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# Dynamic Practice Guidelines for Emergency General Surgery

Committee on Acute Care Surgery, Canadian Association of General Surgeons

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# RESPIRATORY FAILURE

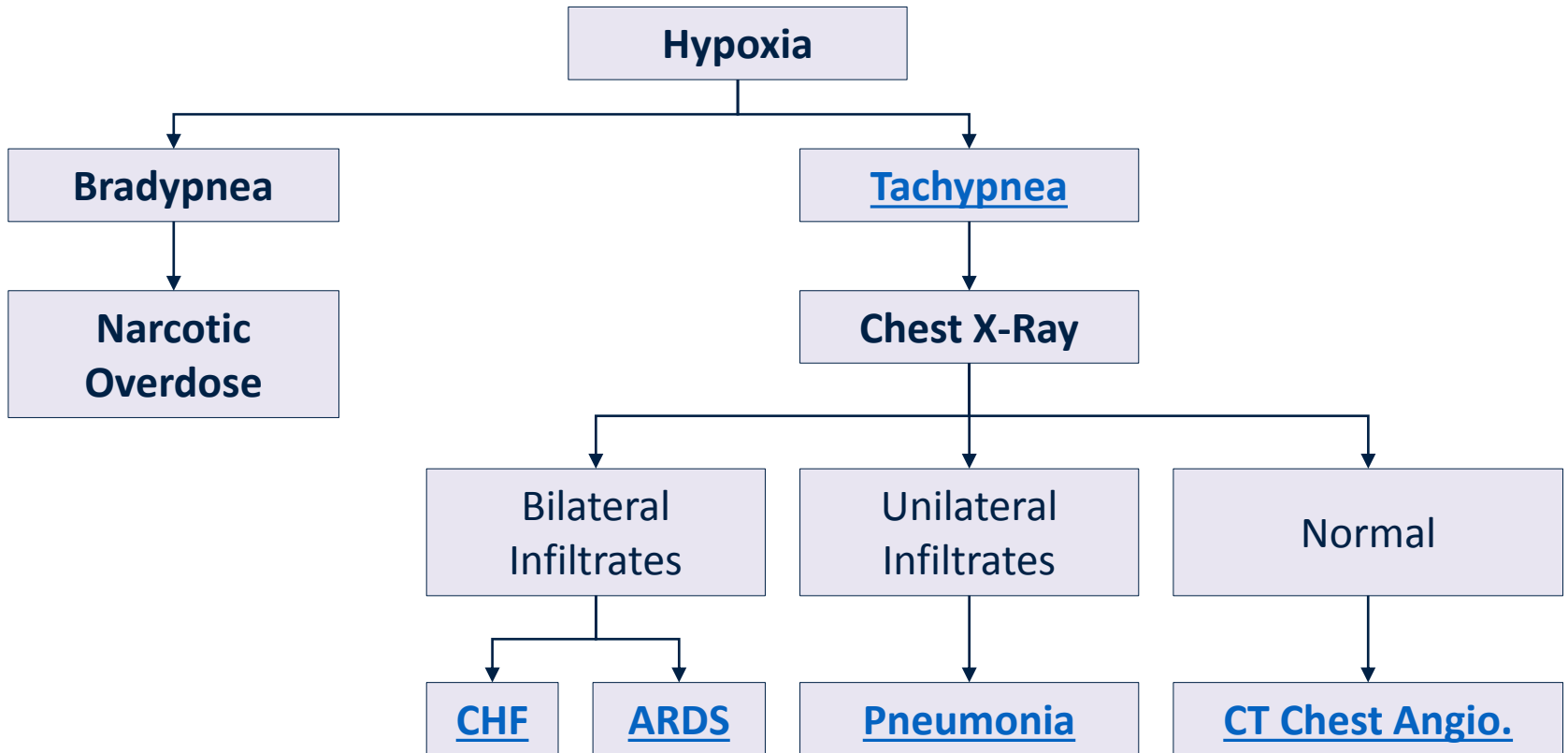
Dynamic Practice Guidelines for Emergency General Surgery

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# RESPIRATORY FAILURE

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## WELL'S SCORE

**Table 1.** Clinical Decision Rule\*

Variable	Points
Clinical signs and symptoms of deep vein thrombosis (minimum of leg swelling and pain with palpation of the deep veins)	3.0
Alternative diagnosis less likely than pulmonary embolism	3.0
Heart rate >100/min	1.5
Immobilization (>3 d) or surgery in the previous 4 wk	1.5
Previous pulmonary embolism or deep vein thrombosis	1.5
Hemoptysis	1.0
Malignancy (receiving treatment, treated in the last 6 mo or palliative)	1.0

\*Clinical probability of pulmonary embolism unlikely: 4 or less points; clinical probability of pulmonary embolism likely: more than 4 points. Source: Wells et al.<sup>3</sup>

- Patients with more than 4 points should be evaluated for possible pulmonary embolism with a CT pulmonary angiogram

## CONGESTIVE HEART FAILURE

- EKG to evaluate for evidence of ischemic changes.
- Blood work
  - Troponin
  - BNP
    - Most dyspneic patients with CHF have values above 400 pg/mL, while values below 100 pg/mL have a very high negative predictive value.
    - In the range between 100 and 400 pg/mL other diagnoses, such as pulmonary embolism, left ventricular dysfunction without exacerbation, and cor pulmonale should also be considered.
  - Electrolytes, Cr, Urea, albumin, CBC
- Physical exam of volume status
- Documented positive fluid balance

## ACUTE RESPIRATORY DISTRESS SYNDROME

- Respiratory symptoms must have begun within one week of a known clinical insult (e.g. aspiration, pancreatitis, massive transfusion, abdominal sepsis)
- Bilateral opacities consistent with pulmonary edema must be present on a chest radiograph or computed tomographic (CT) scan. These opacities must not be fully explained by pleural effusions, lobar collapse, lung collapse, or pulmonary nodules.
- The patient's respiratory failure must not be fully explained by cardiac failure or fluid overload. An objective assessment (e.g, echocardiography, BNP) to exclude hydrostatic pulmonary edema is required if no risk factors for ARDS are present.
- A moderate to severe impairment of oxygenation must be present, as defined by the ratio of arterial oxygen tension to fraction of inspired oxygen ( $\text{PaO}_2/\text{FiO}_2$ ). The severity of the hypoxemia defines the severity of the ARDS:
  - Mild ARDS –  $\text{PaO}_2/\text{FiO}_2 >200$  mmHg, but  $\leq 300$  mmHg, on ventilator settings including positive end-expiratory pressure (PEEP)/ continuous positive airway pressure  $\geq 5$  cm H<sub>2</sub>O.
  - Moderate ARDS – The  $\text{PaO}_2/\text{FiO}_2$  is  $>100$  mmHg, but  $\leq 200$  mmHg, on ventilator settings that include PEEP  $\geq 5$  cm H<sub>2</sub>O.
  - Severe ARDS –  $\text{PaO}_2/\text{FiO}_2 \leq 100$  mmHg on ventilators setting that include PEEP  $\geq 5$  cm H<sub>2</sub>O.

## HOME-ACQUIRED PNEUMONIA

### Diagnosis<sup>1</sup>

- The presence of a new/ progressive radiographic infiltrate plus at least 2 of:
  - Fever
  - Purulent sputum
  - Leukocytosis
  - Decline in oxygenation

### Treatment

- Ceftriaxone 1gm q1hr for 7 days.
- If the patient has risk factors for infection with multidrug-resistant pathogens (receipt of antibiotics within the preceding 90 days, current hospitalization of  $\geq 5$  days, high frequency of antibiotic resistance in the community or in the specific hospital unit, immunosuppressive disease and/or therapy) then an antibiotic with pseudomonas coverage should be used e.g. Piperacillin-Tazobactam 4.5gm Q6h

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<sup>1</sup>American Thoracic Society and Infectious Diseases Society of America, 2005 [Am J Respir Crit Care Med](#)

## PULMONARY EMBOLISM

