

## Module 5 : Case Management

<b>Title</b>	<b>Case Management</b>
Responsible/facilitators	Agency medical coordinator
General Objective	Alleviate suffering and minimize deaths through management of patients with pandemic influenza.
Specific Objectives	<ul style="list-style-type: none"> <li>• How to manage patients at home.</li> <li>• How to manage patients in health care facilities.</li> <li>• What to stockpile.</li> <li>• How to prioritize resources such as antibiotics and antivirals.</li> </ul>
Methodology	Presentation: Power point or printed in A3 (laminated)
Instructions for facilitators	Included in body of module
Messages to retain	The basics of case management in the home and health care setting - providing supporting care and minimizing transmission.
Contents	See text
Documents	Power point or printed in A3 presentation
Bibliography	none

- Duration = 1 hour 45 mins

## SLIDE 1

**Pandemic influenza preparedness and mitigation in  
refugee and displaced populations  
WHO training modules for humanitarian agencies**

# **Module 5**

## **Case management**

**at home and health care settings**



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## SLIDE 2

### **Objectives for module 5**

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- How to manage patients at home.
- How to manage patients in health care facilities.
- What to stockpile.
- How to prioritize resources such as antibiotics and antivirals.

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## SLIDE 3

### Working assumptions for case management supply calculations

#### WITHIN A 2-MONTH PERIOD

- Attack rate, 15 to 35% of population may become sick
- Hospitalizations, 4 to 5% of population
- Secondary infections, 10 to 25% of sick people
- Case fatality rate, 1 to 2% of sick people

#### For 100,000 people

- 15,000 to 35,000
- 4000 to 5000 (limited by capacity)
- 1500 to 8750
- 150 to 700

- It is estimated that between 15% to 35% of the population may fall sick with influenza during a pandemic, and potentially over a short period of time such as 6 weeks.
- The health system may be overwhelmed, the hospitalization capacity may be insufficient. Schools that may have closed may need to be used as additional health facilities.
- The patients who will present with the most severe symptoms will be those who develop pneumonia. Some pneumonia will be caused by the virus itself and therefore antibiotics not be of any use. Some pneumonias will be caused by secondary bacterial infections, for which antibiotics could be life-saving.
- It will be unknown what proportion of pneumonias will be bacterial until the pandemic has started and a detailed descriptions of symptoms and signs are analysed and laboratory tests conducted.
- During the 1957 pandemic, one out of every four pneumonias was bacterial. The avian influenza H5N1 virus, currently feared as having the potential to initiate a pandemic, has mainly resulted in viral pneumonias in the patients that have been investigated.
- For planning purposes, given that antibiotics are relatively expensive and will expire if they are not used within a certain time period, stockpiles should aim at providing for 10% of patients
- When the pandemic starts, the knowledge of the disease will increase and if bacterial pneumonias are a common complication, additional antibiotics will be necessary.
- Health structures will be overwhelmed and may not be able to accommodate everyone. Movements inside a camp may not be easy either. Thus the following planning exercise assumes that 1–2% of the population is cared for at the health facility level.

## SLIDE 4

This planning exercise includes estimations by UNHCR on essential service providers.

### Working assumptions Essential staff /100,000 persons (1)

- **Health** (300)
- **Other essential services** (460)
  - Sanitation/environment
  - Water continuity
  - Food distribution
  - Shelter including the construction of temporary patient admission structures
  - Security
  - Communication, including social mobilization
  - Burial team
  - Camp management
- **Ensure enough people trained to be back-up for up to 30% of ill staff** – e.g. buddy system (each worker trains 2-3 others in his/her task as back up)
- **Use those who have recovered**

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## SLIDE 5

### Working assumptions Essential staff /100,000 persons (2)

- **Health: 300 people**
  - Community health workers: 100
  - Trained birth attendant/village midwives: 50
  - Health post/clinic nurse/midwife: 20
  - Health post/clinic health workers (including cleaner): 40
  - Health centre doctors/ medical assistants: 10
  - Health centre nurses: 20
  - Health centre midwife: 10
  - Health centre health workers (including cleaner): 30
  - Pharmacy attendant: 10
  - Laboratory technician: 10
- **Sanitation/environment: 220 people**
  - Main activities: waste disposal of infected people, avoid contact human/animals, improvement of hygienic measures, minimising gatherings
  - Sanitarians: 20
  - Sanitation assistants: 200

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## SLIDE 6

### Working assumptions Essential staff /100,000 persons (3)

- **Water: 50 people**
  - Main activities: protect water sources, establish maximum storage capacity, avoid gatherings.
  - Community workers: 40; Water leaders: 10
- **Food: 50 people**
  - Main activities: storage facilities, establish maximum storage capacity in camps, distribution of food, avoid gathering
  - Community workers: 40; Food leaders: 10
- **Shelter/infrastructures: 50 people**
  - Main activities: construction of isolation and fever centre, storage (warehouse construction), separation of human/animals.
  - Community workers: 40; Shelter leaders: 10

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## SLIDE 7

### Working assumptions Essential staff /100,000 persons (4)

- **Safety/security: 50 people**
  - Main activities: security of warehouse, security of water/food distributions, integration of hosted population.
  - Community workers: 40; Security leaders: 10
- **Communication: 20 people**
  - Main activities: communication/social mobilization.
  - Community workers: 10; Communication leaders: 10
- **Camp Management: 10 people**
  - Main activities: coordination.
  - Camp management leaders: 10

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## Patient care

### Home-based care

- Most patients
- Most deaths
- Large impact in outcome

### Facility-based care

- Capacity will be limited
- Some patients will be too sick to benefit from any treatment
- Triage necessary

- The care of sick individuals is based on supportive health care, general measures and management of symptoms.
- The patient should be cared for in such a way that transmission to caregivers, other family members and other staff is minimized, particularly applying the infection control measures reviewed in the preceding module.

## Home-based care (1)

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- During a pandemic, **large numbers** of patients will *only* receive home-based care
- Those who have **recovered** are **no longer infectious** and can help in care of others
- **Only one caregiver** should be identified if possible



- As most patients will need to be cared for at home, minimizing transmission at home and in the community will have the greatest impact on morbidity. Early and appropriate supportive treatment at home may also reduce disease severity and death.
- Clear and reliable information must be provided to the community on an ongoing basis to help them know what to do and to prevent the diffusion of rumors or misconceptions. This will ultimately reinforce appropriate behaviors and reduce disease and death.
- Key and simple messages for home treatment of patients should be provided to families, particularly with the help of trusted community leaders.
- One caregiver should be selected to provide care for the patient at home. This is to reduce the risk of transmission by reducing the number of people in contact with the sick person and the need for all members of the family and to protect vulnerable groups such as children, pregnant women and the elderly.

## Home-based care (2)

- **Bed rest, oral fluids, medication for fever, and nutrition** are the main measures
- **Watch respiration** for signs of shortness of breath or difficult breathing
- Watch for **signs of dehydration**
- Keep **hydrated** with liquids, ORS (oral re-hydration solution), and food as tolerated



- Liquids are essential (in particular, water or water with solutions of sugar and salt) help to restore fluid loss, and food as tolerated.
- The other pillars of symptomatic treatment are bed rest and medications to reduce fever.
- The caregiver should reduce his/her contact with the rest of the family and community to minimize transmission.
- The caregiver should look for key symptoms and signs in the patient:
  - Is the fever leading to dehydration because of loss of liquids? (Dry mouth, little urine)
  - Is the patient thirsty and able to drink fluids?
  - Is breathing becoming difficult or is there shortness of breath?
  - Is the patient really resting in bed?
- If available, antiviral treatment should be started as soon as symptoms appear. Unfortunately there is a high chance that antivirals will not be available or that are so few that they will be prioritized for the treatment of health staff and essential service providers, so that they may keep serving others.

## Home-based care (3)

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- Do not use aspirin/salicylate in children
- **Antibiotics** may be provided by health workers, when bacterial complications are suspected
- If the patient has severe **breathing difficulties** or is **short of breath**, further care could be provided in health facilities (if capacity exists)



- Aspirin, paracetamol and other medications for fever should be given. Aspirin must be avoided in children (use paracetamol instead).
- If breathing becomes short and difficult, the patient may be developing severe pneumonia. If this happens after the second day of onset of symptoms, rather than in the first 2 days of onset of disease, there is a higher chance that the pneumonia is bacterial and that antibiotics are required.
- The patient needs to seek medical care if there is shortness of breath or difficult breathing.
- The patient with pneumonia should ideally be managed in the health care facility, however, depending on the availability of antibiotics and on previous preparedness and hospitalization capacity, antibiotics may need to be administered at home. In this case, clear instructions must be provided to the caregiver.

## Home-based care (4)

- The **patient** should **cover coughs** and sneezes **when in close contact** with others (preferably with a mask)
- If resources available, the caregiver should also wear a mask when in close contact with the patient to protect themselves
- **Tightly-fitting scarves or a re-usable mask made of cloth** covering mouth and nose can be used if masks are scarce. They should be washed daily.
- Patients and caregivers should be trained to wear and dispose of masks during the infectious period, if supplies are available
- Always **wash hands** after patient contact
- Open windows/allow **ventilation** of the room/tent



- If supplies are available, the patient and caregiver should be trained to use and dispose of masks.
- Respiratory etiquette must be practised (covering mouth and nose when sneezing or coughing, with a mask or a piece of cloth or scarf attached behind the head if masks are not available).
- Hand washing should be practised after any contact with sick person, before and after food preparation and eating, after coughing/sneezing, after cleaning clothes, linen and utensils used by the patient.
- The patient's scarf, clothes and linen will be infected with virus. They should be washed with water and soap, and hands should be washed afterwards.
- Water and soap are effective against the virus on both cloth and on hands.
- The room where the patient is kept should be well ventilated (keep the windows or tent flaps open)

## Treatment in health-care facilities (1)

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- Admission should be reserved for those most likely to benefit from treatment
- Anticipate a very high inpatient demand, up to 4-5% of the population may need hospitalization  
→ in population of 100,000 = 5000 people within 2-3 months.



- The health facility will be overburdened and health staff overworked, particularly as some of the staff will also fall sick.
- The available treatment capacity has to be prioritized to severely ill individuals with greatest chance of survival, thereby maximizing impact. For example those that are severely ill with little chance of surviving may be occupying a bed that could otherwise be used by someone else who is also severely ill but with greater chance of survival.
- Up to 5% of the population could benefit from hospitalization but in this exercise we are assuming that there is capacity for only a third of them. This is due to the fact that most patients will become ill within a short time period. As the pandemic wave starts to diminish, it may be possible to manage all severely ill patients in health care facilities.
- One caregiver should be identified from the family or community to accompany the sick patient so that as few healthy people as possible are exposed to disease in health care units.
- Patients and caregivers should wear masks and practice hand washing as explained. This is important so that there is a decreased chance of the caregiver contracting the infection but also to prevent the patient transmitting the disease and minimize his/her potential of contracting a secondary bacterial infection.

## Treatment in health-care facilities (2)

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- Have available **criteria** for **triage**, for **admission** and for **discharge**
  - (criteria are likely to change depending on demand/capacity)
- Use **PPE** according to risk (see infection control module)
- Have case management **protocols in place**
- **Separate** patients with suspected pandemic influenza



- Given that health care facilities are likely to be overwhelmed with patients, triage protocols must be in place to prioritize inpatient care for those who are severely ill and for those in which there is greatest potential benefit for survival.
- Triage definitions and criteria for admission to and discharge from inpatient facilities need to be in place in advance.
- These criteria will change during the pandemic depending on the demand and the capacity available, for example, as the number of patients begin to reduce, the criteria can be less restrictive.
- Case management protocols should be in place according to the availability of resources: antibiotics, antivirals, oxygen etc.
- Patients with suspected pandemic influenza should be separated each other so as to avoid transmission of potential secondary bacterial infections.
- If there are common wards or tents, beds should be at least 1 meter one from the other. If this is not feasible, patients could rest in a head-to-toe order so that their mouths are as far apart from each other as possible.
- This means that if one patient has their head in the upper end of the bed, the next patient has the head towards the lower end of the next bed.

## Inpatient treatment includes:

- IV or oral rehydration for dehydration
- Antipyretics (non aspirin for children)
- Nutritional supplementation as needed
- Supplemental oxygen therapy (if available)
- Antibiotic treatment for secondary bacterial infections
- Antiviral medications, if available
  - Prioritization will be necessary if quantities are low and should be reserved for treatment of essential staff who fall sick



- Other than bed rest, treatment includes giving fluids (which can be given intravenously if the patient is too ill to take liquids by mouth), medicine to reduce fever, avoiding aspirin in children and using instead paracetamol.
- Diet should be light and liquid.
- Patients that are malnourished may need nutritional therapy.
- Some settings may have oxygen or may be able to aspirate the secretions in the throat for people that have severe difficulties in breathing.
- Aspiration may produce small particles so a regular mask may not be enough for protection and a respirator that offers a much better fit should be used.
- Secondary bacterial infections, including pneumonia, can be treated with antibiotics.
- Antivirals, that have an effect on the virus itself, are ideal and should be started within the first day or two of disease onset, if they are available.
- If antivirals are available, but in low quantities, prioritization will be necessary (see slide 20).

## Antibiotics

- Till present, the majority of pneumonias associated with H5N1 have been viral and not secondary bacterial pneumonia

### However

- Antibiotics could be life-saving if a secondary bacterial infection develops in a patient with pandemic influenza
- Recommended antibiotics will depend on type of bacteria and resistance pattern
- Possible antibiotics include **amoxicillin** or **cephalosporins**
- For planning purposes, expect **secondary bacterial pneumonia in 10% of sick people**



- Appropriate choice of antibiotics for secondary bacterial infections will depend on the type of bacteria complicating pandemic influenza cases and its antibiotic resistance pattern.
- Broad spectrum antibiotics could be stockpiled in preparation for first cases until more precise guidance is available on the nature of the pandemic disease.
- Cost and efficacy are key factors in choosing antibiotics. Amoxicillin alone or in combination with clavulanic acid, or cephalosporins such as ceftriaxone, are good options.
- If secondary pneumonia related to a pandemic was rarely bacterial or if a pandemic did not appear in the next few years, stockpiling large quantities of antibiotics which do not have immediate use would be wasteful. For planning purpose it is recommended that antibiotics are stockpiled for at least 10% of the expected sick people. The recommendation for antibiotics will change when the disease and its evolution is better known.

## SLIDE 17

### Patient referral

- Limit movement and transport of patient
- If necessary, inform receiving unit
- Place surgical mask on patient
- Staff should wear full PPE
- Outside: surgical mask and gown
- Ambulance: clean and disinfect surfaces



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## SLIDE 18

### Discharging the patient

- Ensure patient and family have been educated as to what precautions are to be taken
- Patient should avoid close contact with others up to 7 days *after* symptoms have gone (children who have been sick need to avoid close contact for 21 days)
- Family members should monitor themselves for fever and cough
- Follow instructions for home-based care

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## Antiviral

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- If feasible and if available, agencies should stockpile sufficient appropriate **antivirals** to **treat staff** who fall **sick** during a pandemic
- The stockpile amounts can be increased as resources allow and based upon specific agency considerations



- The specific pharmacological treatment against influenza virus is with antivirals (M2 channel blockers and neuraminidase inhibitors)
- A particular effort should be devoted to stock at least enough antiviral to treat ill staff (around one treatment for every 3 staff) so health and other essential services can be kept functioning.

## Antiviral, priority for use

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1. Treatment for **sick** healthcare and essential staff
2. Treatment of **sick** individuals
3. Antiviral prophylaxis for critical staff with frequent high-risk exposure



- Prioritization for use of antivirals is necessary if there are limited resources, as there will be.
- The first priority is treatment of health and essential staff, next priority is the early treatment of influenza patients.
- Using oseltamivir for prophylaxis is possible but consumes large quantities of medicine that could have been used to save lives.
- When antiviral quantities are very large, prophylaxis is possible, again first prioritizing health staff and essential service providers, then the rest of the population.

## Care of staff

- **Self-monitor for fever** (twice daily temperature) and **cough** for 7 days from time of last exposure
- **Screen for symptoms of influenza-like illness** among staff reporting for duty (fever, cough)
- **If symptoms, limit contact with others**, notify infection control team / health coordinator
- Use **antiviral for treatment only** ie when staff member falls sick
  - 75mg 2 times per day for 5 days
- Only if stocks allow, consider antiviral prophylaxis for critical staff with frequent high risk or unprotected exposure



## Therapeutic feeding

- **Therapeutic feeding** for severely malnourished populations **must continue** throughout the pandemic.
  - Supplementary feeding can be continued by advance collection of food
- Therapeutic feeding centres must **separate patients** with suspected influenza from others (1m between beds, head-to-toe)
- "**Home-based**" therapeutic feeding could be instituted for malnourished children that have no other severe medical illness



- Individuals with malnutrition need to continue nutritional therapy.
- At the same time places where people are concentrated together (such as feeding centres) can increase the risk of disease transmission.
- Patients should be separated as much as possible
- Morbidity and mortality may be lower if home based nutritional therapy is possible based on ready-to-use therapeutic food, such as plumpy nut.

## Preposition supplies according to capacity

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- Health education materials
- Soap, disinfectants, cleaning equipment
- Antibiotics, intravenous (IV) fluids, other medical supplies
- PPE (masks, gloves, etc)
- Tents for additional isolation areas as needed with equipment (beds, linen,...)

- Prepositioning stockpiles not only involves medications/antibiotics but of all essential commodities such as food, water, fuel etc.
- The stocks specific to the management of pandemic influenza patients include the following (listed on slide):

## Stockpile / pre-position

- During a pandemic, the response depends on preparations in advance.
- But pre-positioning costs money that may be diverted from other life saving sectors before a pandemic happens.
- Balance risk, costs, centralized stocks vs periphery stocks.
- Keep or open supply chains again as soon as possible
- Prioritize stocks for infection control measures (washing hands, respiratory etiquette, scarves) that can prevent other diseases too.



- Priority should be given initially to actions that are useful in mitigating the consequences of a pandemic but that are also very useful if a pandemic does not arrive for many months or years.
- Actions should focus on improving infection control through the systematic use of standard and droplet precautions.
- Another action involves setting up an effective surveillance/early warning and response system that is useful for other epidemic-prone diseases.
- As the risk of pandemic increases, the constitution of specific stocks will become more difficult due to increasing competition and logistic constraints. It is important to constitute some level of stock, initially centrally at the agencies' HQ level and later on, more peripherally. Initially smaller and later on larger quantities should be pre-positioned.
- It is essential that sufficient stockpiles are at least available for distributors of essential services.
- Agencies should monitor supply systems so they can be maintained or upgraded during the pandemic.