Guidelines for

ACUTE RESPIRATORY ILLNESS

in Ghana

[The Integrated Management of Adolescent/Adult Illness (IMAI) approach]

Ministry of Health

GHANA HEALTH SERVICE

YOUR HEALTH - OUR CONCERN

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Forward

Integrated Management of Adolescent and Adult Illness (IMAI) is an efficient approach in managing acute ill-health in adults and adolescents. This approach has been fully supported by the World Health Organization. IMAI guidelines and training materials were subsequently developed. This approach will greatly contribute in addressing the unmet needs of adults and adolescents since children already have an existing approach (Integrated Management of Childhood Illnesses).

A very careful adaptation process with a wide stakeholder participation ensured the guidelines remained simple but at the same time preserving quality. The various competencies needed to manage adolescent and adult illness have clearly been outlined and envisaged that it will be user friendly in hospitals, especially at the district level. The target audience for the guidelines are first-level facility health workers who work in a district outpatient clinic or in peripheral health centres and clinics, in rural or urban areas. These guidelines will allow using basic medical equipment to manage emergencies in adolescents and adults.

At the district level, the nurses and lay providers using the IMAI guidelines would work as a team.

One of the greatest threats of acute illness in recent times is from acute respiratory illnesses. These guidelines which may also be used as a training manual have been developed with this in mind; however it could be applied to many acute conditions in adolescents or adults irrespective of the origin.

Dr. Ebenezer Appiah-Denkyira
Director General
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Abbreviations

MODULE ONE
Introduction

Session One

Background

From the experience of the pandemic influenza and other outbreaks, it is useful to have guidelines for the management of severe acute respiratory illness, specifically respiratory distress and shock in health centers and district hospitals in Ghana.

Although most cases of pandemic influenza and other influenzas are mild, a small proportion will develop severe potentially fatal complications. This is especially of concern in patients with co-morbidities such as chronic lung disease, diabetes mellitus, extreme obesity and in pregnant women.

Clinicians should be prepared to assess and treat patients with these severe complications when they occur and employ infection control measures when the diagnostic criteria are met in a given patient.

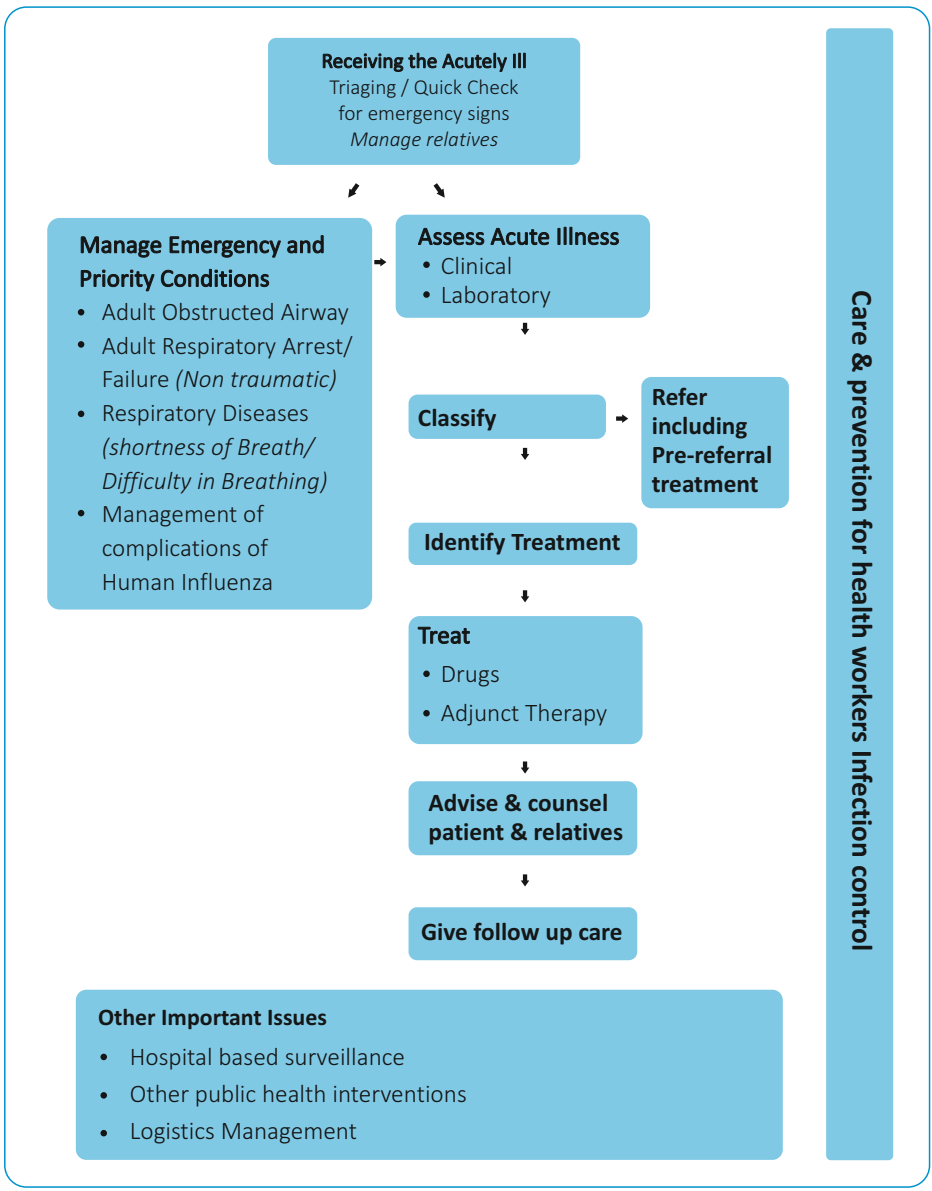
The burden of Acute Respiratory Illness, including pneumonia, is high and of major concern in Ghana. In 2011, for example, out of a total OPD attendance of 6,156,322, ARI contributed 2,595,076 (42.2%), of which 171,522 were due to pneumonia.

These guidelines should not be viewed as being applicable only to pandemic influenza or even limited to viral illnesses. The training and approaches to clinical management are generally applicable to any patient with shock or respiratory distress and will also benefit patients with severe illnesses caused by bacterial pneumonia, tuberculosis (TB), and opportunistic infections associated with HIV infection.

A number of documents and articles were consulted and reviewed during the preparation of the document. Refer to annex page 114 for details [See [8] for the list of documents referenced].

Session Two

Flow Chart for management of Acute Respiratory Illness



Session Three

Summary of Flow Chart Steps

1) Receiving the Acutely Ill

This section provides useful information on how to receive the acutely ill at the OPD or emergency unit of health facilities. Receiving the acutely ill is an important component of patient care. The dos and don'ts in relation to proper customer/patient care are provided to guide both technical and non-technical staff.

1a) Triaging/Quick Check for Emergency Signs

The section introduces participants to the concept of triaging and how to quickly assess clinical status of patients and categorize them according to the order in which they need to be seen based on the severity of illness. It also provides detailed information on how to identify each of the emergency and priority signs of airway, breathing, circulation, consciousness or convulsions and pain from life threatening causes and what to do quickly in emergencies to save lives depending on the nature of the condition.

1b) Management of Relatives of Patients

Information on how to deal with relatives especially in emergency situations is provided in this section.

2) Management of Emergency Conditions

This section provides further details and guidelines for the clinical management of patients with severe illness. It includes a section on Management of Complications of Human Infection with Influenza.

3) Assess Acute Illness

After emergency and priority conditions have been dealt with, the next step is to do a thorough assessment of non-emergency cases. The section provides guidance on what to do, including laboratory and other investigations that may be required.

4) Classify

The section on 'Classify' provides guidance on how to group the various conditions into different categories after the assessment, using the IMAI acute care algorithm.

5) Treat, Advise, Counsel and Follow-up Care

This section provides details of key processes and drugs for the treatment of various acute respiratory conditions. It also provides guidelines on how to counsel patients before sending them home to continue treatment, including guidelines on oral medication at home, and what to do should the situation worsen.

6) Prevention and Care for Health Workers and Lay Providers

This section provides very useful guidance on how to prevent infection of health and lay providers and take care of them should they be infected within the health care setting.

7) Other Important Issues

Short guidelines on Referral system, Hospital-based surveillance, Logistics management, including maintenance of equipment/ instruments, and Role and Responsibilities of Hospital Management are provided in these sections.

8) Annex

Additional material relevant to the topics discussed are provided in the annex for interested practitioners.

MODULE TWO

Receiving the acutely ill

Session One

Managing Relatives

All patients should be treated with respect and dignity and all staff should undergo training in customer care. Security and other support staff should be taught to treat patients and their relatives with respect and not to send any patient away or close the gate and inform the public that the facility has closed for the day.

All health facilities must provide 24-hour emergency services. All acutely ill patients should be received at a designated area or Emergency unit to be immediately triaged. Health workers should respond immediately to emergencies right from the time they arrive in the health facility.

Where required, trolleys and wheel chairs must be provided and patients wheeled to the unit by health staff. Relatives should not be asked to go and look for trolleys or to wheel patients. No patient should be turned away without having been seen and assessed by a health worker.

Patients should be seen immediately, findings recorded and emergency care given after which staff can go and register the patient at the records. Health workers should not demand hospital fees before seeing the patient.

In situations where insured patients have left their NHIS card, staff should not demand to see the card as a precondition to providing care. The emergency unit must have all the necessary medicines so that relatives do not have to go and buy prescribed medications.

Any suspected or confirmed case of human infection with Influenza may represent an emergency situation (especially in a pandemic situation) and a prompt response by the medical services may greatly enhance the chances of survival.

Uncomplicated influenza should be suspected among patients whose symptoms include: fever, cough, sore throat, rhinorrhoea, headache, muscle pain, and malaise, but no shortness of breath. Patients may present with some or all of these symptoms.

Existing medical infrastructure should be capable of adapting or being modified to manage these emergency medical situations. Communication with all aspects of the healthcare system is essential.

During transport of a patient with suspected, probable, or confirmed Acute Influenza (AI), supplemental oxygen and blood transfusion must be supplied where necessary.

At the emergency room, there is opportunity for more life-saving interventions to be introduced. However, if life-saving therapies are not immediately required, the patient with suspected AI should be admitted directly to the Intensive Care Unit (ICU) or isolation ward for intensive nursing and medical care.

MODULE THREE

QUICK CHECK

- Assess emergency and priority signs

Learning Objectives

- Triage (sort) patients according to the severity of illness using the Quick Check system in your facility.
- Recognize patients with Quick Check emergency signs (E).
- Recognize patients with Quick Check priority signs (P).
- Recognize patients who are non-urgent (can wait their turn in the queue) (Q).

Overview

In Ghana, many deaths in hospitals occur within 24 hours of admission. Often, patients wait in long queues and are not checked before a senior health worker examines them. As a result, seriously ill patients with treatable conditions have died while waiting to be seen and treated.

A triage system will enable you to quickly identify sick patients who require immediate attention versus patients who can wait their turn. The word "triage" means sorting. Triage is the process of rapidly screening all sick patients when they first arrive in the hospital and categorizing them according to the order in which they need to be seen based on the severity of illness.

Triage

Sorting of patients into groups based on their need and the resources available

After triage occurs, assess all patients with a complete history and physically examine.

How do you triage patients in your hospital?

Triage is a rapid process that is conducted as soon as a patient arrives at the hospital or anytime a patient's clinical condition changes in the hospital ward. Do not delay triage for administrative procedures such as registration. All clinical staff involved in the care of sick patients should be trained to triage and give basic emergency treatments.

When no emergency treatments are needed, you should be able to use the Quick Check to triage a patient in less than one minute.

Other auxiliary staff in the hospital such as gatemen, record clerks, cleaners, and janitors who have early patient contact should also be trained to assess for emergency and priority signs.

If a patient with a life-threatening condition is recognized, staff should immediately call for help and/or take the patient to where they can receive emergency care. A seriously ill patient should be taken to the triage nurse at the front of the queue.

Session One

Triage categories
- Recognise emergency, priority or queue

Triage categories	Action required
EMERGENCY cases	Need IMMEDIATE emergency treatment
PRIORITY cases	Need assessment & RAPID attention
QUEUE cases	Non-urgent, can wait their turn in the QUEUE

EMERGENCY (E): Patients require immediate emergency treatment for a potentially life-threatening condition. If you see any emergency signs, call for help and start first-line emergency treatments.

PRIORITY (P): Patients with serious conditions that require rapid assessment and treatment. Give these patients priority in the queue so they are evaluated quickly by a healthcare worker within 30 minutes.

QUEUE (Q): Patients who do not have a life-threatening or serious condition are non-urgent. These patients can wait their turn in the queue for evaluation. Most patients will be triaged to this category.

Emergency signs

Check for emergency signs

Emergencies of Airway, Breathing, and Circulation, Consciousness, Convulsions are life threatening. Assess and treat the "ABCs" immediately. Every time you evaluate a patient immediately assess for airway, breathing, circulation, consciousness, or convulsions.

A B C D
Airway
Breathing
Circulation
Consciousness
Convulsions
Dolor

In the children's Emergency, Triaging , Assessment and Treatment (ETAT), the ABC concept is expanded to include "dehydration" in the emergency assessment and is remembered as "ABCD". In the Quick Check, the ABC concept has been expanded to include "pain from life-threatening cause." As in the ETAT (ABCD), pain from life threatening cause can be remembered as "Dolor."

On the Quick Check wall chart, the emergency signs are located in the white boxes on the left of the chart. Emergency signs can be assessed quickly without any equipment.

> ***If any emergency sign is identified, call for help.***
>
> ***If you are trained, start necessary emergency treatments.***

In this module, you will learn how to conduct this Quick Check for emergency and priority signs only. In the following modules, you will learn how to do the assessments in the arrows on the Quick Check wall chart and to provide first-line treatments.

Emergency signs of ARI

- *Appears obstructed*
- *High fever (>39°C)*
- *Severe shortness of breath (dyspnoea)*
- *Fast breathing*
- *Severe chest pains*
- *Severe wheezing*
- *Cyanosis (bluish colouration of tongue and mouth)*
- *Severe weakness or lethargy*
- *Unable to walk unaided*
- *Unconsciousness*
- *Haemoptysis*
- *Very fast breathing*
- *Pulse 120 or more*

Initial Emergency Assessment

General Impression

1. Determine nature of illness and chief complaint	2. Age and sex	3. Assess for immediate life threatening conditions

Allergies:"Are you allergic to any thing?"

1. Medications	2. Food	3. Environmental

Medications: "Do you take any prescription or non-prescription medicine?"

1. Prescription (current, recent, birth control pills, etc.)	2. Non-prescription (current, recent, herbal remedies, etc.)

Session Two

Quick Check for Emergency Sign

Use this chart for rapid triage assessment for all patients. Then use the acute care guidelines.

Quick check for emergency signs (medical)(consider all signs).

FIRST ASSESS: AIRWAY AND BREATHING

- Appears obstructed *or*
- Central cyanosis (blue mucosa) *or*
- Severe respiratory distress

→ *Check for obstruction (noisy breathing, wheezing, choking, not able to speak)*

THEN ASSESS: CIRCULATION (SHOCK)

- Weak and fast pulse *or*
- Capillary refill longer than 3 seconds
- Heavy bleeding from any site *or*
- Severe trauma

→ *Check BP and pulse*

UNCONSCIOUS/CONVULSING

- Convulsing (now or recently)*or*
- Unconscious. If unconscious, ask relative: Has there been a recent convulsion?

→ *Seek further information*

PAIN FROM LIFE-THREATENING CAUSE

- If chest pain: What type of pain? Chest pain on exertion, at rest or lying down. Sweating, very silent or moaning, guarding against the pain, not able to walk.
- Severe abdominal pain; abdomen hardor palpatrin.
- Severe headache or stiff neck or trauma to head/neck.
- Major burns
- Snake bite

→ *measure BP and temperature, check blood sugar, using urine dipsticks. Check BP, pulse, respiratory rate, temperature*

FEVER

Any fever with:
- respiratory distress
- very weak/unable to stand
- lethargy
- unconsciousness
- convulsions

→ *any sign present*
-measure temperature and BP.

for laboratory tests:
see operations manual

NB: If any of the above signs exists, the patient has an emergency condition

Session Three

Priority Signs

Check for priority signs

If no emergency signs are found, check for priority signs. Priority signs alert you to a patient who needs urgent (but not emergency) treatment for potentially serious acute problems. Priority patients should ideally be evaluated within 30 minutes of arrival.

Priority signs for urgent care – these patients should not wait in queue:

- Any respiratory distress/complaint of difficulty breathing*
- Violent behaviour towards self or others or very agitated
- Very pale
- Very weak/ill
- Recent fainting
- Large haemoptysis
- Bleeding
- Poor general impression
- Unresponsive patients
- Responsive, not following commands
- New extensive rash with peeling and mucus membrane involvement (Steven Johnson Syndrome)
- Burns
- Trauma
- Visual changes
- New loss of function (possible stroke)
- Acute pain, cough or dyspnea, or fever in patient with sickle cell disease

* Patients in severe distress are categorized as having an emergency sign.

After initial Triage give first-line emergency treatments

The assessment for emergency signs and need for first-line emergency treatment will be covered in detail throughout the rest of this course.

The triage, assessment, and initial treatments should occur quickly and address immediate, life-threatening emergency signs. These steps can be critical to the care of a severely ill patient. They should be initiated even if senior health workers are not immediately available.

CAUTION!

Patients with trauma may have injuries to their spine. Check for trauma when providing treatments to make sure that you immobilize spine when moving patient. There are special considerations for injured patients in column 3 of the Quick Check wall chart.

Reassess

Frequent reassessment of patients is critical. Patients initially triaged as "Priority" or "Queue" can later develop emergency signs. Thus, it is important to reassess patients and change their triage category to "Emergency" when appropriate.

Continue to assess the patient while waiting for additional Emergency Medical Service (EMS) resources.

1. *Repeat Initial Assessment every 15 minutes for a stable patient.*
2. *Repeat Initial Assessment every 5 minutes for an unstable or high priority patient.*
3. *Repeat Physical Examination as necessary.*
4. *Maintain an open airway.*
5. *Monitor breathing.*
6. *Monitor pulse.*
7. *Monitor skin color and temperature.*
8. *Check effectiveness of treatments and/or interventions.*

Summary

Triage is the process of sorting patients into priority groups based on their need and the resources available.

Triage all patients upon arrival into one of the following categories:

E – Patients with Emergency signs

P – Patients with Priority signs

Q – Patients who are non-urgent and can wait in the queue

Triage steps:

Look for emergency signs.

Give first-line emergency treatments.

Call a senior health worker immediately to see emergency cases.

If no emergency signs are identified, look for priority signs.

If a priority sign is identified, send patient to the front of the queue.

Move on to the next patient.

Remember to check for trauma.

Reassess patients as appropriate.

MODULE FOUR
Assess Acute Illnes

Learning Objectives

- Assess patient for emergency signs of airway or breathing.
- Give first-line emergency treatments for airway obstruction.
- Measure oxygen saturation with a pulse oximeter.

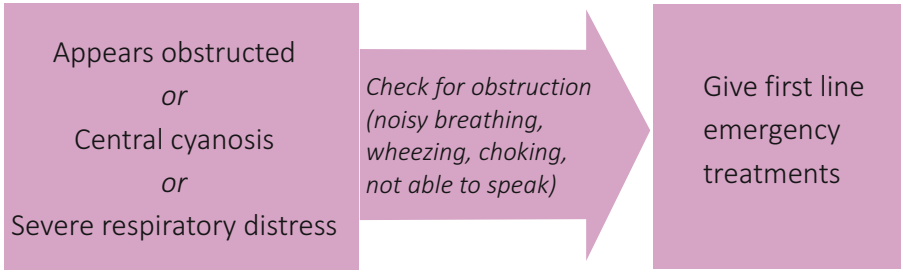
Overview

The letters A and B in "ABC" represent "airway and breathing". An airway or breathing problem is life-threatening and must receive attention before moving on to other systems. First check whether the airway is open to allow proper breathing.

A	B	C	D
Airway			
Breathing			
Circulation			
Consciousness			
Convulsions			
Dolor			

Each of these steps is discussed in more detail in the following pages.

FIRST assess: Airway and Breathing:



Call for help and give first-line emergency treatments for airway and breathing if any of these signs is detected.

Session One

Airway and Breathing

Step 1: Assess airway

- Talk to the patient. If the patient is speaking clearly the airway is open.
- Look/listen for signs of airway obstruction.
- Snoring or gurgling.
- Stridor or noisy breathing.
- Foreign body or vomit in mouth.

Is the airway obstructed?

Rapid recognition of an obstructed airway and initiation of treatment to relieve the obstruction can be life-saving. Patients can have a partial or full airway obstruction. Patients should be under constant observation until the obstruction is removed because a partial obstruction can rapidly progress to a full obstruction.

Obstruction of the airway may occur in several ways:

- The tongue may fall backwards and obstruct the airway in an unconscious patient
- Blood or vomit in the mouth may obstruct the airway particularly in cases of trauma
- Swelling and laryngeal oedema may obstruct the airway in anaphylaxis
- Infection or swelling in the throat, such as an abscess or goitre ordephtheria
- foreign bodies, particularly poorly chewed food such as meat.

Look for:

- Any visible obstruction (vomit in mouth, trauma, swelling, foreign body)
- The universal choking sign
- A patient who is unable to swallow secretions or saliva (may be spitting into a bucket)

Listen for:

- Noisy breathing, snoring, gurgling, stridor, or wheezing
- A strong or weak cough
- A clear, normal voice. When asked a question, is the patient's voice muffled, gasping, or is the patient unable to speak at all?
- Is the patient in severe respiratory distress or coughing, but you do not hear any noise (unable to speak or cough, no wheezing or stridor)?
- Is there central cyanosis?
  Cyanosis indicates that the patient is not getting enough oxygen.

Look:

- Do you see blue discoloration around the lips and mouth?
- Is the patient in severe respiratory distress?
- Is the patient having visible difficulty breathing?
- Is the patient breathing very fast?
- Do you see retractions or the use of accessory muscles?
- Is the breathing laboured?
- Is the breathing shallow?
- Do you see nasal flaring?
- Is the patient able to lie flat or does he/she need to sit forward to help breathing?
- Is the patient agitated, confused, uncooperative, or unconscious?

Listen:

- Is the patient able to speak in full sentences without pausing to catch breath?
- Do you hear abnormal breathing sounds (stridor, wheezing)?

Other considerations

- Make a quick visual decision if the patient is breathing too fast. You will not count the respiratory rate as part of the quick check assessment, as counting the respiratory rate accurately takes 30-60 seconds.
- Practice counting the respiratory rate on stable patients first so you can quickly recognize the difference between normal and abnormal respiratory rates.
- Once you complete the Quick Check and administer first-line emergency treatments, count the respiratory rate along with the rest of the vital signs as you continue to monitor the patient.

The respiratory rate increases if the patient has difficulty breathing or is not getting enough oxygen. Be aware that other conditions such as fever, pain, and anxiety may also increase the respiratory rate. Patients who are in severe respiratory distress and not getting enough oxygen may become very agitated, combative, confused, or lethargic. In any patient who is not behaving normally, first check their airway and breathing.

The airway of an unconscious patient can become obstructed by the tongue at any time. Unconscious patients should be placed near the nurses' station in the recovery position if possible, under continuous observation.

If patient presents with emergency signs of Airway and Breathing, call for help and give oxygen.

Step 2: Assess Ventilation and Oxygenation

Is ventilation impaired?

Ventilation refers to movement of air in and out of the lungs. This air movement is impaired in patients with a decreased drive to breathe (low respiratory rate), from altered consciousness. Common conditions include patients with drug overdose, meningitis, or head injury.

Ventilation can also be impaired when breaths are shallow or ineffective such as in patients with severe pneumonia, bronchospasm, or chest trauma. In contrast, these patients are often breathing very rapidly.

ASSESS VENTILATION

If ventilation is inadequate, or patient is cyanotic or unconscious with respiratory distress, then assist breathing via bag valve mask ventilation non rebreather mask (go to STEP 3).

If ventilation is adequate, give oxygen and regulate flow.

Look:

- Is the chest wall rising?
- Is the movement of the chest wall symmetric?
- Is the respiratory effort adequate?

Listen:

- Do you hear air movement?
- Do you hear breath sounds and are they equal?

Step 3: Assist ventilation with bag valve mask

- If ventilation is impaired, give oxygen and prepare to assist ventilation.
- If a patient is not ventilating adequately, call the anaesthetist if available.
- Assistance can be given using a bag-valve-mask device. A self-inflating bag delivers air when squeezed to ventilate the patient, and then refills when released. Attach the bag to oxygen to deliver a higher concentration of oxygen than room air.

The bag is connected via a valve to the face mask. The face mask should fit the face starting at the bridge of the nose, resting evenly over both cheeks, and ending in the area between the lower lip and chin (mandibular alveolar ridge). It is important to use the right size face mask to prevent air leakage.

Using this device correctly can be difficult. When ventilating a patient, you have to maintain an adequate seal with the mask so that no air escapes from around the mouth. Practice is helpful. Instructions for a single-handed mask hold and a double-handed two person mask hold are described below. Note that the hand holds serve two purposes: first to produce an effective mask seal, and second to open the airway with a chin-lift or jaw-thrust.

Three major points must be observed during the use of a bag-valve-mask:

- Is the airway still open (or does positioning need adjustment)?
- Is there an adequate mask seal (or is there air escaping)?
- Are you giving proper ventilation (breath volume, rate, rhythm)?

Step 4: Assess need for advanced airway management

Despite efforts to give maximal oxygen delivery (via non-rebreather device) and an open airway, hypoxemia (decreased oxygen in blood) may persist. Further support of ventilation and oxygenation may be accomplished if equipment for positive pressure mechanical ventilation is available.

The provision of mechanical ventilation is resource-intensive, and is not readily available in many district level hospitals. If your patient fails to improve despite oxygen and basic airway treatments, consider whether transfer to a center where mechanical ventilation can be delivered is indicated.

Further information on advanced airway management is provided in the Advanced Module on Airway and Breathing.

ASSESS NEED FOR ADVANCED AIRWAY MANAGEMENT

Some patients with easily reversible conditions may quickly improve and be able to ventilate on their own after emergency treatments are given.

Others may need continued assistance with ventilation or intubation to protect airway.

Look for signs:

- Is SpO_2 < 90, cyanosis or severe respiratory distress on high flow oxygen therapy?
- Is there impending airway failure (e.g. inhalation injury, angioedema)?
- Are these basic airway manoeuvres (Steps 1 to 5) failing to maintain or protect airway?
- Is prolonged ventilation likely needed (e.g. suspect continued failure from drug overdose, snake-bite)?

If yes, call for help from district clinician and see advanced airway management (see page 24).

Delivery and regulation of oxygen

If the airway is open and the patient is breathing, assess if breathing (ventilation) and oxygenation are adequate or impaired. If there is no problem with the airway or breathing, move on and look for emergency signs of circulation, consciousness, and convulsion.

Patients who are alert and having difficulty breathing will usually position themselves to optimize their breathing. Patients with breathing difficulties may prefer to sit upright rather than lying flat. Do not force a patient with respiratory distress to lie down on a stretcher. Help the patient get to a comfortable position.

Supplemental oxygen

Supplemental oxygen can be a life-saving treatment. Oxygen therapy is indicated as a treatment in many emergency presentations such as severe respiratory distress, myocardial infarction, stroke, sepsis, and trauma. Oxygen systems can be sustainable and can significantly improve patient care.

ASSESS NEED FOR SUPPLEMENTAL OXYGEN

Is the patient in severe respiratory distress?
Is the patient cyanotic or are their lips blue?
Is the patient convulsing?
Is the patient altered or confused?
Is the measured oxygen saturation <90%?

How to measure oxygen saturation (SpO_2):

A pulse oximeter measures oxygen saturation of haemoglobin in the blood by comparing absorbance of light at different wavelengths across a translucent part of the body. Pulse oximetry is very easy to use, and is the best method available for detecting and monitoring hypoxemia (low oxygen saturation).

Using a pulse oximeter to monitor SpO_2

- Turn on the pulse oximeter.
- Attach the oximeter probe to the finger or toe.
- Wait until there is a consistent pulse signal (this may take 20-30 seconds).
- Record the SpO_2 an a monitoring chart.
- If regulating oxygen down, recheck SpO_2 within 15 minutes and record on the monitoring chart.
- If problems with the reading or inconsistent with clinical state, remove nail polish.

How to Set Up Oxygen Therapy

The oxygen source is attached to oxygen tubing. The oxygen tubing is then attached to a device that allows the delivery of oxygen to the patient.

Start all adults who need oxygen at five litres via nasal cannula.

After starting a patient on oxygen recheck for signs and symptoms of respiratory distress and check SpO_2. Most patients will have improvement in their symptoms and oxygen saturation within a few minutes.

Summary

To assess airway and breathing:

Does the airway appear obstructed?

Is there central cyanosis?

Is there severe respiratory distress?

If the patient has an airway/breathing emergency:

Remove any obstruction and open the airway.

Place an oral or nasal airway if indicated.

Assist ventilation with bag valve mask if not breathing or ventilating adequately.

Give oxygen and regulate.

If patient is wheezing, treat with inhaled salbutamol

If suspected anaphylaxis, treat with adrenaline.

Observe frequently.

If trauma with possible neck or spine injury:

Manage airway and protect spine.

If chest trauma suspect tension pneumothorax or haemothorax.

Session Two

Circulation

Learning Objectives

- Assess patient for emergency signs of circulation/shock.

A	B	C	D
Airway			
Breathing			
Circulation			
Consciousness			
Convulsions			
Dolor			

The letter C in "ABC" stands for three key areas, the first of which is: **Circulation (assessment and management of shock)**

After you assess a patient for emergency signs of airway and breathing, and give them first-line emergency treatments, assess for emergency signs of circulation. If you detect an emergency sign of circulation, measure the blood pressure (BP) and heart rate. If SBP <90mmHs OR pulse (P) >110/min with an emergency sign of circulation, initiate first-line emergency treatments and call for help. If a patient does not present with emergency signs of circulation, move onto the rest of the Quick Check and triage the patient into the appropriate category.

Discussion
Think about some common causes of shock in patients.
What have these patients looked or acted like?

Then assess: Circulation (shock or heavy bleeding)

Weak or fast pulse *or* Capillary refill longer than three seconds *or* Heavy bleeding from any site or Severe trauma	*Check SBP, pulse* *Is she pregnant?*	Give first-line emergency treatments

The Quick Check is designed to rapidly screen patients during triage for the presence of poor perfusion to vital organs (i.e., shock). This rapid assessment includes the items in the first column of the Quick Check (the first column of the table above).

If any of these emergency signs are present, you must check the blood pressure and pulse and determine the need for first-line emergency treatments. Other signs of poor perfusion commonly seen in severely ill hospitalized patients include decreased urinary output and confusion.

If you identify emergency sign of circulation in patient:

- check SBP (systolic blood pressure)
- check pulse

If patient is a woman of child bearing age:

Is she pregnant?

Adjust the BP cuff size according to the patient's arm size. Make sure the inflatable part of the blood pressure cuff goes all around the arm. Using a blood pressure cuff that is too small will result in a falsely high (and falsely reassuring) blood pressure and one that is too large can result in a falsely low blood pressure.

Is the pulse weak or fast?

Feel the radial pulse (the pulse at the wrist). If strong and not obviously fast, the pulse is adequate. Move on to the next step in assessing circulation. A strong radial pulse means that the systolic blood pressure is at least 80 mmHg.

If the radial pulse is difficult to find, weak or very fast, this is an emergency sign of circulation and you should suspect shock. A patient, who is not in shock, should have an easily palpable radial pulse.

If the radial pulse cannot be felt, check for a more central pulse. In an adult, adolescent or older child, feel for the carotid pulse in the neck or for the femoral pulse in the groin. To find the carotid pulse, place two or three fingers on the Adam's apple then slide into the groove between the Adam's apple and the muscle. To find the femoral pulse, feel along the line that runs from the groin to the hip. It should be at 2/3 the distance, closer to the groin.

If pulse palpable	Then systolic BP is at least
Radial pulse	80 mmHg
Femoral pulse	70 mmHg
Carotid pulse	60 mmHg

Do not spend too much time trying to find a carotid or femoral pulse. If unable to easily detect a pulse, assume that the patient has an emergency sign of circulation and move on to the next step.

Is the capillary refill time longer than three seconds?

Capillary refill is a simple test that assesses how quickly blood returns to the skin after pressure is applied. Check capillary refill by applying pressure to the pink part of the nail bed of the thumb or big toe. The capillary refill is the time it takes from

release of pressure to complete return of the pink colour in the nail bed. A normal capillary refill is 3 seconds or less. Capillary refill is generally a reliable sign except when the room temperature is low. A cold environment causes vasoconstriction and thus causes a delayed capillary refill.

How to check capillary refill:

Grasp the patient's thumb or big toe between your finger and thumb.

Apply minimal pressure for 3 seconds to produce blanching (a change in colour from pink to white) of the nail bed and then release.

Time the capillary refill from the moment of release until total return of the pink colour.

If the refill time is longer than 3 seconds, the patient may be in shock.

To confirm shock, check the pulses and blood pressure.

Summary

To assess circulation

- Is the pulse fast and weak?
- Is the capillary refill time longer than 3 seconds?
- Is there any heavy bleeding?
- Is there a history of significant trauma?

If any emergency sign of circulation is present, then check if blood pressure < 90 mmHg OR pulse > 110 bpm and give first-line emergency treatments:

- Give oxygen if needed.

If the patient has any external bleeding, apply pressure to stop bleeding.

- Quickly establish IV access and begin giving fluids for shock.
- Make sure the patient is warm.

If pregnant and with vaginal bleeding, position left side down.

- Take blood samples for emergency laboratory tests.

If ongoing bleeding, arrange blood transfusion and transport to the operating theatre.

- Pass urinary catheter to monitor urine output.

Session Three

Consciousness ans Convulsions

Learning Objectives

- Recognize altered level of consciousness.
- Recognize convulsions.
- Assess using AVPU scale.

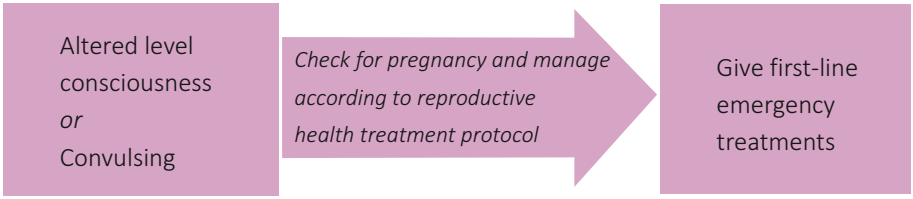
A	B	C	D
Airway			
Breathing			
Circulation			
Consciousness			
Convulsions			
Dolor			

In addition to circulation, **C** represents the need to assess consciousness and convulsions.

An alteration in consciousness means that the patient is not behaving normally. There are many reasons your patient may experience an altered state of consciousness. These include severe infection, a metabolic problem such as low blood sugar or low sodium, severe head injury, acute psychosis from a psychiatric problem, or alcohol or drug intoxication. Patients with shock or severe respiratory distress can also present with altered levels of consciousness.

If a patient is awake, alert, not confused, talking and coherent, consciousness is not altered.

Then assess: Altered level consciousness/convulsing



Is there altered level of consciousness?

First, look to see if the patient is conscious (awake or alert).

A simple scale known as **AVPU** is used to do this assessment.

A Is the patient **Alert**? If not,
V Is the patient responding to **Voice**? If not,
P Is the patient responding to **Pain**?
U The patient who is Unresponsive to voice (or on being shaken) AND to pain is **Unconscious**.

Alert:

Is the person awake? Make sure the patient is not just sleeping.

Voice:

If the patient is not awake and alert, try to rouse the patient. If the patient is not alert but responds to voice, you can describe patient as being lethargic.

- Call his/her name loudly.
- If the patient does not respond to this, gently shake the arm.

Pain:

If the patient does not respond to voice or gentle shaking of the arm, see if the patient will respond to pain. If the patient is not alert and responds only to pain, you can describe the patient as unconscious.

Apply a firm squeeze to the nail bed of a fingernail, enough to cause some pain.

If the patient does not respond, briefly use your knuckles to grind firmly on the sternum (sternal rub).

Unresponsive /Unconscious:

- If the patient does not respond to voice (or being shaken) and to pain, the patient is unconscious.
- If patient is Alert, then assess for confusion.
- Does the patient know his/her name, where they are and why they have come to the hospital?
- Is the patient answering questions appropriately?
- Is the patient agitated, screaming, uncooperative, or slurring words?
- If a patient has an alteration of consciousness (V, P or U) or is alert and confused, then give first-line emergency treatments. Protect yourself and hospital staff if a patient is agitated.

Then assess: For Convulsion

A convulsion or generalized seizure results in the sudden loss of consciousness. When associated with stiffening and uncontrolled jerky movements of the limbs, it is called a generalized tonic clonic seizure (also known as a fit).

Sometimes patients may have subtle convulsions that do not result in obvious movement of their arms and legs. These patients may have rhythmic eye movements to one side or you may just see one limb moving rhythmically. A patient who is alert, following commands, or purposeful in their movements is not convulsing.

To determine if a patient is suffering from a convulsion, ask yourself the following questions:

Is your patient unconscious?

Is there rhythmic or uncontrolled jerking movement of the arms or legs?

Is there rhythmic eye movement?

Is the tongue lacerated?

Is there bowel and bladder incontinence?

Is there a history of trauma?

During a convulsion, a patient may bite their tongue or cheek or have bowel and bladder incontinence. If your patient has an altered level of consciousness and has these findings, suspect that the patient may have had a convulsion.

If you suspect a convulsion in a woman of child bearing age, determine whether she is pregnant. A convulsion in a pregnant patient can be a sign of a life-threatening condition known as eclampsia.

After a convulsion, a patient is normally sleepy for up to several hours (post-ictal period). They should gradually become more alert during that time. If the patient is not waking up at all, the patient may be having continuous seizures known as “status epilepticus”.

A patient may arrive at the hospital alert, but with a history of having had a convulsion several days ago. This patient does not require first-line emergency treatment. Make sure that a family member or caregiver remains with this patient until they are evaluated. Ask the caregiver to alert a healthcare worker if the patient has a second convulsion.

Summary

Assess the patient's level of consciousness as follows:

Alert: Patient is awake and alert.

Verbal: Patient responds to verbal stimuli.

Painful: Patient responds to pain.

Unresponsive: Patient does not respond to verbal or painful stimuli.

Establish patient's orientation

Patient is oriented to:

1. his/her name,
2. where he/she is, and
3. day of the week

Session Four

Dolor

Learning Objectives

- Distinguish characteristics of pain from life-threatening causes versus pain from non-life-threatening causes.
- Recognize signs of specific life-threatening conditions presenting with pain.
- Give first-line emergency treatments for life-threatening causes of pain.

In the first four modules, you learned about triage and giving emergency treatments for patients with emergency signs of airway, breathing, circulation, consciousness or convulsions.

A	B	C	D
Airway			
Breathing			
Circulation			
Consciousness			
Convulsions			
Dolor - *pain from life-threatening cause*			

Pain can also be a prominent symptom of many of these life-threatening problems. For example, a pregnant female with severe abdominal pain may have a ruptured ectopic pregnancy that can rapidly haemorrhage and lead to death.

Many of these patients can be saved if these life-threatening conditions are recognized early and treated. These patients should also be managed as patients with "emergency signs".

However, pain is also a very common complaint in health facilities and may be caused by different conditions.

Some conditions may be life-threatening (e.g. myocardial infarction) while others are not. Patients also have different levels of pain tolerance and different patients may behave differently with the same problem.

It is important to be able to recognize patients with life-threatening causes of pain. In this chapter, you will learn how to recognize and manage patients with life threatening causes of pain.

Recognize

To recognize a patient with pain from an immediately life-threatening illness, ask the following questions:

Is the patient able to walk?

Was the patient carried in by their family?

Is the patient sweating?

Are there beads of sweat on their face?

Sweating can be a physiological response to severe pain.

A patient presenting with severe chest pain, sweating and pallor should raise your suspicion for an acute myocardial infarction.

Is the patient guarding against certain movements or positions?

A patient with severe pain in the neck and head who feels resistance to any movements or positions of the neck or head should raise the suspicion for acute meningitis.

A patient who takes only small, shallow breaths and presents with severe chest pain that worsens with inspiration may be suffering from a pneumothorax, pneumonia or infected pleural effusion.

Is the patient silent or moaning?

A patient in severe pain may either be making very little noise or making a lot of noise because any movement makes the pain worse.

If you determine that a patient has pain from a life threatening cause then call for help, check vital signs and if trained, give emergency treatments.

Always check for pregnancy in women of child-bearing age.

Summary

Patients with pain from life-threatening causes usually present with one of the following:

- Unable to walk
- Sweating
- Guarding against pain, or are very silent or moaning.

Identify location of pain and look for other symptom(s) or sign(s) of life threatening conditions, such as:

- Severe abdominal pain AND hard abdomen on palpation
- Severe headache AND neck stiffness or head trauma
- Severe chest pain AND symptoms or signs of myocardial infarction
- Severe pain and major burns
- Severe pain and snake-bites

MODULE FIVE
Management of emergency and priority conditions

OVERVIEW

This module deals with the management of emergency signs.

If emergency sign identified:

- Call for help
- Give first line emergency treatments
- Establish IV access
- Draw blood for emergency laboratory investigations
- Stay calm
- Work as a team
- Follow infection control precautions.

More than one treatment may need to be given as quickly as possible. Several people may need to work together as a team. The person in charge should assign tasks such as placing an IV or giving emergency medications.

These guidelines are intended to help guide management of patients with severe illness and may not be appropriate for all patients. If the situation is complicated by other underlying co-morbidities (i.e. cardiac disease, renal failure, severe anaemia) or diseases (dengue fever, severe malaria), the district clinician can determine if the guidelines need to be modified.

National protocols should also be followed. While these management principles may be used for most patients, they are not intended to replace the sound clinical judgement of trained clinicians.

Session One

First Line Emergency Treatment

If obstructed breathing	Manage the airway. Prop patient up or help to assume position for best breathing.
If wheezing	Treat urgently. Give appropriate IV/IM antibiotics pre-referral. Refer urgently to hospital.
If in shock	(systolic BP < 90mmHg *or* pulse > 110 per minute) -Insert IV and give fluids rapidly.
If not able to insert peripheral IV	Use alternative. - Position legs higher than chest. - Keep warm (cover). - Consider sepsis - give appropriate IV/IM antibiotics. - Refer urgently to hospital.
If haemoptysis>50ml	Insert IV and refer to hospital.
If Convulsing	• Protect from fall or injury. Get help. • Assist in to recovery position (wait until convulsion ends). • Give diazepam IV or rectally. • Insert IV and give fluids slowly. • Give appropriate IM/IV antibiotics. • Give IM antimalarial, If indicated. • Refer urgently to hospital after giving pre-referral care. Do not leave alone. • Continue diazepam enroute as needed.
If Unconscious	• Manage the airway. • Assess possibility of poisoning, alcohol or substance abuse.

If, no history of trauma & history suggests cardiac ischaemia

- Give aspirin (150 or 300mg, chewed).
- Refer urgently to hospital.

If pleuritic pain with cough or difficult breathing

Assess for pneumonia. Consider pneumothorax.

Consider serious neurological problem and other causes of acute headache and refer urgently.

If BP>systolic180

Refer urgently to hospital.

If high glucose

Manage according to national treatment guidelines.

Appears obstructed
or
Central cyanosis

Check for obstruction (noisy breathing), wheezing, choking, not able to speak

If obstructed airway:
If foreign body aspiration, treat choking patient.
If suspect anaphylaxis, give 1:1000 adrenaline slowly S.C –
0.5 ml if 50 kg or above,
0.4 ml if 40 kg,
0.3ml if 30 kg

For all patients:
Manage airway
Give oxygen 5 litres.

If foreign body aspiration, treat choking patient.

If a patient appears to be choking but is still able to cough and appears to be getting adequate ventilation, allow them to continue to try to clear the object on their own. If the cough is weak and ineffective or there is evidence for increased respiratory distress and worsening ventilation, it is time to step in and assist by administering high concentration oxygen and refer or call the anaesthetist.

If suspect anaphylaxis (wheezing and facial swelling), give adrenaline.

Anaphylaxis is a life threatening allergic reaction which can rapidly cause swelling of the airway and obstruction. Insect bites, foods, or medications are common causes of anaphylaxis.

Patients may present with swelling of the face and airway, wheezing, hives, and shock.

How to give adrenaline

-For anaphylaxis: give 1:1000 epinephrine (adrenaline) S.C.

-0.5 ml if 50 kg or above; 0.4 ml if 40 kg; 0.3 ml if 30 kg.

-Give S.C in anterior lateral thigh slowly.

-Repeat in five minutes if no response.

Treating patients with allergic reactions with hydrocortisone will help to control the allergic reaction once the adrenaline wears off. An antihistamine may help to provide symptomatic relief of itching.

Observe patients given adrenaline for at least four hours prior to discharge.

Managing the patient with wheezing

If wheezing, give salbutamol

Bronchospasm usually has audible wheezing. If the bronchospasm is extremely severe, you may hear no wheezing at all. Bronchospasm or wheezing is an important and treatable cause of severe respiratory distress. It is common in patients with asthma and chronic obstructive lung disease (COPD), but can also complicate pneumonia in patients without these chronic conditions.

Salbutamol is medication which opens the airways. Give salbutamol via a metered dose inhaler with a spacer or using a nebulizer. The mist form via a nebulizer may be the most effective method of delivery when there is severe respiratory distress.

Patients should be reassessed within a few minutes after receiving a salbutamol treatment. Many patients may need more than one treatment to treat their wheezing. If wheezing is severe, patients can continuously be administered salbutamol via nebulizer.

Salbutamol should always be delivered by a nebulizer or metered dose inhaler with a spacer when available. Avoid giving salbutamol tablets or liquid by mouth as they are ineffective for bronchospasm.

Salbutamol administered via metered dose inhaler should always be given with a spacer. A spacer is easily made from a plastic soda bottle.

Management of Complications of Influenza-like infections:

Complicated or severe influenza is indicated by clinical (e.g. shortness of breath/dyspnoea, fast breathing, hypoxia) and/or radiological signs of lower respiratory tract involvement (e.g. pneumonia), central nervous system involvement (e.g. encephalopathy, encephalitis), severe dehydration, or secondary complications, such as renal failure, multi-organ failure, and septic shock.

Other complications can include rhabdomyolysis and myocarditis, exacerbations of underlying chronic disease, including asthma, Chronic Obstructive Pulmonary Disease (COPD), chronic hepatic or renal failure, diabetes mellitus, or cardiovascular conditions.

Patients who present initially with uncomplicated influenza may progress to more severe disease. Progression can be rapid (i.e. within 24 hours). The following are some of the indicators of progression, which would necessitate an urgent review of patient management:

Symptoms and signs suggesting oxygen impairment or cardiopulmonary insufficiency:

Shortness of breath (with activity or at rest), difficulty in breathing, turning blue, bloody or coloured sputum, chest pain, and low blood pressure, fast or laboured breathing, hypoxia, as indicated by pulse oximetry.

Symptoms and signs suggesting CNS complications:

Altered mental status, unconsciousness, drowsiness, or difficult to awaken recurring or persistent convulsions (seizures), confusion, severe weakness, paralysis.

Evidence of sustained virus replication or invasive secondary bacterial infection based on laboratory testing or clinical signs (e.g. persistent high fever and symptoms beyond three days).

Severe dehydration, manifested as decreased activity, dizziness, decreased urine output, or lethargy.

The major complications associated with human infection with influenza are:

- Respiratory failure
- Cardiac failure
- Renal dysfunction
- Secondary bacterial infection

Most hospitalized patients with influenza will require ventilatory support within 48 hours after admission. Because of the increased risk of aerosolization of respiratory secretions, non-invasive ventilation strategies should not be used.

Patients are likely to require intensive supportive care for multi organ failure and sometimes hypotension. The rationale is to protect the functioning of each of the organs and prevent complications.

Ideally such complications should be managed under intensive care. In the absence of intensive care facility, expert opinion should be sought to manage patients locally.

Parenteral nutrition and other supportive treatment (light diet, drinking of more water and rest) will likely be required. The rationale is to protect the functioning of each of the organs and prevent complications.

Some patients might require empirical treatment with broad-spectrumantibiotics for suspected secondary bacterial infections.

Session Two

MANAGEMENT OF RELATIVES OF PATEINTS

Visitors should be strictly limited; the needs of individual patients for contact with relatives must be balanced against the potential risk to visitors and the community.

Visitors should be advised about the possible risk of Acute Influenza transmission and provided with the necessary PPE. Additionally, they should be instructed in the appropriate use of PPE and in hand hygiene practices prior to entry into the patient isolation room/area.

One parent or legal guardian of paediatric patients should be strongly supported to accompany the patient throughout the hospitalization.

If adequate training and supervision in PPE use and hand hygiene is provided, parents/legal guardians may assist in providing care to Acute Influenza patients in special situations. These situations might include insufficient nursing staff.

Family members may have been exposed to the AI agent via the patient or a similar environmental exposure, all family members and visitors should be screened for symptoms of respiratory illness at entry to the facility.

Individuals with respiratory symptoms should be considered as possible AI cases and should be evaluated.

Here are suggestions that will help your unit deal better with relatives:

- Create a waiting area for relatives. This must have comfortable seats and toilets.
- Provide reading materials, wall posters, leaflets and television telling relatives about the unit and what to expect. This will keep them occupied whilst waiting.
- Provide direction to the various parts of the unit.
- You should locate your reception/registration and information desk near the entrance.
- Choose a staff with good public relations skills to be at the information desk.
- When patients enter with the relatives, they should be greeted and relatives directed to the waiting area.
- The staff manning the information desk should have up-to-date information about patients who have been seen at the unit, so that relatives seeking the whereabouts of their relations can get information immediately.
- Relatives who have to wait for a long time should be informed from time to time about their relative's progress.
- Provide a suggestion box at the reception area for people to put in complaints and suggestions.
- Deal promptly with complaints and apologise where your staff is at fault.

MODULE SIX
Further Management of
Acute Respiration Illness

Session One

Emergency Treatment

If no Emergency signs, or Priority signs, proceed to assess those in QUEUE.

Obtain History: Obtain the history from the patient and/or family members. Determine If the patient has a medical identification tag.

Ask: What is your problem?
Do you have cough or difficult breathing?
Why did you come for this consultation?

Prompt: "any other problems?"

- Determine if patient has acute illness or is here for follow-up.
- How old are you?

IF YES, ASK:

- For how long?
- Are you having chest pain? If yes, is it new ? Severe? Describe it.
- Have you had night sweats?
- Do you smoke?
- Are you on treatment for a chronic lung or heart problem, or TB? Determine if patient diagnosed with asthma, emphysema or chronic bronchitis (COPD), heart failure or TB.
- If not, have you had previous episodes of cough or difficult breathing?
- If recurrent:
- do these episodes of cough or difficult breathing wake you up at night or in the early morning?
- do these episodes occur with exercise?

LOOK & LISTEN

- Is the patient lethargic?
- Count the breaths in one minute—repeat if elevated.
- Look and listen for wheezing.
- Determine if the patient is uncomfortable lying down.
- Measure temperature.
- If not able to walk unaided or appears ill, also:
- Count the pulse.
- Measure BP.

Classify in all with cough:

AGE	FAST BREATHING IS:	VERY FAST BREATHING IS:
13 years or more	20 breaths per minute or more	30 breaths per minute or more

Does the patient have fever ?

- by history of recent fever (within 48hours) or feels hot or temperature 37.5°C or above?

If Yes, Ask:

- How long have you had a fever?
- Any other problem?
- What medications have you taken?
- Determine if antimalarial and for how long?

Look & Feel

- Look at the patient's neurological condition. Is the patient: Lethargic? Confused? Agitated? Count the breaths in one minute. Use table above to determine if fast breathing.

If fast breathing, is it deep?

- Check if able to drink.
- Feel for stiff neck.
- Check if able to walk unaided.
- Skin rash?
- Headache? For how long?
- Look for apparent cause of fever.
- Do malaria RDT or smear and manage according to STG.

Identify respiratory distress or complaint of difficulty breathing

These patients may have signs or symptoms of dyspnea but do not have Quick Check emergency signs of Airway or Breathing (e.g., mild/moderate asthma exacerbation).

- Measure SpO_2; give oxygen 5 litres if SpO_2<90
- If wheezing, give salbutamol (refer to page above)
- Appropriate infection control measures

Acute pain, cough or dyspnea or fever in patient with sickle-cell disease REFER Standard Treatment Guidelines.

Look in the mouth (and respond to volunteered problems with respect to mouth/dental/throat problems)(page 24).

Ask: Are you taking any medications?

Respond to volunteered problems or observed signs.

Mark with an 'X' on the recording form all the main symptoms the patient has.

Assess and treat other problems. Use national and other existing guidelines for other problems that are not included in the Acute Care module.

Physical Examination:

Perform a physical examination on the patient to gather additional information.

1. Inspect and palpate for signs of injury using the mnemonic DOTS:
   a. Deformities
   b. Open injuries
   c Tenderness
   d. Swelling

2. Briefly assess the following areas:
   a. Head
   b. Neck
   c. Chest
   d. Back
   e. Abdomen
   f. Pelvis
   g. All four extremities

Session Two

Laboratory

Laboratory Confirmation

If laboratory tests are required, refer to operations manual.

Laboratory Diagnosis

Influenza can be difficult to diagnose based on clinical symptoms alone because the initial symptoms of influenza can be similar to those caused by other infectious agents. Human infection with Influenza must be confirmed by viral isolation, the detection of Influenza-specific RNA, or both methods. Early in an emerging epidemic, patients should have respiratory samples collected for both rapid antigen detection or PCR as well as viral culture.

Patients who should be tested for Acute Influenza

During phase 3 or 4 of an emerging Influenza epidemic, testing for influenza is indicated for hospitalized patients with:

- Radiographically confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe acute respiratory illness for which an alternate diagnosis has not been established, AND
- Documented temperature of >38^{O} C (>100.4^{O} F), AND
- One or more of the following: cough, sore throat, shortness of breath, AND
- History of contact with domestic poultry (specific to Avian Influenza) (e.g., visited a poultry farm, household raising poultry, or bird market) or a known or suspected human case of influenza affected country within 7 days of symptom onset.

Specimen collection, handling, and transport

The suitable specimen for influenza A virus detection is a oro-pharyngeal or naso-pharyngeal swab. Refer to Acute Influenza Case Mgt Guidelines for detailed instruction on specimen collection and handling.

OTHER INVESTIGATIONS

Other common laboratory findings:

- Leucopaenia, particularly lymphopaenia;
- Mild-to-moderate thrombocytopenia;
- Slightly or moderately elevated aminotransferase levels
- Marked hyperglycaemia
- Elevated creatinine levels

X-RAYS:

When available, a portable x-ray machine should be placed in the isolation ward, area, or room to minimize the need for patient transport out of this environment. Radiology technicians must pay close attention to the appropriate use of PPE when positioning a patient for imaging. Before equipment is removed from the isolation room or area, it must be disinfected as outlined in the Acute Influenza Case Mgt Guidelines.

MODULE SEVEN
Classify

Session One

Classify

After assessing the cases, classify using the IMAI acute care algorithm, following the 3 rules:

1. Use all classification tables where the patient fits the description in the arrow.

2. Start at the top of the classification table. Decide if the patient's signs fit the signs in the first column. If not, go down to next row.

3. Once you find a row/classification-STOP! Use only one row in each classification table (once you find the row where the signs match, do not go down any further, even if the patient has signs that also fit into other, lower rows/classifications).

Use this classification table in all patients with cough or difficult breathing:

SIGNS:	CLASSIFY AS:	TREATMENTS:
One or more of the following signs: - Very fast breathing *or* - High fever (39°C or above) *or* - Pulse 120 or more *or* - Lethargy *or* - Not able to walk unaided *or* - Uncomfortable lying down *or* - Severe chest pain.	**SEVERE PNEUMONIA OR VERY SEVERE DISEASE**	- Position. - Give oxygen. - Give first dose IM antibiotics. - If wheezing present, treat. - If severe chest pain in patient 50 years or older, use Quick Check. - If known heart disease and uncomfortable lying down, give furosemide. - Refer urgently to hospital.

SIGNS:	CLASSIFY AS:	TREATMENTS:
Two of the following signs: Fast breathing Night sweats Chest pain	**PNEUMONIA**	- Give appropriate oral antibiotic. - If wheezing present, treat. - If smoking, counsel to stop smoking. - If cough>2 weeks or HIV-positive, send sputums for AFB. Advise when to return to the clinic immediately. Follow up in 2 days.

SIGNS:	CLASSIFY AS:	TREATMENTS:
Cough or difficult breathing for more than 2 weeks *or* Recurrent episodes of cough or difficult breathing which: - Wake patient at night or in the early morning *or* - occur with exercise.	**POSSIBLE CHRONIC LUNG OR HEART PROBLEM**	-Send sputums for AFB (record in register). If sputums sent recently, check register for result. If smoking, counsel to stop. If wheezing present, treat. If severe chest pain in patient 50 years or older, use Quick Check.
Insufficient signs for the above classifications.	**NO PNEUMONIA COUGH/COLD, OR BRONCHITIS**	-Advise on symptom control. If smoking, counsel to stop. If wheezing, treat. Advise when to return to the clinic immediately.

New classifications

Use this table if sore throat

SIGNS:	CLASSIFY AS:	TREATMENTS:
- Not able to swallow *or* - Abscess.	**TONSILLITIS**	- Refer urgently to hospital. - Give benzathine penicillin *or* per STG.
- Enlarged lymph node on neck and - White exudate on throat.	**STREPTOCOCCAL SORE THROAT**	- Give appropriate antibiotic e.g. Amoxycillin or benzathine Penicillin as per STG. - Soothe throat with a safe remedy.
- Only 1 *or* no signs in the above row present.	**NON-STREPT SORE THROAT**	- Soothe throat with a safe remedy. - Give paracetamol for pain.

MODULE EIGHT
Identify treatment options/treat including antibiotics & anti virals

Session One

Emergency Treatment

If convulsing,

Give diazepam IV

- call for help to turn and hold patient.
- draw up 2ml dose from anampoule of diazepamin to a 5ml syringe.

DOSE	IV 0.2-0.3mg/kg
Initial dose	2 ml (10mg)
Second dose	1 ml (10mg)

If convulsion continues after 10 minutes, give a second, smaller dose of 1ml diazepam.

Give maintenance dose during transportation if needed and a health worker should accompany the patient:

Give slow IV infusion of 40mg diazepamin 500ml over 6 hours.

Stop the maintenance dose if breathing less than 16 breaths per minute. If respiratory arrest, ventilate with bag and mask.

Maximum total dose diazepam: 40mg.

Give appropriate IV/IM antibiotic pre-referral.

Give salbutamol by metered-dose inhaler

- 100mcg/puff; 200doses/inhaler; use spacer and/or mask depending if patient not able to coordinate breathing and inhaler.

If moderate Wheezing or severe Wheezing:

- Give salbutamol, either continuous nebulizers or prime spacer with 5 puffs then give 2 puffs via spacer every 2 minutes.

If mild wheezing:
-2 puffs every 20 minutes X 3 times, then 2 puffs every 3 to 6 hours.

For further management of wheezing, see asthma guidelines in Standard Treatment Guidelines.

Secondary prophylaxis for influenza infection

Chemoprophylaxis can also be initiated after a person is exposed to influenza; this is called secondary prophylaxis (or post-exposure prophylaxis). The goal of secondary prophylaxis is to prevent the onset or lessen the severity of symptoms of secondary infections.

Persons who might benefit from secondary prophylaxis include individuals who had unprotected, close (within 1 metre) and sustained contact (>15 minutes) with a symptomatic person subsequently found to have influenza infection. These individuals could include:

- Healthcare workers who provided face-to-face care to an Acute Influenza patient.
- Healthcare workers were in close proximity to an Acute Influenza patient during an aerosol-generating procedure.
- Household contacts of an AI patient.

Antiviral Medications for Prophylaxis

Currently both oseltamivir and zanamivir are effective in managing human influenza virus infections. Because of ease of administration, oseltamivir is prescribed more commonly than zanamivir for prophylaxis.

Oseltamivir dosage recommendations vary by age group and medical conditions.

Who Should Get Antiviral Medications for the Treatment of Influenza

When the supply of antiviral medications is limited, people who are at high risk of serious complications from influenza may benefit most from treatment with antiviral medications. This includes: people 65 years of age and older, people with chronic medical conditions (for example, heart or lung disease, diabetes), and pregnant women.

Table: Case Management by Site of Care

Site of Care	Precautions		Clinical Care	
	Patient	HCW	Supportive Care	Antiviral Medications
Transport of patient	Pt to wear surgical mask during transport	HCW accompanying the patient should wear an N95 respirator if available; if not, wear surgical throughout transport Wear PPE as outlined Ventilation and disinfection of vehicle after patient(s) exits	Transport patient in vehicle with 1 HCW & 1 driver Administer supplemental oxygen by face mask or nasal prongs Use cardiopulmonary monitoring if available Provide oral or IV fluids	Start/Continue oseltamivir Educate pt and obtain verbal informed consent prior to medication administration

District/Regional Hospital	Direct admission to isolation room or area (not through ED or outpt clinic) Room characteristics: - well ventilated (6-12 air changes /hr by window & fan ventilation) Isolation ward characteristics: - direct exhaust of air to outside - place patient > 1 metre apart - cohort similar patients - minimize entry & exit from ward	Wear PPE for room entry as outlined Nursing assignment to care for patients with AI If available use dedicated equipment for Acute Influenza pts (stethoscope & thermometer) Ventilation and disinfection of room after pt discharge	Provide supportive respiratory care as appropriate	Start/Continue oseltamivir. Educate pt and obtain verbal informed consent prior to medication administration Antibacterial medications as indicated

National Referral Centres (teaching hospitals, 37 Military, and other centers to be built)	Direct admission to isolation area or ward (not through ED or outpt clinic) Room and ward characteristics as above Pt to wear surgical mask until in isolation If pt must leave isolation - pt should wear clean gown & mask, & perform hand hygiene - halls should be cleared along path of transport - pt should be transported in wheelchair or stretcher - clinicians in receiving area should be notified of pt's status and need for PPE prior to pt transfer.	Nursing assignment to care for patients with Acute Influenza Wear PPE for room entry as outlined Dedicated equipment to be kept in room (stethoscope, thermometer, aerosol treatment devices) Minimize entries into isolation area	Supportive respiratory and intensive care as needed	Complete course of oseltamivir or recommended antibacterials as indicated May implement experimental therapies as recommended by WHO

MODULE NINE
Counsel and follow-up care
for acute respiratory illness

Session One

Follow up Care

Patients when treated and discharged, should come for follow-up care after 3 days. If any of the follow signs (refer to priority and emergency signs section) are observed, the patient should return immediately.

For example: shortness of breath (with activity or at rest), difficulty in breathing, turning blue, bloody or coloured sputum, chest pain, and low blood pressure, fast or laboured breathing, hypoxia, as indicated by pulse oximetry.

Advice on cough etiquette (see page 105 on infection control).

Follow-up pneumonia

- After 2 days, assess the patient:

    - Check the patient with pneumonia using the Look and Listen part of the assessment.

    - Also ask, and use the patient's record, to determine:
        - Is the breathing slower?
        - Is there less fever?
        - Is the pleuritic chest painless?
        - How long has the patient been coughing?

- Treatment:

    - If signs of SEVERE PNEUMONIA OR VERY SEVERE DISEASE or no improvement in pleuritic chest pain, give IM antibiotics and refer urgently to hospital.

    - If breathing rate and fever are the same, change to the second-line oral antibiotics and advise to return in 2 days.

    Exception: refer to hospital if the patient:
    - has a chronic disease *or*
    - is over 60 years of age *or*

- If breathing slower or less fever, complete the 5 days of antibiotics. Return only if symptoms persist.

- Also:

  - If still coughing and cough present for more than 2 weeks, send for TB testing.

  - If recurrent episodes of cough or difficult breathing and a chronic lung problem has not been diagnosed, refer patient to district hospital for assessment.

Session Two

Instruction for Giving Oral Drugs at Home

- Determine the appropriate drugs and dosage for the patient's age and weight.
- Tell the patient the reason for taking the drug.
- Demonstrate how to measure a dose.
- Watch the patient practise measuring a dose by himself.
- Ask the patient to take the first dose.
- Explain carefully how to take the drug, then label and package the drug.
- If more than 1 drug will be given, collect, count and package each drug separately.
- Explain that all the oral drug tablets must be used to finish the course of treatment, even if the patient gets better.
- Support adherence.
- Check the patient's understanding before s/he leaves the clinic.

Give prednisolone

- For acute moderate or severe wheezing, before referral: give prednisolone or prednisone 60mg orally or, if not able to take oral medication, give either:
  - Hydrocortisone 200mg IV or IM, or
  - Methylprednisolone 60mg IV/IM.

- For asthma or Chronic Obstructive Lung Disease (COPD) not under control, where prednisone is in the treatment plan, give prednisolone or prednisone. Give high dose for several days, then taper, and then stop.
  COPD may require longer treatment at low level

	Prednisolone or prednisone 5mg tablets						
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Adult	7	7	7	6	5	4	3

Advise on symptom control for cough/cold/bronchitis

- Advise to use a safe, soothing remedy for cough
  - Safe remedies to recommend: eg honey, warm lemon juice.
  - Harmful remedies to discourage: eg instillation of herbal preparations into nostrils.

- If running nose interferes with work: suggest decongestant.

- For fever, give paracetamol.

Refer urgently to health facility

- Discuss decision with patient and relatives.

- Quickly organize transport.

- Send with patient:
  - Health worker, if airway problem or shock.
  - Relatives who can donate blood.
  - Referral note.
  - Essential emergency supplies (below).

- Notify the referral centre by radio or phone, if possible.

- During transport:
  - Watch IV infusion.
  - Keep record of all IV fluids, medications given and time of administration.
  - If transport takes more than four hours, insert Foley catheter to empty bladder; monitor urine output.

Session Three

Prevention & Care for Health Workers & Lay Providers

Use standard precautions

- Use for all patients.
- When drawing blood:
  - Use gloves.
  - No recapping of needles.
  - Dispose in sharps box (puncture resistant).
- Safe disposal of waste contaminated with blood or body fluids.
- Proper handling of soiled linen.
- Proper disinfection of instruments and other contaminated equipment.
- Use protective barriers (gloves, aprons, masks, plastic bags) to avoid direct contact with blood or body fluids.

Vaccination of Healthcare Workers

Health-care workers involved in the care of patients with highly infective airborne diseases should be vaccinated with the appropriate vaccine where available.

Surveillance and Monitoring of Healthcare Workers

Instruct healthcare workers to be vigilant for the development of fever, respiratory symptoms, and/or conjunctivitis (i.e. eye infections) for 1 week after last exposure to any patient with acute respiratory illness. Healthcare workers who become ill should seek medical care and, prior to arrival, notify their healthcare provider that they may have been exposed to persons with acute respiratory illness. In addition, employees should notify occupational health and infection control personnel at their facility.

With the exception of visiting a health-care provider, health-care workers who become ill should be advised to stay home until 24 hours after resolution of fever, unless an alternative diagnosis is established or diagnostic tests are negative for the suspected airborne disease. While at home, ill persons should practice good respiratory hygiene and cough etiquette to lower the risk of transmission of virus to others.

All HCW wearing inadequate PPE during face-to-face contact with an AI patient or who have been present in the room of an AI patient during an aerosol-generating procedure should be considered exposed.

Close observation and expectant management of exposed, asymptomatic HCW is critical to contain an outbreak. Possible strategies to be used include:

- Voluntary quarantine
- Daily monitoring for symptoms
- Secondary or post-exposure prophylaxis medications if available.

Voluntary quarantine:

Voluntary quarantine is the isolation of an exposed individual from other susceptible persons and is not legally-binding. Exposed, asymptomatic individuals will be educated about the potential for development of clinical illness and the need for quarantine. In addition, they will be educated about precautions necessary to prevent household spread.

Daily monitoring of symptoms:

Exposed HCW should be monitored for symptom onset for 7 days after their last exposure. Exposed individuals should be instructed to check their temperature twice daily. If a person who is being monitored develops fever (>38°C) and cough, sore throat, conjunctivitis or shortness of breath, he or she should be identified as a suspect case and evaluated immediately.

Secondary or post-exposure prophylaxis therapy:

Post-exposure prophylaxis might reduce the risk of secondary cases among HCW who have been exposed to AI patients. If available, all persons considered to have a significant exposure should be offered post-exposure prophylaxis (Acute Influenza Case Mgt Guidelines).

Primary prophylaxis:

If available, vaccination against Influenza is the optimal way to prevent primary infections. Chemoprophylaxis can be initiated before a person is exposed to influenza; this is called primary prophylaxis.

Persons who might benefit from primary prophylaxis include individuals with a high-risk of developing severe disease with influenza infection OR persons providing frequent and hands-on care to patients.

Persons Who Provide Care to Those at High Risk of Severe Influenza

To reduce the spread of virus to persons at high-risk of severe disease, chemoprophylaxis can be considered for unvaccinated persons who have frequent and face-to-face contact with high risk patients. Persons with frequent contact with high risk individuals might include:

- Employees of hospitals, clinics, and chronic-care facilities
- Their household members
- Visiting nurses
- Volunteer workers (Influenza Case Mgt Guidelines,page 8)

Give appropriate oral antimalarialas per National Malaria Treatment Guidelines

Give paracetamol for pain

- Give every 6 hours (or every 4 hours if severe pain).
- Do not exceed 8 tablets (4gms) in 24 hours.

Adolescent or Adult	Paracetamol 500mg tablet
40-50 kg or more	1 tablet
50 kg or more	1-2 tablets

Symptomatic Treatment

Symptoms associated with Influenza that may need to be treated symptomatically are:

- Fever (T > 38° C)
- Pain (including headache, myalgia)
- Respiratory tract symptoms (including cough, sore throat, rhinorrhoea, shortness of breath)
- Gastrointestinal symptoms (including anorexia, abdominal pain, vomiting, diarrhoea)

Provide supportive care

- Monitor oxygen saturation.
- Treat desaturation with supplemental oxygen as required.
- Avoid the use of nebulizers and high-air-flow oxygen masks (these devices have been potentially implicated in the nosocomial spread of severe acute respiratory syndrome).
- Take respiratory and blood specimens serially to check for possible bacterial infection.
- Consider intravenous antibiotic therapy to treat secondary bacterial infections as required.

At the beginning of an outbreak, it is anticipated that all patients with suspected AI will be hospitalized. If a case is assessed as not requiring hospitalization, educate the patient and his or her family on personal hygiene and infection control measures (e.g. hand hygiene, use of a paper or surgical mask by the ill person, and restriction of social contacts), and instruct the patient to seek prompt medical care if the condition worsens. As resources permit, follow up non-hospitalized patients by home visits or telephone contact.

Management of healthcare workers who become ill following exposure to AI patients

Management of healthcare workers who become ill following exposure to patients with acute respiratory illness.

If a HCW becomes ill within 7 days of last exposure to an Acute Influenza patient, they should:

- Seek medical care.
- Prior to arrival, notify healthcare provider that they may have been exposed to AI.
- Notify infection prevention and control focal person at their facility.
- Stay home until 24 hours after resolution of fever (except to visit their own healthcare provider), unless an alternative diagnosis is established or diagnostic tests are negative for influenza A virus.
- Practice good Respiratory Hygiene and Cough Etiquette while at home to lower the risk of transmission of virus to others (Acute Influenza Case Guidelines).

II. INFECTION PREVENTION AND CONTROL IN HEALTH FACILITIES *Refer to Annex*

MODULE TEN
Referral System

Referral Prevention & Care for Health Workers & Lay Providers System

Referrals involve the transfer of some or all the responsibility for patient care temporarily or permanently and for a particular purpose such as investigation, consultation, care or treatment of the patient. It ensures that patients can access care at the primary (lower) levels and be referred promptly for secondary or tertiary care if required. Likewise, referral back to the lower facility is recommended when reason for the referral has been addressed (MoH Referral Policy and Guidelines 2012).

When to refer

Referral is recommended when a facility and/or personnel are required beyond those locally available.

How to refer

Health workers must observe standard and additional precautions when referring patients.
Explain to patient and/or relatives what is happening and why the transfer is being done.

Give appropriate pre-referral treatment as may be needed.

The patient should go with a referral letter containing care given in the referring facility.

Additionally, before referral and/or during transfer, health workers must pay attention to:
The airway: It must be clear and protected during transfer.
Circulation: Keep the circulation going.

Give appropriate IV fluids through wide bored cannula and monitor vital signs

Referral of all patients having acute respiratory illness should be done in accordance with the MoH referral policy and guidelines (May 2012) and the Management Accident and Emergencies-a manual for frontline providers (2003).

Where referral is not possible

In cases where referral is not possible, health workers may consult for expert advice via phone, email etc.

Discuss needs with family & patient

Can these be better met at home, with support? Comfort of the patient is prime responsibility.

- Prior to patient transport, clear route of transport of staff, other patients and visitors.

Transport of case within healthcare facility.

To minimize the risk of transmission of AI within the healthcare setting, avoid all transport out of the isolation ward or area. An AI patient should only be moved out of the isolation ward or area for essential medical purposes.

MODULE ELEVEN
Logistics Management

Equipment needed in an isolation area or wards of regional or district hospital

The following equipment should be available at a national referral hospital that has been designated to provide definitive care to patients with AI. The quantities of specific items needed will vary depending on the number of AI patients present. In addition to the standard equipment specified by the Estate Management Unit of the Ministry of Health this additional equipment is needed:

- 1 hospital bed
- 1 oxygen cylinder
- 1 covered bin for storage of contaminated equipment prior to disinfection
- Resuscitation cart
- Communication equipment
- Access to mechanical ventilators
- Access to electrocardiogram monitors
- Access to portable x-ray machine
- Infusion pumps
- Access to blood gas analyzer
- Chest tube set
- Electrocardiograph
- Access to continuous oxygen supply
- Nebulizers
- Pulse oximeters
- Suction Machine

Suggested checklist for isolation room/area

The following items should be kept on a cart or trolley in the changing or anteroom (or immediately adjacent to the door of the isolation room) at all times so that personal protective equipment is always available for healthcare workers.
Equipment Stock present:

- Face shield/visor/goggles
- Disposable gloves for clinical use (sizes: small, medium, and large)
- Utility gloves (reusable for environmental cleaning)
- Hair covers
- Particulate respirators (N95, FFP2, or equivalent)
- Surgical masks
- Disposable long-sleeved fluid-resistant gowns
- Disposable plastic aprons or reusable rubber aprons
- Alcohol-based hand rub
- Antiseptic soap (liquid if possible, for washing hands in clean water)
- Clean single-use towels
- Sharps containers
- Appropriate disinfectant for environmental cleaning
- Large plastic bags and waste bins
- Appropriate clinical waste bags (yellow and black)
- Linen bags
- Covered collection container for used equipment

MODULE TWELVE
Role of Healthcare Team

Session One

Role & Responsibilities of Hospital Management

Hospital management must demonstrate commitment and provide leadership during the epidemics/pandemics of acute respiratory illness.

Their roles and responsibilities include:

- Providing resources for the facility to function
- Ensuring the availability of medicines and logistics
- Ensuring staff have IPC equipment and facilities
- Ensuring Clinical audits and mortality meetings are organized
- Reviewing all reports or data going out of the health facilty
- Dealing with the press
- Reporting all mandatory health events to appropriate authorities within stipulated time frame
- Supporting the establishment and functioning of PHUs in the hospital.

ARI have the potential of being recorded as a Public Health Emergency of International Concern (PHEIC). It is the responsibility of hospital management to ensure any such event gets reported accordingly.

Human influenza caused by a new subtype is among the four conditions that must be notified to WHO. The rest are **Small pox, Poliomyelitis due to wild-type poliovirus,** and **SARS**. This notification will normally be conducted at district level or above, as decided by national authorities.

Hospital management need to set up Rapid Response Teams

Management responsibility towards providing safe environment

Healthcare facilities must make every effort to provide a safe environment for their workers, patients, and visitors. When a patient with acute respiratory illness is admitted to a facility, extra precautions should be instituted and adhered to closely. Planning, practice, and administrative support are vital to ensure the safety of all individuals who enter a facility that is providing care to a patient.

To prevent the transmission of infections within the healthcare setting, infection prevention and control measures should be implemented at the first point of contact with a potentially infected person. Isolation precautions for all hospitalized patients with acute respiratory illness should include standard precautions AND contact precautions AND airborne precautions.

Session Two

Role of Healthcare personnel

AI Response Committee:

Each healthcare facility should identify and train an Influenza Response Committee to guide the activities related to managing patients infected with Influenza within the hospital. Ideally, members of these teams should be identified and trained prior to an outbreak.

AI Clinical Team:

To ensure the best patient care and careful adherence to infection prevention and control measures, experienced clinicians should be assigned to care for AI patients. Assigned staff should be dedicated to the care of AI patients for their stay in the facility; “floaters” or “temporary workers” should not be assigned these patients.

Medical personnel should be divided based on functional roles; the Medical Treatment group, Specialist group and the Rear Service group. The suggested composition of these teams is described below:

- The Medical Treatment group is responsible for the management and supportive care for AI patients. This group should include physicians, nurses, nurses' aides, and physiotherapists (for chest exercises) based in the isolation area/ward or the isolation area of the ICU.

- The Specialist group is responsible for providing additional clinical care to AI patients. This group should include representatives from anesthesia department, the chest unit, and the radiology department.

- The Rear Service group guarantees that there is an adequate supply of equipment, medicine and materials. This group should include representatives from Supply Chain, Pharmacy, and Housekeeping.

- Multi-task trained staff is an effective strategy to reduce the number of persons needing to enter the isolation ward or area. If possible, these individuals should be identified and trained prior to local emergence.

Session THREE

Hospital-Based Survellance

Public Health Units (PHU) in hospitals have long been identified as the appropriate institutions to co-ordinate public health activities within hospitals and also serve as the link with Metropolitan, Municipal and District Health Directorates for responses to be made. A functional public health unit will give the opportunity for hospitals to conduct health assessment, develop policies and assure the health of hospital staff and clients.

It must be noted that there have been instances where health care workers have suffered high morbidity and some mortality from health care associated infections before authorities are alerted, because of the lack of effective facility-based public health surveillance system. In this regard, the public health unit will work closely with other units such as environmental health, catering, health promotion and rehabilitation to improve health.

A functional PHU will bridge the gap between public health and clinical care services in the hospital and the districts to offer comprehensive health care. Data generated from PHU activities will allow for prompt notification of priority health events and timely response that are evidence-based.

All hospitals (teaching/tertiary, regional and district hospitals) must establish PHUs. Refer Annex for further details.

Roles and responsibilities of the rapid response team/Public Health Units:

- Investigate rumours, reported outbreaks, and other public health emergencies.
- Propose appropriate strategies and control measures, including risk communications activities.
- Coordinate rapid response actions with partners and other agencies.
- Initiate the implementation of the proposed control measures, including capacity building.
- Prepare detailed investigation reports.
- Contribute to the final evaluation of the outbreak response.

ANNEX

Infection prevention and control in health facilities

Non-adherence of health workers to standard precautions remains the most common route of transmission for acute respiratory infections. The following recommendations are based on what are deemed optimal precautions for protecting individuals involved in the care of patients with highly pathogenic acute respiratory illness and for reducing the risk of infecting a large number of individuals. Due to the high pathogenicity and transmission of acute respiratory infections, it is considered prudent to take all possible precautions to the extent feasible when caring for such patients.

Below are the standard precautions required of all health workers caring for patients:

- Use standard precautions for all patients.
- When drawing blood:
  - Use gloves.
  - No recapping of needles.
  - Dispose in sharps box (puncture resistant).
- Safe disposal of waste contaminated with blood or body fluids.
- Proper handling of soiled linen.
  - Proper disinfection of instruments and other contaminated equipment.
- Use protective barriers (gloves, aprons, masks, plastic bags) to avoid direct contact with blood or body fluids.

Standard Precautions	• Pay careful attention to hand hygiene before and after all patient contact or contact with items potentially contaminated with respiratory secretions.
Contact Precautions	• Use gloves and gown for all patient contact. • Use dedicated equipment such as stethoscopes, disposable blood pressure cuffs, disposable thermometers, etc.
Eye protection (i.e., goggles or face shields)	• Wear when within 3 feet of the patient.

Airborne Precautions	• Place the patient in an Airborne Isolation Room (AIR). Such rooms should have monitored negative air pressure in relation to corridor, with 6 to 12 Air Changes per Hour (ACH), and exhaust air directly outside or have recirculated air filtered by a High Efficiency Particulate Air (HEPA) filter. If an AIR is unavailable, contact the health-care facility engineer to assist or use portable HEPA filters (see "Environmental Infection Control Guidelines" at www.cdc.gov/ncidod/dhqp/gl_environinfection.html) to augment the number of ACH. • Use a fit-tested respirator, at least as protective as a National Institute of Occupational Safety and Health (NIOSH)-approved N-95 filtering face piece (i.e., disposable) respirator, when entering the room. For additional information regarding these and other health-care isolation precautions, see the "Guidelines for Isolation Precautions in Hospitals" (www.cdc.gov/ncidod/dhqp/gl_isolation.html). Ideally, an infected patient should remain hospitalized for the duration of possible organism shedding to ensure careful adherence to infection prevention and control measures.
Controlling Infection at the facility OPD:	To minimize transmission within the healthcare setting, patients with suspected, probable or confirmed illness should be directly admitted from the transport vehicle to an adequately ventilated isolation ward or area or to an airborne precaution room (if aerosol-generating procedures are anticipated). Patients should not be taken to the emergency department. The route of transit from the transport vehicle to the patient's bed should be cleared of all individuals prior to moving the patient.
Controlling Infection on admission:	Every attempt should be made either to place a patient with acute respiratory illness in a single patient room or to cohort patients with laboratory-confirmed diagnosis. Whenever possible, rooms, wards, or areas used for isolation of patients with acute respiratory illness should be in an area that is clearly segregated from other patient-care areas. Decisions about patient placement should ensure that:

- If single patient rooms and laboratory-confirmation are not available,
  - Use epidemiologically-based cohorting (i.e. similar symptoms and exposures).
  - Maintain reasonable spatial separation when using epidemiologically-based cohorting.
  - Use screens or room dividers to provide patient privacy. Do not use curtains.
- Where adequate ventilation can be assured, doors to the isolation ward or area housing an acutely ill patient must be kept closed when not being used for entry or egress.
- Isolation ward or area should have their own hand washing sink, toilet, and bath facilities.

Other administrative controls

Respiratory Hygiene/ Cough Etiquette in Healthcare Settings:

To prevent the transmission of all respiratory infections in healthcare settings, all patients who present to a healthcare setting with fever and respiratory symptoms should be managed according to recommendations for Respiratory Hygiene and Cough Etiquette. (www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm)

- Cover the nose and mouth when coughing or sneezing;
  - Use tissues to contain respiratory secretions and dispose of them in the nearest waste receptacle after use; do not use a handkerchief that is also used to wipe away sweat.
  - Perform hand hygiene after having contact with respiratory secretions and contaminated objects/ materials.

These measures should be implemented at the first point of contact with a potentially infected person. They should be incorporated into infection prevention and control practices as one component of Standard Precautions. In addition, healthcare facilities should ensure the availability of materials for adhering to Respiratory Hygiene/Cough Etiquette in waiting areas for patients and visitors.

- Provide tissues and no-touch receptacles for used tissue disposal.

- Provide conveniently located dispensers of alcohol-based hand rub; where sinks are available, ensure that supplies for hand washing (i.e., soap, disposable towels) are consistently available.

Visual alerts:	Post visual alerts (in appropriate languages) at the entrance to outpatient facilities (e.g., emergency departments, physician offices, outpatient clinics) and hospitals to educate patients and persons who accompany them (e.g., family, friends) about the following: • Notice to patients to report flu symptoms. • Wear a mask for persons with respiratory symptoms. • Respiratory etiquette. • Visual alerts can also be placed in reception and waiting areas.
Masking and separating persons with respiratory symptoms:	Offer surgical masks to persons who are coughing to contain respiratory secretions (respirators such as N-95 or above are not necessary for this purpose). When space and chair availability permit, encourage coughing persons to sit at least 1 metre away from others in common waiting areas.
Site of care delivery:	In the initial phases of an emerging AI epidemic, AI infected patients are likely to seek care at a variety of types of healthcare facilities. To maximize containment efforts during phases 3 and 4, all patients with suspected AI should be transported to the nearest hospital for admission and stabilization. Upon stabilization and notification of the receiving hospital, patients with suspected, probable or confirmed AI should be transported to the referral hospital or a national centre.
Admission to a healthcare facility:	To minimize AI transmission within the healthcare setting, patients with suspected, probable or confirmed AI should be directly admitted from the transport vehicle to an adequately ventilated isolation ward or area or to an airborne precaution

room (if aerosol-generating procedures are anticipated). Patients should not be taken to the emergency department. The route of transit from the transport vehicle to the patient's bed should be cleared of all individuals prior to moving the patient.

Every attempt should be made either to place a patient with AI in a single patient room or to cohort patients with laboratory-confirmed AI diagnosis. Whenever possible, rooms, wards, or areas used for isolation of patients with AI should be in an area that is clearly segregated from other patient-care areas. Decisions about patient placement should ensure that:

Patient placement:

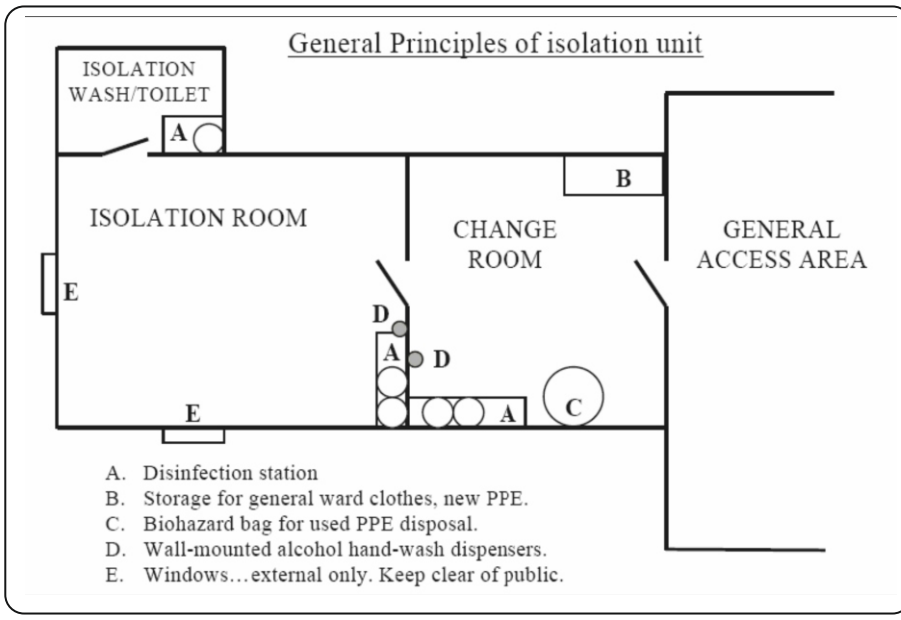
- If possible create 2 distinct isolation wards or areas; one for patients with suspected AI and the other for patients with probable and confirmed AI infection.
- If single patient rooms and laboratory-confirmation are not available,
  - Use epidemiologically-based cohorting (i.e. similar symptoms and exposures).
  - Maintain spatial separation of >1 metre when using epidemiologically-based cohorting.
  - Use screens or room dividers to provide patient privacy. Do not use curtains.
- Where adequate ventilation can be assured, doors to the isolation ward or area housing an AI patient must be kept closed when not being used for entry or egress.
- Isolation ward or area should have their own hand washing sink, toilet, and bath facilities.

Isolation wards or room design

Construction of standard isolation wards (for category A isolation) at national referral centers is an important component of acute airborne illness preparedness activities. In the event of any suspected acute airborne illness, designated facilities should be in the position to effectively isolate such patients.

Isolation wards should be separated from the general wards. Three distinct zones and three distinct passageways are an important feature of an isolation ward: the clean zone (corridor, hallway or general access way), the semi-contaminated zone

(changing room or ante-room) and the contaminated zone (isolation room and isolation wash/toilet). These areas are depicted on the figure below. There should be no overlaps of these areas.



Waste Management

Proper disposal of waste, as well as cleaning and disinfection of patient care areas and equipment is essential to limit additional transmission and should be carried out in accordance with the Ministry of Health's Healthcare Waste Management Policy (2006) and the GHS/MoH Infection Prevention and Control Guidelines.

Use standard precautions when working with solid clinical or laboratory waste that may be contaminated with viruses outside of the isolation ward or area. Examples include:

- Infectious clinical waste: waste generated by inpatients or outpatient with acute illness. This also includes discarded sharps.
- Infectious laboratory waste: waste directly associated with specimen processing, human tissues, including material or solutions containing blood.

- General, nonhazardous waste: Papers, plastics, and other materials that have not been in direct contact with infected patients.

All infectious waste generated in the isolation ward or area should be removed in suitable containers or sealed in impermeable yellow bags that do not allow for spillage or leakage of contents. One layer of packing is adequate. Double bagging is unnecessary.

Clearly labeled bags containing infectious waste with a "Biohazard" symbol. The bags should be incinerated. Wear utility gloves when transporting waste. Perform hand hygiene afterwards.

Dishes and eating utensils:

Use standard precautions for handling dishes and eating utensils used by suspected or confirmed infected patients within the isolation ward or area.

- When possible, wash reusable items in a dishwasher with detergent at the recommended water temperature. If dishwashers are not available, reusable items should be decontaminated, cleaned and disinfected by hand. Household rubber gloves should be used if washing items by hand.

- Disposable items should be discarded with other general waste.

Linen & laundry:

The use of standard precautions is recommended for handling linen and other laundry that may be contaminated with blood, body fluids, secretions, or excretions from suspected, probable, or confirmed infected patients.

- Place soiled linen directly into a laundry bag in the isolation room/area.

- When transporting soiled linen and laundry outside the isolation room/area, use utility gloves followed by hand hygiene. Ensure that linen is contained so that the bag will not open or burst during transport or while in the soiled linen holding area.

- Soiled linen and laundry should not be shaken (to avoid contamination of the environment or aerosolization of virus). Heavily soiled linen should be rolled or folded to contain the heaviest soil in the centre of the bundle.

- Wash and dry linen according to routine facility standards and procedures.

Environmental cleaning and disinfection

Some viruses causing acute respiratory illness can survive in the environment for variable periods of time (hours to days), and can be inactivated by standard hospital disinfectants. Cleaning and disinfection should follow standard procedures for the healthcare environment.

- Pour disinfectant cleaning solution on spill.

- Clean immediately.

- Pour disinfectant solution again on site of spill and then clean with detergent and water.

- Follow the manufacturers' recommendations for use/dilution, contact time, and handling of disinfectants.

- Isolation ward or area should be cleaned at least daily. Terminal cleaning and disinfection should be performed at discharge. In addition to daily cleaning of floors and other horizontal surfaces, special attention should be given to cleaning and disinfecting frequently touched surfaces (e.g. medical equipment, bedside and over-bed tables, television controls, call buttons, safety/pull-up bars, doorknobs, commodes, ventilator surfaces).

- To avoid aerosolization of viruses, damp, not dry, dusting or sweeping should be performed by moistening a cloth with a small amount of disinfectant.

- Clean less heavily contaminated areas first.

- Change disinfectant cleaning solutions when cleaning frequently.

- Use separate equipment for isolation ward or area and for other areas.

- Equipment used for cleaning and disinfection must be cleaned and dried after each use. Mop heads should be decontaminated, washed and dried thoroughly each day before storage or reuse.

- Carpeted areas should not be used for infected patients.

- Keep areas around the patient free of unnecessary supplies and equipment to facilitate daily cleaning.

Do not spray (i.e. fog) occupied or unoccupied rooms with disinfectant. This is a potentially dangerous practice that has no proven disease control benefit.

Personal Protective Equipment

Use of PPE - general issues:

Source control and environmental controls will reduce the risk of transmission within the healthcare setting. However, the appropriate use of PPE is necessary to provide optimal protection to all HCW, patients, and staff.

- Use observers to ensure compliance by HCWs in the proper use of PPE.

- To avoid waste, use PPE appropriately. Provide training and maximize clinical care provided during each entry to the patient's room.

- Reusable PPE (e.g. goggles and reusable gowns) must be properly disinfected after each use.

- Do not reuse disposable PPE items (e.g. gloves, masks, disposable gowns and aprons).

- Because the need for disposable N95 respirators is likely to exceed the available supply, reuse will probably be required. To maximize the safety of this practice, the following steps are recommended:

  - Respirator should be fit test prior to 1st use.

  - Wearer should label respirator with his or her name.

  - When removing respirator, avoid handling front of mask.

- Upon removal, wearer should immediately perform hand hygiene.

- Upon removal of respirator, place immediately in clean plastic bag and store in clean environment.

- When reusing respirator, ensure proper fit by performing seal check prior entering isolation area.

Suggested sequence for putting on PPE:

This sequence is intended to reduce the possibility of self-contamination and self-inoculation.

- Recommended steps before entering the isolation room/area:

  - perform hand hygiene with an alcohol-based hand rub (preferred) or soap and water.

  - put on fluid-resistant apron.

  - put on disposable gown.

  - put on particulate respirator (or surgical mask).

  - perform user seal check of particulate respirator (if being used).

  - put on hair cover (if used, e.g. during an aerosol-generating procedure).

  - put on face shield or goggles.

  - put on gloves (make sure gloves cover cuff of gown sleeves).

  - enter the isolation area or ward.

- Recommended steps after leaving the isolation room/area:

  - remove PPE either in the anteroom or if there is no anteroom make sure that neither the environment outside the isolation ward or area nor other persons can get contaminated;

  - remove gloves and discard (gloves may be peeled from hands when gown is removed);

  - remove gown and apron;

  - perform hand hygiene with an alcohol-based hand rub (preferred) or soap and water;

  - remove protective eyewear and discard. If reusable, place in container for decontamination;

  - if worn, remove hair cover and discard;

  - remove surgical mask or particulate respirator by grasping elastic bands, do not touch front of particulate respirator or mask (front of masks may be contaminated) and discard;

  - perform hand hygiene with an alcohol-based hand rub (preferred) or soap and water.

Documents consulted and reviewed

1. GIZ/GHS pandemic III proposal, 2011
2. South African Management Development Institute, Training Manual Module 2: Training needs assessment, 2007
3. Joan Strohauer, Training Needs Assessment: A Systematic Approach, Department of education.
4. MOH, The Health Sector Medium Term Development Plan (HSMTDP) 2010 – 2013; 2011
5. Independent review report, MOH, 2011
6. WHO, IMCI, 1998
7. Technical Updates on guidelines of IMCI WHO 2005: evidence and recommendations for further adaptation.
8. WHO, Integrated Management of Adolescent and Adult Illness (IMAI) modules, 2004
9. MOH, Standard Treatment Guidelines, 2010
10. WHO Pocket book of Hospital Care for Children (draft), 2012
11. Preparedness and Response Plan for Avian and Human Pandemic Influenza 2005-2006, (MOH, Dec 2005)
12. GHS, Guidelines for Management of HUMAN INFECTION WITH AVIAN INFLUENZA IN GHANA, revised June 2008
13. New York State Department of Health Bureau of Emergency Medical Services, Statewide Basic Life Support Adult & Pediatric Treatment Protocols, Certified First Responder, 2003 edition
14. GHS, Integrated Disease Surveillance & Response Ghana", 2nd Edition, 2012
15. Interim Infection Control Recommendations for Care of Patients with Suspected or Confirmed Filovirus (Ebola, Marburg) Hemorrhagic Fever. BDP/EPR/WHO March 2008.
16. Manser R, Reid D, Abramson MJ. Corticosteroids for acute severe asthma in hospitalised patients. Cochrane Database of Systematic Reviews 2001, Issue 1. Art. No.: CD001740. DOI: 10.1002/14651858.CD001740.
17. Guppy MPB, Mickan SM, Del Mar CB, Thorning S, Rack A. Advising patients to increase fluid intake for treating acute respiratory infections. Cochrane Database of Systematic Reviews 2011, Issue 2. Art. No.: CD004419. DOI:10.1002/14651858.CD004419.pub3.
18. Lecky F, Bryden D, Little R, Tong N, Moulton C. Emergency intubation for acutely ill and injured patients. Cochrane Database of Systematic Reviews 2008, Issue 2. Art. No.: CD001429. DOI: 0.1002/14651858.CD001429.pub2.
19. Siddiqui S, Razzak J. Early versus late pre-intensive care unit admission broad spectrum antibiotics for severe sepsis in adults.Cochrane Database of Systematic Reviews 2010, Issue 10. Art. No.: CD007081. DOI: 10.1002/14651858.CD007081.pub2.
20. MOH, The Human Resource Policy and Strategies for 2012-2016. 2011
21. WHO, District Clinician Manual: Hospital Care for Adolescents and Adults, IMAI, 2005
22. WHO, Clinical Care for resource-limited settings Health workers and Infection control, www.who.int/influenza/Patient-Care/Clinical