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Standard Treatment Workflow (STW) for Management of
ACUTE RESPIRATORY INFECTION IN ADULTS
ICD-10-J09-J18; J00-06; J40

WHEN TO SUSPECT

SYMPTOMS
- Cough with yellow/rusty sputum
- Breathlessness
- Pleuritic chest pain
- Malaise, myalgia, arthralgia
- Extra pulmonary symptoms

PAST HISTORY
- TB
- Pneumonia
- Airway disease
- Bronchiectasis
- Diabetes
- Chronic steroid use

CLINICAL EXAMINATION

1. Vital parameters: Sensorium, Pulse, Blood pressure, Respiratory rate, Temperature, Oxygen saturation by pulse oximetry

Signs of respiratory failure: RR> 30/min, Abdomin othoracic paradox, cyanosis, speaks in short sentences. Refer Respiratory Failure STW.

2. Systemic examination:
a. Upper respiratory tract: nose & paranasal sinuses (frontal and maxillary sinus tenderness), throat examination (pharynx and tonsils)
b. Lower respiratory tract: breath sounds (type, intensity), added sounds (crackles, wheeze, pleural rub)

Frank haemoptysis, may suggest Pulmonary TB or malignancy

PROCEED FOR FURTHER ASSESSMENT

- Fever, tachycardia, pharyngitis, suffusion of eyes, rhinitis, hoarse voice
- Respiratory system examination: Normal

- Fever, tachycardia
- Respiratory system exam: Wheeze
* Consider acute exacerbation of asthma/ COPD if there is a history of any of these 2 illnesses

- Fever, tachycardia, tachypnea
- Respiratory system exam: Crackles/bronchial breath sounds
* Consider acute exacerbation of asthma/ COPD is there is a history of any of these 2 illnesses

PATHWAYS BASED ON INITIAL ASSESSMENT FINDINGS

PATHWAY 1 : ACUTE URI (RESPIRATORY CATARRH)

LABORATORY INVESTIGATION:
- Total and differential count in suspected flu.

TREATMENT
- Symptomatic treatment for fever, myalgia (Paracetamol or other NSAID),
- Rest, Oral fluids (plenty)
- Oral antihistamines (Tab. CPM 4mg BD) for severe runny nose or sneezing
- Antibiotics in acute follicular tonsillitis: Amoxicillin/ Ampicillin 500mg tid X 5 days
  In penicillin sensitive individuals: Erythromycin estolate 250mg q 6 hrly X 5 days with food

Suspect epidemic flu
H/ o recent travel, symptoms of upper respiratory infection, diarrhoea, myalgia, breathlessness **Refer to higher centre for diagnosis, notif ication and treatment.**

PATHWAY 2 : ACUTE BRONCHITIS

LABORATORY INVESTIGATION:
- Total and differential count if sputum is purulent,
- X-ray chest PA view

TREATMENT
- Symptomatic treatment for fever (Paracetamol or other NSAID), Oral fluids (plenty)
- Inhaled bronchodilators: Salbutamol nebulization (5mg/2.5ml) 6-8 hourly
- Antibiotics if there is purulent sputum and polymorphonuclear leukocytosis
  - Amoxicillin 500mg tidX 5 days
  - In penicillin sensitive individuals: Erythromycin estolate 250mg q 6 hrly X5 days with food
- If asthma is suspected refer to asthma STW

PATHWAY 3 : COMMUNITY ACQUIRED PNEUMONIA

SEVERITY ASSESSMENT
- X-ray
- Use CRB-65* score for mortality risk assessment in primary care

CRB-65 SCORE

SCORE	RISK CLASS	SITE OF CARE
0	Low Risk	OP
1-2	Intermediate Risk	IP
3-4	High Risk	ICU

*65 in the scoring mnemonic refers to age> 65

Give 1 point for each of the following Prognostic features:
- Confusion
- Respiratory rate ≥30/ min
- Low BP (DBP ≤60 mm Hg or SBP ≤90 mm Hg)
- Age ≥65 years

OUT-PATIENT BASED CARE OF CAP (CRB-65 SCORE 0-1)

INVESTIGATIONS

Preliminary
Chest radiogram
Repeat if:
i. Patient is not improving/ worsening clinically
ii. Suspected underlying malignancy

Desirable
1. Pulse oximetry in outpatients
2. Sputum microbiology: In suspected PTB & non-response after 48 hours of antibiotics

TREATMENT
1. Targeted towards Streptococcus pneumoniae
2. Oral antibiotics after checking for comorbidities* (Diabetes, CVDs, CKD, CLD, Hepatic Pathology, Cancer, Alcohol Abuse, H/o antibiotics within last 3 months.)
   a. Without comorbidities: Cap. Amoxicillin (500 mg TDS) / Tab. Erythromycin 250mg QID/ Tab. Doxycycline 100mg BD
   b. With comorbidities: Cap. Amoxicillin 500mg TDS + Tab.Azithromycin 500 mg OD
3. Duration: 5 days in (A); extend to a 7-10 days course if there is no response within 3 days of starting treatment and in (B).
4. **Do not give:**
   a. Corticosteroids: unless other medical indications present
   b. Fluoroquinolones: as they have anti-tubercular activity.

INPATIENT MANAGEMENT OF CAP

ANTIBIOTIC THERAPY IN THE HOSPITALIZED NON-ICU SETTING
a. Single agent IV β-lactam
b. If suspected atypical pathogens, other end organ disease, diabetes, malignancy, severe CAP, use of antibiotics in past 3 months: Combination of IV β-lactam (Cefotaxime 2 grams TID/ IV Ceftriaxone 1gram BD/ Amoxicillin–Clavulanic acid 1.2 grams TID) + ORAL macrolide (Tab Azithromycin 500 mg PO OD/ Tab Clarithromycin 500 mg PO BD)

ANTIBIOTIC THERAPY IN THE HOSPITALIZED ICU SETTING
i. Patients without risk factors for Pseudomonas aeruginosa: Manage as above
ii. Suspected P. aeruginosa (diabetes, chronic lung disease like bronchiectasis, chronic steroid therapy):
IV Cefepime (1G BD) / IV Ceftazidime (2G TID) / Piperacillin–tazobactam(4.5 G QID)/ IV Cefoperazone–sulbactam 1.5G IV TID/ IV Meropenem 1g TID;
Combination therapy : Aminoglycosides(IV Amikacin) / Antipseudomonal fluoroquinolones(Levofloxacin/Moxifloxacin)

ADJUNCTIVE THERAPIES FOR THE MANAGEMENT OF CAP
a. Steroids are not recommended for use in non-severe CAP
b. Non-invasive ventilation may be used in patients with CAP and acute respiratory failure

CONTRA INDICATIONS FOR NON-INVASIVE VENTILATION
a. Cardiorespiratory arrest
b. Presence of severe upper airway inflammation & edema
c. Severe haemodynamic instability - hypotension
d. Eu-capnic (normal $PaCO_2$) coma
e. Multiple organ dysfunction or severe psychomotor agitation

DISCHARGE CRITERIA
Accepting orally, Afebrile and Hemodynamically stable for a period of at least 48 h

REFERRAL TO A HIGHER CENTRE : CLINICAL CRITERIA
1. Frank hemoptysis and /or Signs of respiratory failure [listed under in the history and evaluation sections]
2. CRB-65 score > 1
3. Oxygen saturation by pulse oximetry ≤ 92% (patients ≤ 50 yrs) OR <90% (patients > 50 yrs)
4. Multi-lobar consolidation on chest X-ray
5. Confusion/disorientation
6. Hypothermia (core temperature<360C)

POINTS TO NOTE WHILE SHIFTING
1. If referring to a higher center, give the first dose of antibiotic (oral and if available, parenteral), secure an IV line and start 0.9% Normal saline and oxygen supplementation through face mask at 4-6 litres per minute during shift
2. If the patient is drowsy, has copious secretions, consider calling for help from the SUB-DISTRICT/DISTRICT hospital for endotracheal intubation and shifting on a transport ventilator

KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES

This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit our web portal (**stw.icmr.org.in**) for more information.