient supplies if needed. If local supplies are uncertain, stockpiling on country level should be considered. For planning purposes, the United Nations System Influenza Coordinator has estimated a likely overall attack rate (i.e., the number of new symptomatic illnesses over one year) of 25% (Table 2). However, in assessing the adequacy of local supplies, or the location of a potential UN stockpile, the following also needs to be considered:

²⁷ <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6001a1.htm>

²⁸ http://www.who.int/csr/resources/publications/swineflu/h1n1_guidance_pregnancy.pdf

²⁹ http://www.who.int/csr/resources/publications/swineflu/clinical_management/en/ page 6

³⁰ http://www.who.int/csr/resources/publications/swineflu/clinical_management/en/ page 12 and 13

- Some people who will develop symptoms will not have pandemic influenza but may have colds or other respiratory infections. Some of the available supply is likely to be used to treat non-pandemic illnesses;
- Some people develop uncomplicated influenza and may not require antiviral therapy
- Ease of distribution, and ways in which it can be ensured that medications will reach those who need it, will vary between duty stations.

55. Currently, it is recommended that Country Team plans ensure a supply of antivirals to cover one treatment course for 25% of staff and their recognized dependants. This may be achieved simply through access to local supplies, or through stockpiling if local supply is considered inadequate or unreliable.

56. The UN Medical Directors have previously authorized extension of oseltamivir shelf-life to 7 years from date of production, provided that storage conditions meet manufacturer's specifications. Current indications are that oseltamivir is an extremely stable compound, and might still be effective for 10 years or longer. Until such time as definitive research can inform future shelf-life extension decisions, it is recommended that current stockpiles should not be discarded when reaching the 7 year date. Such oseltamivir stocks (kept longer than 7 years) should not be used without specific authorization from the UN Medical Directors. As further data becomes available from the drug manufacturers further shelf life extensions will be considered and agencies advised accordingly.

57. Taking account of the recent H1N1 experience, the UN Medical Directors do not consider that there is sufficient indication to warrant procurement and/or stockpiling of antivirals for prophylactic purposes.

58. The adult formulation of oseltamivir is not directly suitable for use in children who weigh less than 40 kg. Until recently, the only approved formulation for children was the pediatric syrup, stockpiling of which was hindered by the short shelf life³¹. This situation has been alleviated by availability of pediatric strength capsules, which has the same manufacturer's shelf life (7 years³²) as the adult form as well as the provision of instructions for [extemporaneous compounding of suspensions using adult capsule](#)³³³⁴. At the time of replenishment of current stockpiles, it is suggested that consideration be given to substituting a portion of the new stock with pediatric capsules, in a quantity commensurate with the dependant profile at particular duty stations.

59. Oseltamivir and Zanamivir are prescription medications that should be taken according to medical advice and not be self medicated. If deemed necessary to stockpile, the stocks of medications should ideally be under the responsibility of the UN Medical Service physician at the duty station. At duty stations where UN medical staff are not available, the organizations' representatives should hold the stockpile, if necessary, and make the medication available to pre-identified physicians who will make prescription decisions.

³¹ Usually only 18 months at the time of acquisition.

³² Assuming storage under proper conditions as outlined in

³³ Available at <http://www.tamiflu.com/hcp/dosing/extprep.aspx>

³⁴ http://www.tamiflu.com/hcp/prescribing/hcp_prescribe_mix.jsp

60. Depending on the situation, certain duty stations may have substantial security concerns in maintaining their stockpile, if necessary. For such stations, adequate security measures should be put in place to address this.

61. For current stockpiles of oseltamivir, the storage area should be dry, and have a temperature that does not exceed 25°C. Under these conditions the shelf life is expected to be at least 5 years. For more information please follow manufacturers instructions, [Roche](#)^{35 36} and for storage , disposal recommendations follow [WHO guidelines](#)³⁷ If storage conditions have not met the above conditions, the manufacturer is able to perform tests to determine the efficacy of the medication, and if results are satisfactory, shelf life could also be extended. If this process is followed, the manufacturer recommends that 6 packets per batch should be tested (at an approximate cost of \$2,400 at time of writing). All testing enquiries should be directed to:

Josef Leuchtner, Ph.D.
Product Supply Chain Leader Tamiflu,
F. Hoffmann-La Roche Ltd
Office: + 41 (0) 61 68 85636
Mobile: +41 (0) 79 597 2008
Fax: +41 (0) 61 68 81665
Email: josef.leuchtner@roche.com

Each stockpile holder will need to evaluate their own stockpile conditions, and financial situation, and determine whether shelf-life renewal may be more cost beneficial than simple stock replacement. At current prices, stockpile holders with more than 96 packets of oseltamivir in stock may find it economical to conduct testing, and extend shelf life if results are satisfactory.

62. In cases where it has not been possible to donate antiviral supplies prior to expiry, and where an extension of shelf life has not been made, [WHO's guidelines](#)³⁸ on the safe disposal of unusable pharmaceuticals should be strictly followed.

Antipyretics and Antibiotics

63. Supportive care includes Antipyretics, such as paracetamol or acetaminophen, are indicated in most febrile diseases to relieve pain and control fever. Salicylates (such as aspirin or aspirin containing products) should not be used in children and young adults aged (<18) because of the risk of Reyes syndrome. Antipyretics are widely available and no particular stockpile is recommended.

64. The past pandemics (1918, 1957, and 1968) were all associated with secondary bacterial pneumonia - a major cause of death. In the 2009 H1N1 influenza pandemic, bacterial pneumonia, usually caused by *Staphylococcus aureus* (often methicillin-resistant), *Streptococcus*

³⁵ Prescribing information and storage instructions : <http://www.tamiflu.com/>

³⁶ Roche: <http://www.gene.com/gene/products/information/tamiflu/>

³⁷ WHO "Guidelines for Safe Disposal of Unwanted Pharmaceuticals in and After Emergencies" 1999:
http://www.who.int/water_sanitation_health/medicalwaste/unwantpharm.pdf

³⁸ WHO, "Guidelines for Safe Disposal of Unwanted Pharmaceuticals In and After Emergencies", 1999. Available at http://www.who.int/water_sanitation_health/medicalwaste/unwantpharm.pdf

pneumoniae, *S. Pyogenes* and sometimes other bacteria, was suspected or diagnosed in 20-24% of ICU patients and found in 26-38 % of patients who died, often in association with a short clinical course. In some cases, death from the 2009 H1N1 influenza virus and bacterial co-infection occurred within 2-3 days. The antibiotics treatment should be targeted and to cover the above-mentioned pathogens, which are often common pathogens of community acquired pneumonia (including *Haemophilus influenzae*). The choice of antibiotics should consider local profile of antimicrobial resistance of these pathogens and could include penicillin G, macrolides, erythromycin, 1st & 2nd generation cephalosporins, ampicillin, amoxicillin, and if MRSA is suspected, vancomycin, for example. As the antibiotics recommended for these bacterial infections are utilized for many other medical conditions and are generally in good supply, it is anticipated that availability under pandemic conditions will be better than for antivirals and therefore are not generally recommended to be stockpiled. Should agencies be concerned about access to local supplies, this should be addressed through the usual medical channels for that location.

65. For agencies that have previously stockpiled antibiotics please note that whenever possible unused antibiotics should be donated prior to their expiry dates to UN Dispensaries, UN Examining Physicians, or alternatively local healthcare facilities. As previously stated agencies should only replace these as part of a specific pandemic stockpile if advised by their medical services to do so.

Vaccines

Vaccine Against Seasonal Influenza

66. While seasonal influenza vaccine will not protect against a pandemic strain and does not provide protection against many other viruses that can cause respiratory illnesses, immunization against seasonal influenza is an important part of pandemic influenza preparedness. As a public health measure, it reduces the statistical chance of seasonal and avian influenza virus co-existence in one host – a condition conducive to recombination and emergence of a pandemic influenza strain. As a practical aid, it could reduce the number of individuals seeking treatment at the time of a pandemic (when seasonal influenza may also be circulating), thus sparing resources for pandemic influenza victims.

67. There is a vaccine available each year to protect against seasonal human influenza. This vaccine is recommended primarily for staff and dependants who are at high risk of complications from influenza or who will be traveling internationally. If supply allows, it should also be made available to all other UN personnel and their dependents. Influenza vaccination is a highly cost-effective countermeasure against seasonal influenza. Recommendations for seasonal influenza vaccines are made annually by the [WHO³⁹](#).

68. In most years, the northern and southern hemisphere vaccines are identical or very similar. Persons living in the northern hemisphere should be vaccinated with the northern hemisphere vaccine while those living in the southern hemisphere should be vaccinated with the southern hemisphere vaccine. For those living in equatorial regions, vaccinations will be with the vaccine locally available at that time. Vaccination programs should be commenced once the vaccine for the appropriate hemisphere becomes available. In the northern hemisphere, this will generally be

³⁹ Available at <http://www.who.int/csr/disease/influenza/vaccinerecommendations/en/index.html>

in October and November and in the southern hemisphere, from March to May. Travelers are advised to have the vaccine of the hemisphere where they are based.

Pneumococcal Vaccine

69. Pneumococcal vaccine should be considered for people at particular risk for the bacterial pneumonia complication of influenza, including those 65 years of age or older, those with heart failure, emphysema, diabetes mellitus, alcoholism, or chronic liver disease, and those who are otherwise [immune compromised](#)⁴⁰. Persons who meet these criteria are advised to contact their usual health care providers. No UN stockpile is recommended.

Vaccine Against Pandemic Influenza

70. When a new pandemic virus strain emerges, there will be a focused effort by public health authorities and manufacturers worldwide to develop, distribute and administer an effective and specific pandemic vaccine. However, recent experience has demonstrated that the process is complicated and it will take a number of months before a vaccine would be available.

71. WHO will closely follow the development, protective effect and safety of any new pandemic vaccine and will make recommendations on its use as appropriate. Under the best of circumstances, given the global population size and limited production capacity for influenza vaccine, any pandemic vaccine will initially be in short supply. Demand is likely to far exceed availability, and priorities for administration will need to be applied. Additionally, countries may differ in their vaccination strategies and policies, and duty stations should take into account their individual situation during the planning process.

72. It is presumed that priority recipients will include those involved with direct clinical contact with infected patients, those staff required to maintain critical functions with high risk of exposure, and those at particularly high risk of serious complications, such as the elderly and those with chronic diseases. However, there may be modifications to the list of “at-risk” groups as information is gathered on the nature of the pandemic virus and the groups most at risk of severe illness and death. Based on current WHO recommendations, guidance for the priority for administration of a pandemic vaccine is as follows:

a. Persons with Close Contact with Known/Suspect Patients:

i. Medical staff who, as part of their duties, manage infected patients clinically and have close contact (<1 meter or 3 feet) with known/suspected patients or their infectious material (Risk Category 1 - Table 3);

ii. Other staff who, as part of their duties of performing critical functions, have close contact (<1 meter or 3 feet) with known/suspected patients or their infectious material (Risk Category 2 - Table 3);

b. Other Persons at Risk

⁴⁰ For more information, please refer to the 2007 “WHO International Travel and Health Publication”, (Pgs 108-109). Available at <http://www.who.int/ith/en/>

- i. Remaining staff performing critical functions;
- ii. Persons at high risk of severe or fatal outcomes following influenza infection. WHO's Strategic Advisory Group of Experts⁴¹ in 2009 and again in 2010⁴² suggested the following groups for consideration, noting that countries need to determine their order of priority based on country-specific conditions:
 - I. pregnant women;
 - II. those aged above 6 months with one of several chronic medical conditions;
 - III. healthy young adults of 15 to 49 years of age;
 - IV. healthy children;
 - V. healthy adults of 50 to 64 years of age;
 - VI. and healthy adults of 65 years of age and above.

Communication and Training

73. The importance of effective communication for pandemic preparedness cannot be overstated. The most effective strategies that both individuals and organizations can implement to reduce the impact of a pandemic are those aimed at changing behavior and exposure to risk. Behavior can only be changed through education and communication. The importance of personal hygiene, social distancing and methods to achieve that in individual and organizational context should be key components of pandemic preparedness and its associated communication plan.

74. The threat of an influenza pandemic will create a high demand for information both within the UN and from external partners. Clear internal and external communication will be essential to deal rapidly with rumors and anxieties. It will be vital to coordinate the information that is circulated by headquarters, regional and country offices. A country communication plan, in association with headquarters and the regional offices, needs to be prepared to provide appropriate information rapidly to all UN staff. This should identify who is responsible for coordinating UN information and communications. Medical services should be ready to contribute the medical information that will be part of such communication.

75. All UN medical personnel providing health care to UN staff should be knowledgeable regarding the contingency plan for an influenza pandemic, and be provided with all available and current medical guidelines.

⁴¹ http://www.who.int/csr/disease/swineflu/notes/h1n1_vaccine_20090713/en/

⁴² http://www.who.int/immunization/newsroom/news_report_sage_meeting_april_2010/en/

ACTION PLAN

76. The following table outlines a series of actions to be taken by duty stations according to three modes of response, taking account of progressively increasing levels of risk.

77. In conjunction with the UNSIC, the UN Medical Director will advise the medical staff and/or Country Teams at duty stations which mode is appropriate to their local circumstances, in accordance with the unfolding pandemic situation in their region/country:

Level 1: Readiness Mode

Associated with WHO global pandemic alert phases 1-3. At the time of writing, all duty stations are in this mode. It is necessary to prepare, review and continuously update medical response plans and strategies.

Level 2: Crisis Response Mode

This will probably be associated with WHO global pandemic alert phases 4 and 5. A new influenza subtype is confirmed to have caused outbreaks of human cases outside of the region/country in question. Time to ensure preparedness is limited, and an urgent scaling up of all preparedness actions is indicated, including testing of medical response procedures. Duty stations in the area of outbreaks may be advised to adopt the next level of preparedness (State of Emergency).

Level 3: Emergency Mode

This will probably be associated with WHO global pandemic alert phases 5 and 6. A new influenza subtype is causing widespread international outbreaks of human cases, or there are human cases/outbreaks in the region/country in question. Full implementation of medical response measures is required.

78. UN Offices should develop or update their medical pandemic preparedness plans to address the recommendations made here. Plans should also be individualized to take into account of and be consistent with preparedness activities and plans of local and/or national authorities.

LEVEL 1: READINESS MODE

ACTION		RESPONSIBILITY
PLANNING AND COORDINATION		
Planning and Coordination	Brief relevant officials of the UN organizations on present medical situation, possible outcomes and related resource requirements.	UN Medical Directors, Senior Medical Professional at duty station
	Assess medical preparedness status and identify actions needed to fill gaps.	UN Dispensary/Clinic (where available), or contracted health care service provider
	Collaborate with relevant stakeholders and partners (e.g. national government, health authorities) to respond to a pandemic.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team
	Develop a business continuity plan for the Medical Services, allowing performance of critical functions with reduced numbers of staff.	UN Dispensary/Clinic (where available), or contracted health care service provider
PUBLIC AND OCCUPATIONAL HEALTH		
Preparedness	Familiarize with the UN Medical Services Guidelines	All
Personal Hygiene and Social Distancing	Raise awareness among staff and implement pandemic prevention strategies of personal hygiene and social distancing.	UN Dispensary/Clinic (where available), or contracted health care service provider
PPE	Quantify the number of staff in each Risk Category (Table 3). If necessary and local supply unavailable to meet needs, procure and store sufficient stocks of the required PPE for these staff.	UN Country Team, Individual UN Agencies, UN Dispensary/Clinic (where available), or contracted health care service provider
	Ensure staff are trained on the proper use and disposal of PPE.	UN Dispensary/Clinic (where available), or contracted health care service provider
	Where local healthcare conditions indicate the need, develop plans for PPE distribution.	UN Country Team, Crisis Management Team, Individual UN Agencies
Travel	Provide education to travelers, and issue travel advisories, precautions, or restrictions as necessary.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider

MEDICAL INTERVENTIONS		
Medical Consultation and Advice	Assess capability of medical systems to meet expected needs during a pandemic, and identify and source supporting resources required.	UN Medical Directors, Senior Medical Professional at duty station, UN Country Team
	For identified supporting outpatient and hospital-based healthcare providers, prepare contractual agreements and develop specific protocols for UN staff to use these facilities.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team
	Where local health care conditions indicate the need, develop plans for creating local auxillary outpatient “fever clinics” for UN staff and their dependents designed to reduce the risk of transmission of pandemic influenza.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team
	Develop procedures for UN Medical Services staff to consult, examine and prescribe and dispense medications when support to local medical services is required	UN Dispensary/Clinic (where available), or contracted health care service provider
	Provide guidance to healthcare providers on clinical management and infection control	UN Medical Directors in consultation with WHO
	In coordination with local health authorities, ensure surveillance mechanism to identify suspect cases among staff in place.	UN Dispensary/Clinic (where available), or contracted health care service provider
Seasonal Influenza Vaccine	Promote and facilitate an annual seasonal influenza vaccination programme.	UN Dispensary/Clinic (where available), or contracted health care service provider
Pandemic Vaccine	Prioritize and identify the groups who will receive the Pandemic vaccine once it becomes available (Para 75).	UN Medical Directors in consultation with WHO
	Monitor guidance and international and local availability of the Pandemic vaccine.	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
Antivirals	Monitor and disseminate updated guidance on strategies, effectiveness and priorities for use of antivirals.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider
	Consider local supply conditions and ensure availability and accessibility of a stockpile of antivirals to treat 25% of staff and recognized dependants	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
	If necessary, ensure stockpiled antivirals are stored appropriately and securely.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team

	If necessary, prepare to distribute/administer antivirals to staff for treatment .	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
Antipyretics	Antipyretics, such as paracetamol are usually readily available. However, staff members should be encouraged to stock enough for their own needs	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team
Antibiotics	Identify sources of antibiotics for outpatient treatment of secondary bacterial infections. Agencies should advise their medical services should access or availability be identified as unreliable.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
COMMUNICATION AND TRAINING		
Communication and Training	Communicate the UN Medical Service Guidelines to all UN Organizations and Country Offices	UNSIC and Medical Director
	Update all staff on status of pandemic and preparedness activities	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team
	Develop medical and technical presentation materials that can be used in briefings or during other communication initiatives	UN Dispensary/Clinic (where available), or contracted health care service provider
	Enhance healthcare provider awareness of the potential for a pandemic. Disseminate information on identification of suspect cases, clinical management and infection control.	UN Dispensary/Clinic (where available), or contracted health care service provider
	Disseminate to all staff relevant materials to support a pandemic response. Such materials may include: 1) The UN Medical Services Guidelines 2) Organization's Pandemic Plan 3) General Information for all Staff (Annex 1) 4) Local Healthcare Arrangements 5) Location of Fever Clinics 6) Distribution of Medical Supplies...etc.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team

LEVEL 2: CRISIS RESPONSE MODE

ACTION		RESPONSIBILITY
PLANNING AND COORDINATION		
Planning and Coordination	Ensure regular, frequent meeting/communication between the Medical Directors and UN Healthcare Providers	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
	Assess medical preparedness status and identify immediate actions needed to fill gaps.	UN Dispensary/Clinic (where available), or contracted health care service provider
	Ensure coordination and information sharing among all relevant local stakeholders and partners (e.g. national government, health authorities)	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
	Ensure that the business continuity plan of Medical Services is updated and ready to be operationalized at short notice.	UN Dispensary/Clinic (where available), or contracted health care service provider
PUBLIC AND OCCUPATIONAL HEALTH		
Preparedness	Re-familiarize with the UN Medical Services Guidelines.	All
Personal Hygiene and Social Distancing	Urgently ensure awareness among staff and implement prevention strategies of personal hygiene and social distancing.	UN Dispensary/Clinic (where available), or contracted health care service provider
PPE	Ensure PPE are available and accessible at short notice, and stored appropriately and securely.	UN Country Team, Individual UN Agencies, UN Dispensary/Clinic (where available), or contracted health care service provider
	Provide refresher training to staff on the proper use and disposal of PPE.	UN Dispensary/Clinic (where available), or contracted health care service provider
	If necessary, distribute PPE to staff according to distribution plan.	UN Crisis Management Team, UN Country Team, Individual UN Agencies, UN Dispensary/Clinic (where available), or contracted health care service provider,
Travel	Defer all non- critical travel in accordance with WHO travel advising.	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
	Defer all travel of UN staff presenting with influenza-like symptoms	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
	Provide education to travelers who are identified to conduct critical travel, and issue travel advisories, precautions, or restrictions if warranted by disease epidemiology.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider

ACTION		RESPONSIBILITY
MEDICAL INTERVENTIONS		
Medical Consultation and Advice	Assess capacity of medical systems to meet expected needs during a pandemic, and ensure availability of supporting resources required.	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
	Confirm with identified supporting healthcare providers that contractual agreements and protocols for use of their facilities by staff are still valid.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team
	Where planned for, conduct exercises of fever clinics to ensure operational readiness.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team
	Provide updated guidance to healthcare providers on clinical management and infection control.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider
	In coordination with local health authorities, ensure surveillance mechanism to identify suspect cases among staff in place.	UN Dispensary/Clinic (where available), or contracted health care service provider
Seasonal Influenza Vaccine	Monitor and implement updated guidance on seasonal influenza vaccine usage.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider
“Pandemic” Vaccine	Update priority groups who will receive the Pandemic vaccine when it becomes available.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider
	If available, acquire pandemic vaccine and vaccinate staff according to priority groups, as necessary.	UN Dispensary/Clinic (where available), or contracted health care service provider
Antivirals	Monitor and disseminate updated guidance on strategies, effectiveness and priorities for use of antivirals.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider
	If necessary, ensure stockpiled antivirals are available at short notice, accessible and stored appropriately and securely.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
	Depending on prevailing guidance and situation of local duty station, it may be necessary to distribute/administer antiviral medications to staff for treatment,.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
Antipyretics	Remind staff to procure their own supplies of antipyretics.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team

ACTION		RESPONSIBILITY
Antibiotics	Ensure antibiotics are accessible locally. Agencies should advise their medical services should access or availability be identified as unreliable.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
COMMUNICATION AND TRAINING		
Communication and Training	Update all staff on status of pandemic and preparedness and response activities.	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
	Educate healthcare providers through all communication channels available.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team
	Update and disseminate to all staff relevant materials to support a pandemic response. Such materials may include: 1) The UN Medical Services Guidelines 2) Organization's Pandemic Plan 3) General Information for all Staff (Annex 1) 4) Local Healthcare Arrangements 5) Location of Fever Clinics 6) Distribution of Medical Supplies...etc.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Crisis Management Team

LEVEL 3: EMERGENCY MODE

ACTIONS		RESPONSIBILITY
PLANNING AND COORDINATION		
Planning and Coordination	Ensure regular and frequent consultation by telecommunication between UN Medical Directors and UN Healthcare Providers	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
	Ensure coordination and information sharing among all relevant local stakeholders and partners (e.g. national government, health authorities).	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
	Implement business continuity plans.	UN Dispensary/Clinic (where available), or contracted health care service provider

PUBLIC AND OCCUPATIONAL HEALTH		
Personal Hygiene	Urgently ensure awareness among staff and implement pandemic prevention strategies of personal hygiene and social distancing.	UN Dispensary/Clinic (where available), or contracted health care service provider
PPE	Ensure PPE are available, accessible and stored appropriately and securely, and issued to identified risk groups, if necessary.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, Individual UN Agencies, UN Crisis Management Team
	Provide refresher training to staff on the proper use and disposal of PPE	UN Dispensary/Clinic (where available), or contracted health care service provider
Travel	Defer all non- critical travel	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
	Defer all travel of UN staff presenting with influenza-like symptoms	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
	Provide education to travelers who are identified to conduct critical travel, and issue travel advisories, precautions, or restrictions if warranted by disease epidemiology.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider
MEDICAL INTERVENTIONS		
Medical Consultation and Advice	Review and revise, as needed, plans for healthcare support to staff.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Crisis Management Team, UN Country Team
	Confirm with identified supporting healthcare providers that contractual agreements and protocols for use of these facilities by staff are still valid, and can be immediately implemented.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
	Where planned for, operate the fever clinics as required.	UN Dispensary/Clinic (where available), or contracted health care service provider
	Provide updated guidance to healthcare providers on clinical management and infection control in healthcare and home settings.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider
	Initiate surveillance for mortality and severe morbidity among staff.	UN Dispensary/Clinic (where available), or contracted health care service provider
Pandemic Vaccines	Review and revise, as needed, priority groups and strategies for vaccination.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider
	If available, acquire pandemic vaccine, and vaccinate according to priority groups.	UN Dispensary/Clinic (where available), or contracted health care service provider

Antivirals	If necessary, ensure stockpiled antivirals are immediately available, accessible and stored appropriately and securely.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
	Monitor and disseminate updated guidance on strategies, effectiveness and priorities for use of antivirals.	UN Medical Directors in consultation with WHO, UN Dispensary/Clinic (where available), or contracted health care service provider
	Ensure antivirals are distributed / administered to indicated staff for treatment.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team
	Track antiviral distribution to staff and any adverse events.	UN Dispensary/Clinic (where available), or contracted health care service provider
COMMUNICATION AND TRAINING		
Communication and Training	Update all staff on status of pandemic and response activities through regular briefings.	UN Medical Directors, UN Dispensary/Clinic (where available), or contracted health care service provider
	Educate healthcare providers through all communication channels available.	UN Dispensary/Clinic (where available), or contracted health care service provider
	Continue public education activities, reinforcing education on care seeking and home care.	UN Dispensary/Clinic (where available), or contracted health care service provider, UN Country Team, UN Crisis Management Team

ANNEX 1: ADDITIONAL INFORMATION RESOURCES

For general advice to be shared with all staff

- <http://www.un.org/staff/pandemic/>

Hand Hygiene

- <http://www.who.int/gpsc/en/> or <http://www.who.int/gpsc/tools/GPSC-HandRub-Wash.pdf>
- <http://www.cdc.gov/cleanhands/>

Personal Hygiene including respiratory etiquette

- <http://www.cdc.gov/flu/protect/habits.htm>

Infection control guidance

Given some uncertainty about the characteristics of a new pandemic strain, all aspects of preparedness planning for pandemic influenza must allow for flexibility and real-time decision-making that takes new information into account as the situation unfolds. The specific characteristics of a new pandemic virus—virulence, transmissibility, initial geographic distribution, clinical manifestation, risk to different age groups and subpopulations, and drug susceptibility—will remain unknown until a pandemic is underway. If the new virus is unusual in any of these respects, the UN Medical Service will provide updated infection control guidance. Available evidence suggests that transmission of human influenza viruses occurs through multiple routes including large droplets, direct and indirect contact, and droplet nuclei. However, observational studies conducted in health-care facilities suggest that droplet transmission is the major mode of transmission in that setting. Please refer to WHO guidance located at:

- http://www.who.int/csr/resources/publications/cp150_2009_1612_ipc_interim_guidance_h1n1.pdf
- http://www.who.int/csr/resources/publications/WHO_CDS_EPR_2007_6c.pdf

Clinical Management of Infected Persons

Clinical Management in resource limited countries:

http://www.who.int/mediacentre/events/meetings/2010/influenza_lessons/en/

Clinical management of human infection with pandemic (H1N1) 2009 revised guidance:

http://www.who.int/csr/resources/publications/swineflu/clinical_management/en/

Clinical management of human infection with avian influenza A (H5N1) virus:

http://www.who.int/csr/disease/avian_influenza/guidelines/clinicalmanage07/en/index.html

Antiviral Prescribing Information:

Tamiflu (oseltamivir) English: <http://www.tamiflu.com/>

Tamiflu (oseltamivir) Espanol: http://www.tamiflu.com/pc_spanish_info.jsp

Tamiflu (oseltamivir) Information for healthcare providers: <http://www.tamiflu.com/hcp/hcp.jsp>

Relenza (zanamivir): <http://www.relenza.com/>

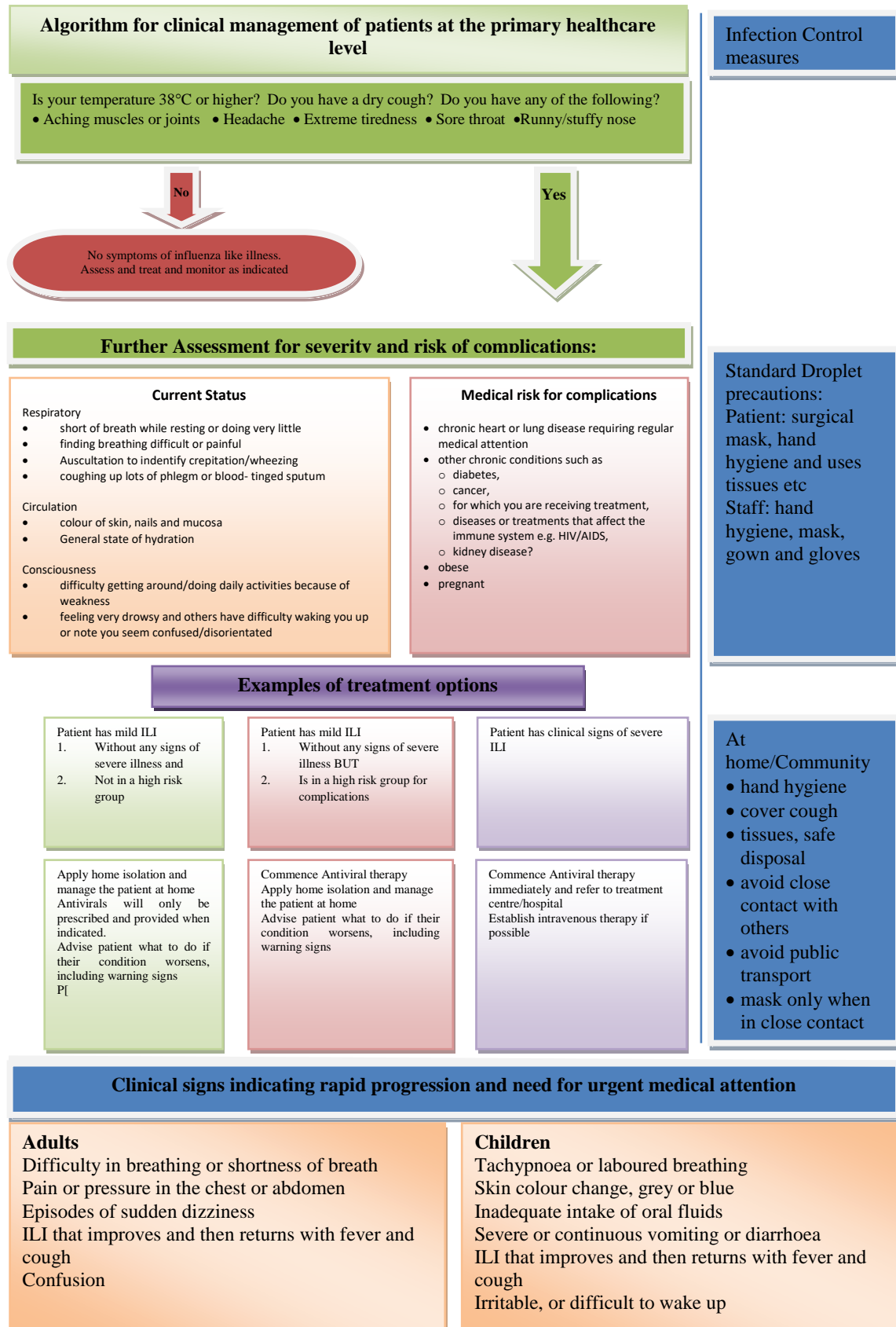
Relenza (zanamavir) Prescribing Information: http://us.gsk.com/products/assets/us_relenza.pdf

Relenza (zanamavir) Patient Information:

http://us.gsk.com/products/assets/us_relenza_pil.pdf

ANNEX 2: ALGORITHM FOR CLINICAL MANAGEMENT OF PATIENTS WITH MILD TO MODERATE PANDEMIC INFLUENZA

(based on the East Mediterr Health J. 2011;17(4):342-8. "Clinical management guidelines for pandemic (H1N1) 2009 virus infection in the Eastern Mediterranean Region: technical basis and overview")



ANNEX 3: RECOMMENDATIONS ON PERSONAL PROTECTIVE EQUIPMENT^{43 44}

The following types of PPE are recommended for health care workers providing care to avian or pandemic influenza-infected patients

- The use of PPE is mandatory if direct close contact with the patient is anticipated and when entering the room where aerosol-producing procedures³ in avian or pandemic influenza-infected patients are being performed.
- The PPE recommended when providing care to avian influenza-infected patients are:
 - Surgical mask
 - Particulate respirators that are at least as protective as NIOSH-certified N95, EU FFP2, or equivalent should be used when performing aerosol-generating procedures.
 - Appropriate procedures should be used to select a particulate respirator that fits well and a “user seal check” (see below) should be performed each time a disposable particulate respirator is worn.
 - Surgical masks do not provide protection against small-particle aerosols (droplet nuclei) and aerosol-generating procedures should not be avoided as much as possible performed if a particulate respirator is not available.
 - Eye protection (face shield, visor, or goggles) if sprays/splashes of secretions are anticipated and for all aerosol-generating procedures. When providing care, in close contact with a patient with respiratory symptoms (e.g. coughing/sneezing), sprays of secretions may occur and eye protection should be used.
 - Clean, non-sterile ambidextrous gloves, which should cover the cuffs of the gown.
 - Clean, non-sterile long-sleeved gowns (fluid-resistant, if available); If cloth gowns are used, a waterproof apron should also be used if splashing of blood, body fluids, excretions, or secretions is anticipated.

⁴³ WHO, “Infection Prevention and Control of Epidemic- and Pandemic-Prone Acute Respiratory Diseases in Health Care”, June 2007. Available at

http://www.who.int/csr/resources/publications/WHO_CDS_EPR_2007_6c.pdf

⁴⁴ WHO, “Avian Influenza, Including Influenza A (H5N1), in Humans: WHO Interim Infection Control Guideline for Health Care Facilities”, 10 May 2007. Available at

http://www.who.int/csr/disease/avian_influenza/guidelines/infectioncontrol1/en/index.html

Putting On and Removing PPE

Suggested Sequence for Putting on PPE (when all PPE items are needed)



- 1**
- Identify hazards & manage risk. Gather the necessary PPE.
 - Plan where to put on & take off PPE.
 - Do you have a buddy? Mirror?
 - Do you know how you will deal with waste?



- 2** Put on a gown



- 3** Put on particulate respirator or medical mask; perform user seal check if using a respirator



- 4** Put on eye protection e.g. face shield/goggles (consider anti-fog drops or fog-resistant goggles)
Caps are optional: if worn, put on after eye protection



- 5** Put on gloves (over cuff)

Suggested Sequence for Removal of PPE



- 1**
- Avoid contamination of self, others & the environment
 - Remove the most heavily contaminated items first

Remove gloves & gown:

- peel off gown & gloves and roll inside, out
- dispose gloves and gown safely



- 2** **Perform hand hygiene**



- 3**
- Remove cap (if worn)
 - Remove goggles from behind
 - Put goggles in a separate container for reprocessing



- 4** Remove respirator from behind



- 5** **Perform hand hygiene**

Particulate Respirator User Seal Check



- 1 Cup the respirator in your hand with the nosepiece at your fingertips allowing the headbands to hang freely below your hand



- 2 Position the respirator under your chin with the nosepiece up



- 3 Pull the top strap over your head resting it high at the back of your head. Pull the bottom strap over your head and position it around the neck below the ears



- 4 Place fingertips of both hands at the top of the metal nosepiece. Mould the nosepiece (USING TWO FINGERS OF EACH HAND) to the shape of your nose. Pinching the nosepiece using one hand may result in less effective respirator performance



- 5 Cover the front of the respirator with both hands, being careful not to disturb the position of respirator

5A Positive seal check
- Exhale sharply. A positive pressure inside the respirator = no leakage. If leakage, adjust position and/or tension straps. Retest the seal.
- Repeat the steps until respirator is sealed properly

5B Negative seal check
- Inhale deeply. If no leakage, negative pressure will make respirator cling to your face.
- Leakage will result in loss of negative pressure in the respirator due to air entering through gaps in the seal

Hygiene Techniques

How to handwash? WITH SOAP AND WATER

0 Wet hands with water

1 apply enough soap to cover all hand surfaces.

2 rub hands together

3 right palm over left dorsum with interlaced fingers and vice versa

4 palm to palm with fingers interlaced

5 back of left hand with fingers of right hand and vice versa

6 rotational rubbing of left thumb clasped in right palm and vice versa

7 rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa

8 rinse hands with water

9 dry thoroughly with a single use towel

10 use towel to turn off faucet

11 ...and your hands are safe.

40-60 sec

Design: monitoring the network

ANNEX 4: MEDICAL SUPPLIES FOR A PANDEMIC

Depending on local supply possibilities, duty stations may have a need to procure supplies in preparation for an influenza pandemic. This should be assessed as part of each UNCT's preparedness plan, with a designated organisation taking the lead to ensure accessibility to supplies and proper storage of the stockpiles, as necessary. If deemed necessary to procure, the cost of procurement should be apportioned amongst all participating organisations accordingly.

If an agency is unable to participate in the joint procurement process, it is still envisaged, where possible, that their supplies would be stored and placed under the same responsibility as the rest of the UNCT supplies.

Stock control procedures should be put in place and carried out on a regular basis, for example, each month. Any loss due to damage etc needs to be accounted for on the stock control form and be witnessed by two persons. This process will also assist in identifying in good time, supplies that are due to expire within the coming months and allow for them to be donated prior to expiration date. Replacement of supplies should be carried out as part of the UNCT process and if deemed necessary, the costs of doing so apportioned to the agencies accordingly.

In cases where it has not been possible to donate supplies prior to expiry, and where an extension of shelf life has not been implemented, WHO's guidelines⁴⁵ on the safe disposal of unusable pharmaceuticals should be strictly followed.

Table 4. Medical Supplies To Be Made Available for a Pandemic
(As far as possible, sources should be identified to supply each duty station's needs)

Description	Quantity	Notes
Vaccines		
Seasonal human flu vaccines ⁴⁶	For staff and dependants who are at high risk for complications from influenza or who will be traveling internationally. If supplies allow, it can also be made available to all other UN personnel and their dependents.	Single dose pre-filled syringes should be procured rather than use of multi-dose vials
Pandemic strain vaccines	For Proposed Priority Groups for Pandemic Vaccine (Para. 75)	Not expected to be available for at least 6 months after the pandemic virus has been isolated
Antivirals		

⁴⁵ WHO, "Guidelines for Safe Disposal of Unwanted Pharmaceuticals In and After Emergencies", 1999. Available at http://www.who.int/water_sanitation_health/medicalwaste/unwantpharm.pdf

⁴⁶ Annual recommendations made by WHO on the composition of seasonal vaccines are available at <http://www.who.int/csr/disease/influenza/vaccinerecommendations/en/index.html>

Description	Quantity	Notes
Treatment course of Antivirals	A 5-day treatment for 25% of staff and their dependents. ⁴⁷ Supplies could be all oseltamivir, or a mixture of oseltamivir and zanamivir at a 80:20 ratio.	For treatment purposes. Current stockpiles 5 years past the Manufacturer's expiry date should be marked as "Emergency Use Only" and continue to be stored according to the manufacturer's instructions
Prophylactic course of Antivirals	No recommendation at present to ensure the availability of this supply.	Specific recommendations on the use of antivirals as prophylaxis will be provided as the pandemic situation changes.
Personal Protective Equipment		
PPE (Items in Table 5) for Staff in Risk Category 1	Six-week supply per person in Risk Category 1.	Offices should identify and quantify the number of staff who may fall into Risk Category 1 (Annex 3, Table 3)
PPE (Items in Table 6) for Staff in Risk Category 2	Six-week supply per person in Risk Category 2.	Offices should identify and quantify the number of staff who may fall into Risk Category 2 (Annex 3, Table 3)
Simple Surgical masks	84 masks per staff and dependents (2 mask changes per day x 6 weeks)	3 ply
Other Supplies		
Syringes and needles	One set of syringe and needle per staff and dependent	Ensuring availability of an extra set of syringe and needle is to ensure injection safety, in case injectibles have to be used at the local facilities. This supply is not specific for pandemic.
Mortuary bags	3% of international staff population	For purpose of repatriation of bodies of deceased

⁴⁷ For purposes of treatment and prophylaxis, "staff and their dependants" denotes all staff members and their recognized dependents and all other individuals who have a direct contractual relationship with the organization and their recognized dependents.

		international staff and family members. Should be procured only if local supplies unavailable or insufficient.
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Table 5. PPE Items To be Made Available for Staff in Risk Category 1⁴⁸

This is an average supply that has been worked out for staff in Risk Category 1⁴⁹ (Annex 3, Table 3). Quantities for a 6-week supply per person in this Risk Category should be made available.

Item	Description	Unit	Quantity Per day	Quantity for 6 weeks
1	Protective goggles, polycarbonate, (reusable)	Each	3	3
2	Face mask grade P2 (or N95), disposable	BX/20	2	84
3	Surgical masks	EACH	4	168
4	Single use gloves, small, anatomically shaped, latex, non-sterile	PAIR	10	420
5	Single use gloves, medium, anatomically shaped, latex, non-sterile	PAIR	10	420
6	Single use gloves, large, anatomically shaped, latex, non-sterile,	PAIR	10	420
7	Single use plastic apron,	EACH	2	84
8	Rubber Gloves (reusable for environmental cleaning	PAIR	10	10
9	Coverall (with intergrated hair and shoe covers) or gown, hair cover and shoe covers, disposable, non sterile	EACH	2	84
10	Alcohol rub disinfectant ⁵⁰ – Dangerous goods – UN code 1987, Class 3	bottle/1000ml	1	1
11	Disposable bag for bio-hazardous waste – 1 bag per day for 6 weeks.	EACH	1	42 bags
12	Disposal bag for bio hazardous waste, small,	EACH	1	42 bags

⁴⁸ This PPE kit is not adequate for veterinarian purposes including for culling.

⁴⁹ Health care workers who manage patients clinically and have close contact (<1 meter or 3 feet) with known/suspected pandemic patients or their infectious material

⁵⁰ If necessary, this should be procured locally to avoid problems with shipping of dangerous goods. If it cannot be supplied locally, order separately. Alternatively, chlorhexidine gluconate 4% solution in bottles of 250 ml each (that means 4 bottles per kit to equal the liter requirement per kit), could be procured.

Item	Description	Unit	Quantity Per day	Quantity for 6 weeks
	with “Bio-Hazard” print, polypropylene – 1 bag per day for 6 weeks			

Table 6. PPE Items To Be Made Available for Staff in Risk Category 2

This is an average supply that has been worked out for staff in Risk Category 2⁵¹ (Annex 3, Table 3). Quantities for a 6-week supply per person in this Risk Category should be made available and a source of supply identified..

Item	Description	Unit	Quantity Per day	Quantity for 6 weeks
1	Surgical masks	EACH	4	168
2	Single use gloves, small, anatomically shaped, latex, non-sterile	PAIR	10	420
3	Single use gloves, medium, anatomically shaped, latex, non-sterile	PAIR	10	420
4	Single use gloves, large, anatomically shaped, latex, non-sterile,	PAIR	10	420
5	Single use plastic apron,	EACH	2	84
6	Rubber Gloves (reusable for environmental cleaning	PAIR	10	10
7	Coverall (with intergrated hair and shoe covers) or gown, hair cover and shoe covers, disposable, non sterile	EACH	2	84
8	Alcohol rub disinfectant ⁵² – Dangerous goods – UN code 1987, Class 3	bottle/ 1000ml	1	1
9	Disposable bag for bio-hazardous waste – 1 bag per day for 6 weeks.	EACH	1	42 bags
10	Disposal bag for bio hazardous waste, small, with “Bio-Hazard” print, polypropylene – 1 bag per day for 6 weeks	EACH	1	42 bags

⁵¹ Non-health care worker staff who have close contact (<1 meter) with known/suspected pandemic patients or their infectious material

⁵² If necessary, this should be procured locally to avoid problems with shipping of dangerous goods. If it cannot be supplied locally, order separately. Alternatively, chlorhexidine gluconate 4% solution in bottles of 250 ml each (that means 4 bottles per kit to equal the liter requirement per kit), could be procured.

Storage of Medical Supplies⁵³

Guidelines for the storage of essential medicines and other health commodities can be found at:

http://www.who.int/3by5/en/storage_pocketguide.pdf

Maintenance of Storage Facilities

Basic points to consider:

- Monitor storage conditions.
- Ensure that aisles are clear.
- Ensure adequate ventilation and cooling.
- Ensure that products are protected from direct sunlight.
- Monitor store security and safety.
- Check the store roof for leaks, especially during the rainy season and during or after a storm.
- Monitor product quality (visually inspect commodities and check expiration dates).
- Ensure that products are stacked correctly (e.g. check that lower cartons are not being crushed).
- Update stock records and maintain files.
- Separate stocks soon to expire and reallocate/donate prior to expiry.
- Check for signs of rodent and insect infestations
- Inspect the storage structure for damage, including the walls, floors, roof, windows, and doors.
- Visually inspect fire extinguishers to ensure that pressures are maintained and extinguishers are ready for use. Inspect and test smoke alarms.

When receiving medical supplies:

- Prior to receipt of any supplies, calculate the required storage space and ensure there is sufficient storage space.
- Prepare and clean the areas used for receiving and storing the products.
- Record the new supplies in the inventory system updating the totals.

Storage principles

In order to protect your supplies from moisture and to ensure their safe handling keep supplies:

- Use pallets
- At least 10 cm off the floor

⁵³ WHO, “Guidelines for the storage of essential medicines and other health commodities” 2004. (http://www.who.int/3by5/en/storage_pocketguide.pdf) and WHO, “Management of drugs at health centre level”, 2004 (http://whqlibdoc.who.int/afro/2004/WHO_AFR_EDP_04.3.pdf)

- At least 30 cm away from the walls and other stacks
- Read manufacturer's instructions as the stacking of equipment will depend on the item. In stacks of no more than 1.8m high in general (consider the height of your employees). Avoid crushing products stored in bulk. Heavier or fragile items should be placed in smaller stacks. Bind sharp edges or corners in the store with tape. Most important, ensure that nothing in the store can fall and injure members of the staff.
- Arrange cartons so that identification labels, expiry dates, and manufacturing dates are visible. If this is not possible, write the product name and expiry date clearly on the visible side
- Place items that will expire first in front of others with a longer expiry date to assist stock rotation. Supplies, prior to their expiry dates, should be sent to facilities to be utilised before they expire and then replaced accordingly.

Itemised Stock Lists

Each medical storage facility should maintain a stock list, which includes all of the items stored within that facility including a description of each item such as:

- Product name (including its form e.g. capsule, tablet, liquid suspension, etc. and strength)
- Expiry date
- Batch number
- Stock on hand/beginning stock balance
- Additions to stock
- Issues/losses/adjustments
- Closing balance

Cleaning

Keep the storage facility clean. Sweep and mop or scrub the floors of the storeroom regularly. Wipe down the shelves and products to remove dust and dirt. Regularly inspect and clean the outside premises of the storage facility, especially areas where garbage is stored. Check for any rodent burrows, and be sure that garbage and other waste are stored in covered containers.

Storage Conditions

Medications such as antivirals and antibiotics tablets should be stored in a dry, cool environment as per the manufacturer's instructions (usually below 25 degrees Celsius). Keep out of direct sunlight and away from heat sources.

- Regularly monitor the temperature of the different areas within the storeroom.
- Keep thermometers in various places for monitoring.
- Keep the storeroom well ventilated. For better ventilation, store boxes on pallets and leave room between rows of stacked boxes.
- Keep direct sunlight out of the storeroom.

Some of the medications that are recommended for stockpiling in preparation for a possible pandemic may have stability problems under tropical conditions for example: oseltamivir,

amoxicillin tablets, paracetamol liquid and some reconstituted antibiotics, it is important therefore to read the storage instructions supplied by the manufacturers.

The following principles will help to protect your medical supplies from loss during storage at the designated facility:

- Limit access to designated staff only.
- Limit the number of keys made for the facility and keep a list of people who have the keys.
- Secure all locks and doors after each entry to the facility; do not leave it unlocked when no one is inside.
- Provide independent stock count/inventory control.

When medications are approaching their expiry dates, and it is clear that they will not be used before that time, attempts should be made to donate the medications to facilities where they may be beneficially used before expiration. Possibilities will vary between duty stations.
