YGH management guideline for H1N1 (pdm) infection

History Taking

Name Age Sex

R/N Address

Complaints – fever with respiratory symptoms less than 7 days

Comorbidity – Complications –

On examination

Vital signs

SPO2

CP ESR

RBS U & E

Creatinine LFT (optional)

CXR (PA) ECG

Categorize the patient A, B, C

Category A

Mild fever plus cough/ sore throat with or without body ache, headache, diarrhea and vomiting

Category B

i. Category A **Plus** high grade fever and severe sore throat
ii. Category – Any mild ILI in people with comorbidities like
    a. Pregnant women
    b. Lung/ heart/liver/kidney/neurological disease/blood disorder/diabetes/cancer/HIV-AIDS
    c. On long term steroids or those with immunosuppression due to drugs, radiation or HIV, etc

Category C _ Cat A plus any 3 or more of the following

- Breathlessness
- chest pain
- Drowsiness
- fall in blood pressure (<90/60 mmHg)
- cyanosis
- Tachypnea (RR >30/min)
- Decreased oxygen saturation (SPO2 <90 on air)
- CXR – patchy opacities

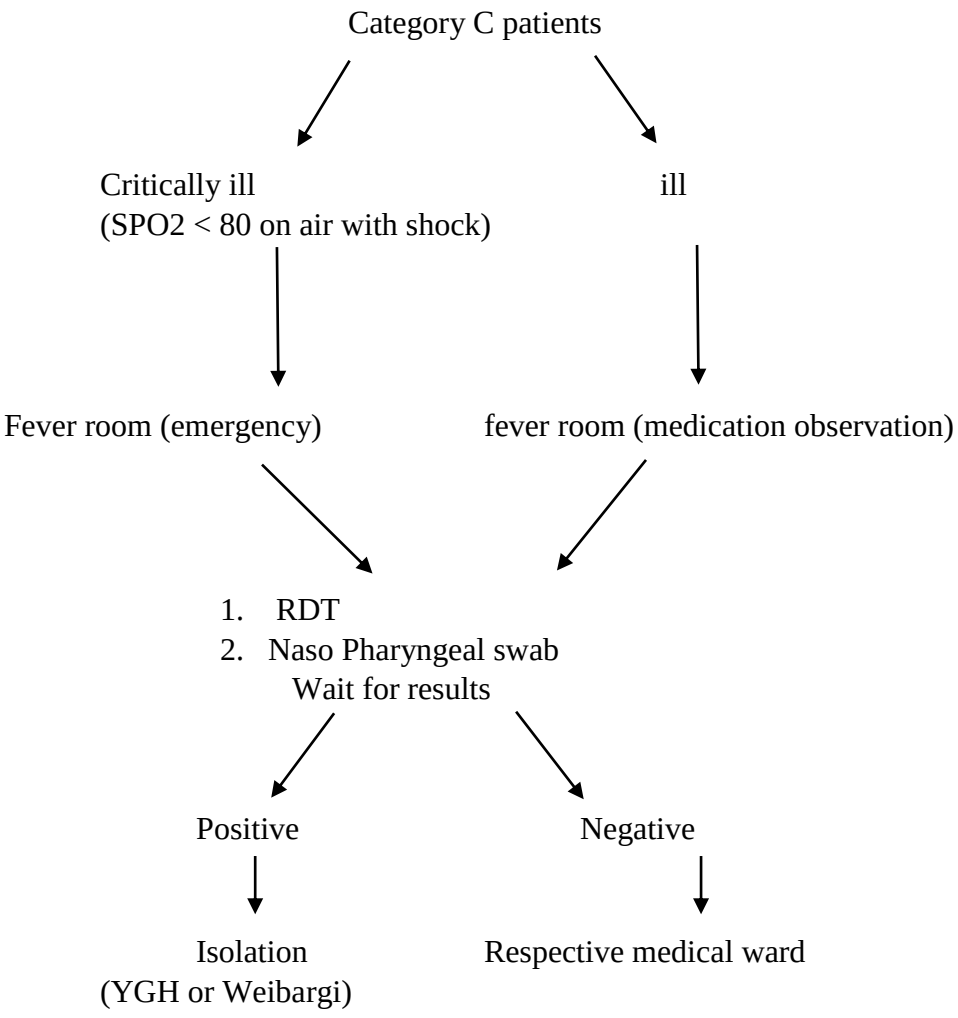
H1N1 Testing and Treatment

Category	Test	Treatment
Cat A*	No testing	No admission Observe at home Symptomatic treatment (Paracetamol+ Vitamin C+ adequate fluid)
Cat B(i)*	No testing	No admission Observe at home Treatment as above + Antibiotics
Cat B(ii)**	RDT	Admit and treatment is guided by comorbidity conditions
Cat C	RDT and Nasopharyngeal Swab for H1N1 Test	Admit and follow the H1N1 flow

*Cat A and Cat B (i) patients should be handled by screening team led by EMO

** Cat B (ii) patients should be seen by MO team leader

H1N1 flow



Antiviral treatment

Cat C – Anti viral treatment to be decided by attending Physician

Treatment for Pneumonia

According to the treatment guideline in "Therapeutic Manual Internal Medicine 1st edition, 2016"

Chemoprophylaxis for contact persons

-Generally not recommended

-To report back if there are symptoms of influenza

References

1. WHO guideline for pharmacological management of pandemic influenza A (H1N1) 2009.
2. NICD recommendation for diagnosis, prevention and management (2017)
3. Therapeutic Manual Internal Medicine 1st edition, (2016)
4. H1N1 Influenza guideline, directorate of Health Services, Kerala

Pneumonia

An acute lower respiratory tract illness associated with fever, symptoms and signs in the chest, and abnormalities on the chest X-ray.

Classification and causes

Community-acquired pneumonia (CAP) may be primary or secondary to underlying disease. Streptococcus pneumonia is the commonest cause (60-70%), followed by *Haemophilus influenzae* and *Mycoplasma pneumonia. Staphylococcus aureus, Legionella species, Moraxella catarrhalis,* and chlamydia account for most of the remainder. Gram negative bacilli, *Coxiella burneti* and anaerobes are rarer. Viruses account for up to 15%. Flu may be complicated by community-acquired MRSA pneumonia (CA-MRSA).
Hospital-acquired pneumonia (nosocomial:> 48 h after hospital admission). Most commonly Gram-negative enterobacteria or Staph aureus. Also Pseudomonas, Klebsiella, Bateroids and Clostridia.
Aspiration Those with stroke, myasthenia, bulbar palsies, loss of consciousness(eg. post-ictal or drunk), esophageal disease(achlasia, reflux), or with poor dental hygiene risk aspirating oropharyngeal anaerobes.
Immunocompromised patient: *Strep pneumoniae, Haemophilus influenzae, Staph aureus, M. catarrhalis, M. pneumoniae, Gram-ve bacilli and Pneumocystis jiroveci,* other fungi, viruses(CMV, HSV) and mycobacteria.

Clinical features

Symptoms

- Fever, rigors, malaise, anorexia
- Dysponea, cough
- Purulent sputum (classically 'rusty' with pneumococcus), haemoptysis,
- Pleuritic pain

Signs

- Fever, cyanosis, tachypnea, herpes libialis (pneumococcus)
- Confusion (may be the only sign in elderly)
- Tachycardia, hypotension
- Signs of consolidation (diminished expansion, dull percussion note, increased tactile vocal fremitus/ vocal resonance, bronchial breathing) and a pleural rub

Investigations

It aims to establish diagnosis, identify pathogen, and assess severity

- CXR
- Oxygen saturation
- Arterial blood gases if SaO2< 92% or severe pneumonia
- FBC, U & Es, Creatinine, LFT, CRP, atypical bacterial serology

Table 22 Empirical treatment of pneumonia

Clinical setting	Organisms	Antibiotic
Community – acquired		
Mild (not previously treated)	*Streptococcus pneumoniae* *Haemophilus influenzae*	Oral amoxicillin 500 mg -1g / 8h or clarithromycin in 500 mg / 12 h
Moderate	*Streptococcus pneumoniae* *Haemophilus influenzae* *Mycoplasma pneumoniae*	IV Quinolone monotherapy (e.g. IV levofloxacin) (or) IV second-generation cephalosporin (e.g.cefuroxime) (or) IV third-generation cephalosporin (e.g. cefotaxime or ceftriaxone) AND clarithromycin.
Severe	As above	IV Co-amoxiclav 1.2 g/8h (or) IV second generation cephalosporin (e.g. cefuroxime 1.5 g/8h) (or) IV third-generation cephalosporin (e.g.ceftriaxone 1 g 12h or cefotaxime 2 g 6h) AND clarithromycin 500 mg/12 h IV (or) IV Quinolone (e.g. IV levofloxacin 500mg 12h) AND IV second and third generation cephalosporin Add flucloxacillin if staph suspected; vancomycin (or teicoplanin) if MRSA suspected treat for 10d (14-21d if staph, legionella, or Gram-ve enteric bacteria suspected)
Atypical	*Legionella pneumophilia*	Consider adding rifampicin; treat for 14-21d
	Chlamydophila species	Tetracycline
	Pneumocystis jiroveci	High-dose co-trimoxazole
Hospital-acquired	Gram negative bacilli Pseudomonas Anaerobes	Aminoglycoside IV + antipseudomonal penicillin IV or 3rd gen. cephalosporin IV (p379)
Aspiration	Streptococcus pneumoniae Anaerobes	Cephalosporin IV + metronidazole IV
Neutropenic patients	Gram positive cocci Gram negative bacilli	Aminoglycoside IV + antipseudomonal penicillin IV or 3rd gen. cephalosporin IV Consider antifungals after 48h

3rd gen=3rd generation, eg cefotaxime, gentamicin is an example of an aminoglycoside.
Ticarcillin is an example of an antipseudomonal penicillin.

- Sputum for culture and sensitivity, Blood cultures and sensitivity
- Pleural fluid may be aspirated for culture and sensitivity
- Bronchoscopy and bronchoalveolar lavage if the patient is immunocompromised or on ICU.

Severity

Calculate the core adverse features 'CURB - 65' score

- Confusion (abbreviated mental test ≤ 8)
- Urea > 7 mmol/L
- Respiratory rate ≥ 30 min
- BP < 90/60 mmHg
- Age ≥ 65

Score

- 0 -1 home treatment if possible
- 2 hospital therapy
- ≥ 3 indicates severe pneumonia (consider ICU)
- Other features increasing the risk of death are: co-existing disease; bilateral/multilobar involvement; PaO2< 8kPa/SaO2< 92%.

Management

- **Antibiotics:** orally if not severe and not vomiting; if severe give by IV (see Table 22)
  If a specific pathogen has been identified, the antibiotic recommendations are accordingly.
- **Oxygen:** keep PaO_2 > 8.0 and / or saturation ≥ 94%.
- **IV fluids:** may be required in patients with anorexia, dehydration, shock.
- **Analgesia** if pleurisy - e.g. paracetamol 1g/6h.
- **Consider ICU** if shock, hypercapnia, or uncorrected hypoxia. **If failure to improve** or CRP remains high, repeat CXR and look for progression/complications.

Duration of treatment

Low or moderate severity and uncomplicated pneumonia, 7 days of appropriate antibiotics is recommended. High severity microbiologically-undefined pneumonia, 7-10 days of treatment is proposed. This may need to be extended to 14 or 21 days according to clinical judgement.

When should the intravenous route be changed to oral?

Clinical improvement occurs and the temperature has been normal for 24 h, providing there is no contraindication to the oral route. The antibiotic choices are straightforward where there are effective and equivalent oral and parenteral formulations.

Discharge

Patients should be reviewed within 24 h of planned discharge home, and those suitable for discharge should not have more than one of the following characteristics present (unless they represent the usual baseline status for that patient): temperature >37.8C, heart rate >100/min, respiratory rate >24/min, systolic blood pressure <90 mm Hg, oxygen saturation <90%, inability to maintain oral intake and abnormal mental status. **Follow-up at 6 weeks (± CXR).**

Complications

Pleural effusion, empyema, lung abscess, respiratory failure, septicaemia, brain abscess, pericarditis, myocarditis, cholestatic jaundice

Pneumococcal vaccine

All patients aged >65 years or at risk of invasive pneumococcal disease who are admitted with CAP and who have not previously received pneumococcal vaccine should receive 23-valent pneumococcal polysaccharide vaccine (23-PPV) at convalescence.