



WP4 – USE CASE 1: Propensity to hospitalize

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Why?



Propensity to hospitalize

ELIGIBILITY

- patients presenting to the ED with at least one of the following characteristics:
 - **Dyspnea**
 - Transient loss of consciousness



What?



How?

To admit or not to admit?





To observe or not to observe?





Propensity to hospitalize Dyspnea

- What is the approach used in the ED to decide whether to admit a patient with dyspnea?



Propensity to hospitalize Dyspnea

GROUPED IN 7 DIMENSIONS:

1. Respiratory failure
2. Onset of dyspnea
3. Causes of dyspnea
4. Susceptibility to treatment
5. Overall severity of the patient
6. Frailty of the patient
7. Social issues



Propensity to hospitalize Dyspnea

1. RESPIRATORY FAILURE

- **2 levels:** present; absent
- **From NLP:**
 1. the presence of respiratory distress (may be explicitly noted or derived from some recorded signs, such as “accessory muscle use”)
- **From structural data** (or NLP if absent):
 1. pH, PaO₂, PaCO₂
 2. respiratory rate, saturation



Propensity to hospitalize Dyspnea

2. ONSET OF DYSPNEA

- **2 levels:** acute; chronic
- **From NLP:**
 1. Medical history (including drug and device use)
- **From structural data** (or NLP if absent):
 1. Blood gas analysis

Propensity to hospitalize Dyspnea

3. CAUSES

- **8 levels:** cardiovascular; pulmonary; allergic; traumatic; anaemic; obstructive; metabolic; neuromuscular; psychogenic
- **From NLP:**
 1. Ultrasound (c+p+t)
 2. ECG (c)
 3. Head/neck CT (t+o)
 4. Chest CT (p+t+c)
 5. RX (all causes)

➤ **From structural data** (or NLP if absent):

1. troponin (c)
2. hemoglobin (an)
3. BGA (m)
4. D-dimer (c)
5. Blood sugar (m)
6. BNP (c)



Propensity to hospitalize Dyspnea

4. SUSCEPTIBILITY TO TREATMENT

➤ ...



Propensity to hospitalize Dyspnea

5. SEVERITY OF THE PATIENT

- **3 levels:** mild; moderate; severe
- **From NLP:**
 1. State of consciousness
 2. General condition deterioration
- **From structured data (or NLP if absent):**
 1. Temperature
 2. Heart rate
 3. Pressure
 4. Creatinine
 5. Transaminases
 6. INR
 7. Platelets
 8. Lactates
 9. Sodium
 10. Potassium
 11. CRP
 12. Leukocytes
 13. Saturation



Propensity to hospitalize Dyspnea

6. FRAILITY OF THE PATIENT:

- Dementia
- Dialysis
- Pregnancy
- Chronic organ failure (respiratory, cardiac, renal, metabolic)
- Diffuse vascular disease
- Chronic rheumatological diseases
- Active neoplasia
- Immunosuppression
- Pharmacological therapy
- ...



Propensity to hospitalize Dyspnea

7. SOCIAL ISSUES:

- Living alone
- Level of autonomy
- Bed-armchair
- Family context
- Caregiver
- Possibility of contact with a social worker
- Homeless
- Established psychiatric diagnosis
- ...

