PNEUMONIA FLOW DIAGRAM

Table 1: Uncommon Pathogens

At least **One** of the following *:

- ❑ Positive culture of virus or *Chlamyida* from respiratory secretions
- ❑ Positive detection of viral antigen or antibody from respiratory secretions (e.g., EIA, FAMA, shell vial assay, PCR)
- ❑ Fourfold rise in paired sera (IgG) for pathogen (e.g., influenza viruses, *Chlamydia)*
- ❑ Positive PCR for *Chlamyida* or *Mycoplasma*
- ❑ Positive micro-IF test for *Chlamyida*
- ❑ Positive culture or visualization by micro-IF of *Legionella* spp from respiratory secretions or tissue
- ❑ Detection of *Legionella pneumophilia* serogroup 1 antigens in urine by RIA or EIA
- ❑ Fourfold rise in *L. pneumophilia* serogroup 1 antibody titer to ♦1:128 in paired acute and convalescent sera by indirect IFA

*Once laboratory-confirmed cases of pneumonia due to respiratory syncytial virus (RSV), adenovirus, or influenza virus have been identified in a hospital, clinicians presumptive diagnosis of these pathogens in subsequent cases with similar clinical signs and symptoms is an acceptable criterion for presence of nosocomial infection

Table 2: Threshold Values for Cultured Specimens

Specimen collection/technique	**Values**
❑ Lung parenchyma (open lung biopsy specimen or immediate post mortem specimens obtained by transthoracic or transbronchial biopsy	♦ 10^4 cfu/g tissue
Bronchoscopically (B) obtained specimens	
❑ Bronchoalveolar lavage (B-BAL)	♦ 10^4 cfu/ml
❑ Protected BAL	♦ 10^4 cfu/ml
❑ Protected specimen brushing (B-PSB)	♦ 10^3 cfu/ml (2-4+)
Nonbronchoscopically (NB) obtained ("blind") specimens	
❑ NB-BAL	♦ 10^4 cfu/ml
❑ NB-PSB	♦ 10^3 cfu/ml

PNEUMONIA FLOW DIAGRAM

Name:		Age:	Sex:	SS#	Admit:
Admit ICU	D/C ICU	Admit Diagnosis			

Immunocompromised include those with neutropenia (absolute neutrophil count <500/mm^3), leukemia, lymphoma, HIV with CD4 count <200, or splenectomy, or those who are in their transplant hospital stay, on cytotoxic chemotherapy, or are on high dose steroids or other immunosuppressives daily for >2weeks (e.g. >40mg of prednisone, >160mg hydrocortisone, >32mg methylprednisolone, >6mg dexamethasone, >200mg cortisone)

❑ ANC <500	❑ leukemia	❑ lymphoma	❑ cytotoxic chemotherapy	❑ other immunosuppressive > 2 weeks
❑ CD4 <200	❑ splenectomy	❑ transplant	❑ high dose steroids daily for > 2 weeks (see definition)	
Vent on	Vent off	Duration	Met Criteria for Ventilator Associated Pneumonia NO _____ YES _____ MONTH _____YR	
Vent on	Vent off	Duration		

Patient with underlying disease (RDS, COPD, bronchopulmonary dysplasia, pulmonary edema) has 2 or more serial chest x-rays (i.e. 48°) with at least **one** of the following:
- ❑ New or progressive **and** persistent infiltrate
- ❑ Consolidation
- ❑ Cavitation
- ❑ None – STOP (VAP not present)

Patient without underlying disease has 1 or more serial chest x-rays with at least **one** of the following:
- ❑ New or progressive **and** persistent infiltrate
- ❑ Consolidation
- ❑ Cavitation
- ❑ None – STOP (VAP not present)

At least **ONE** of the following:
- ❑ Fever (> 38 ° C or > 100.4 ° F) with no other recognized cause
- ❑ Leukopenia (<4000 WBC/mm^3) or leukocytosis (≥ 12,000 WBC/mm^3)
- ❑ For adults >/= 70 years old, altered mental status with no other recognized cause

At least **ONE** of the following in an **Immunocompromised patient**:
- ❑ Fever (> 38 ° C or > 100.4 ° F) with no other recognized cause
- ❑ For adults >/= 70 years old, altered mental status with no other recognized cause
- ❑ Sputum:
  - ➢ New onset of purulent sputum from lungs, bronchi, or trachea confirmed as 3-4 + PMNs on gram stain **OR**
  - ➢ Repeated notations over 24-hour period of a change in character of sputum (color, consistency, odor, quantity) **OR**
  - ➢ Increased respiratory secretions, **OR**
  - ➢ Increased suctioning requirements documented
- ❑ New onset or worsening cough, or dyspnea, or tachypnea (resp. rate > 25 for adults)
- ❑ Rales, crackles, or bronchial breath sounds
- ❑ Worsening gas exchange (O_2 desaturations, [e.g., $PaO_2/FiO_2 \leq 240$], increased oxygen requirements, or increased ventilator demand)
- ❑ Hemoptysis
- ❑ Pleuritic chest pain

At least **TWO** of the following:
- ❑ Sputum:
  - ➢ New onset of purulent sputum from lungs, bronchi, or trachea confirmed as 3-4 + PMNs on gram stain **OR**
  - ➢ Repeated notations over 24-hour period of a change in character of sputum (color, consistency, odor, quantity) **OR**
  - ➢ Increased respiratory secretions, **OR**
  - ➢ Increased suctioning requirements documented
- ❑ New onset or worsening cough, or dyspnea, or tachypnea (resp. rate > 25 for adults)
- ❑ Rales, crackles, or bronchial breath sounds
- ❑ Worsening gas exchange (O_2 desaturations, [e.g., $PaO_2/FiO_2 \leq 240$], increased oxygen requirements, or increased ventilator demand)

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Immunocompromised

Immunocompromised

One of the following:
- ❑ Positive blood culture not related to another source of infection
- ❑ Matching positive blood and sputum cultures with *Candida* spp collected within 48 hours of each other ξ
- ❑ Evidence of fungi or *Pneumocystis carnii* from minimally contaminated lower respiratory tract specimen from protected brusing of bronch lavage from **ONE** of the following:
  - ➢ Direct microscopic exam
  - ➢ Positive culture of fungi
- ❑ Positive pleural fluid culture
- ❑ Positive quantitative culture from minimally contaminated lower respiratory tract specimen obtained by protected brush or BAL (not endotracheal aspirate) (see Table 2)
- ❑ 5% BAL-obtained cells contain intracellular bacteria on direct exam
- ❑ Histopathologic exam shows **ONE** of the following:
  - ➢ Abscess formation or foci of consolidation with intense PMN accumulation in bronchioles and alveoli
  - ➢ Positive quantitative culture of lung parenchyma
  - ➢ Evidence of lung parenchyma invasion by fungal hyphae or pseudohyphae
- ❑ Uncommon Pathogen (see Table 1) not here

ξNon-quantitative cultures of sputum obtained by deep cough, induction, aspiration, or lavage are acceptable

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  - ➢ Evidence of lung parenchyma invasion by fungal hyphae or pseudohyphae
- ❑ Uncommon Pathogen (see Table 1)

At least **One** of the following:
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Immunocompromised

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❑ PNEU1: Clinically defined pneumonia

❑ PNEU2: Pneumonia with common bacterial or filamentous fungal pathogens and specific lab findings

❑ PNEU2: Pneumonia with viral, *Legionella, Chlamydia, Mycoplasma*, and other uncommon pathogens and specific findings

❑ PNEU3: Pneumonia in immunocompromised patients