Tests I Wished You Never Ordered

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Disclosures

- None

Education Objectives

- Understand the importance of examining the patient
- Discuss the relevance of the physical exam in establishing and accurate differential diagnosis
- Understand the significance of serial physical examination is assessing the adequacy or failure of treatment

Readings

- Max J, *Yale Medicine,* "The lost art of the physical exam", 2015; Winter edition: 31-35
- Verghese A, "Inadequacies of the physical examination as a cause of medical errors and adverse events: a collection of vignettes" *Am J Medicine* 2015;128:1322-1325
- Hyman P, *JAMA Intern Med*.2020;180:1417-1418
- Priest L, "My doctor doesn't bother to examine me physically" *Globe and Mail;* June 11, 2011

Case: When in Doubt

- Time: Saturday, ~12:30 pm
- Place: Hospital
- Setting: just finished rounds and heading to the stairs
- While walking to the door to the stairs to go home, one of our hospitalists stops me and asks, “I got this old guy (75) who came in short of breath yesterday, I gave him 40 of Lasix and it didn’t help. Today his creatinine went from 1.1 (mg/dL) to 1.22. I don’t know if he is in CHF or COPD. Would you look at him?”

Case

- 75 y.o. male with history of COPD, ischemic cardiac disease, biventricular CHF, was admitted for increasing dyspnea at rest.
- He stated that he is compliant with his medication, but has been having progressive dyspnea with minimal exertion, increasing orthopnea, and several episodes of PND, in addition he stated that he felt, “swelled up”.
- As noted above he has a hx of COPD secondary to a hx of tobacco use, this is associated with chronic mucous production. This has had no changes in volume, color, or consistency. He denies any chest pain, nausea, diaphoresis, fever or chills.

Case

- Current medications at time of admission included:
  - Carvedilol 12.5 mg BID
  - Furosemide 40 mg Q am
  - Valsartan 160 mg BID
  - HCTZ 12.5 mg Qd
  - Atorvastatin 10 mg Qd
  - Budesonide/Formoterol 160 mg/4.5 2 inhaled BID
  - Tiotropium bromide 2 inhaled Qd
  - Albuterol inhaler 2 inhaled Q $-6 hours prn

Case

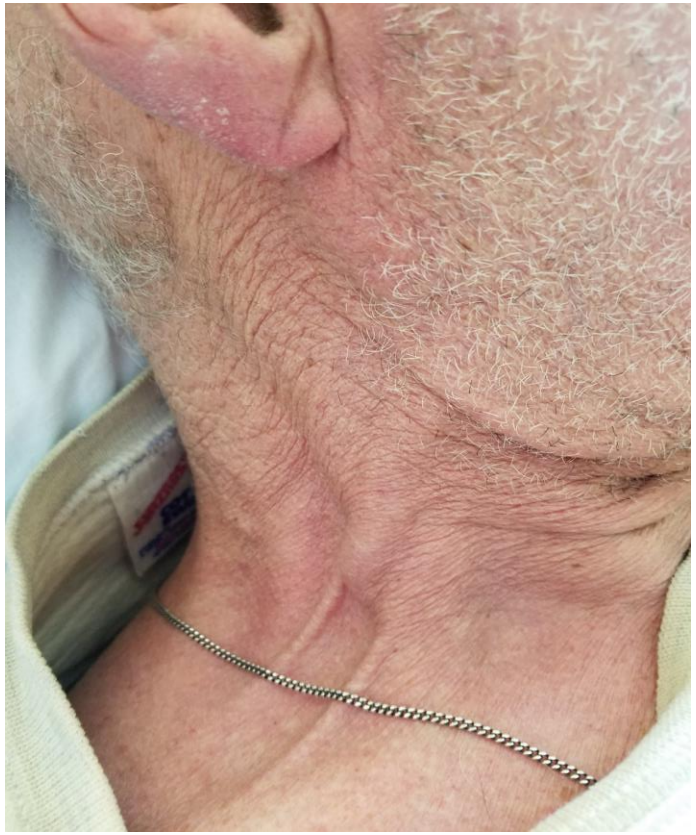
- ECG: sinus rhythm, biatrial enlargement, low voltage complexes, LVH, no acute changes
- CXR: moderate cardiomegaly, increased AP diameter, flattened diaphragms, cephalization of flow, diffuse air bronchograms noted
- Serum creatinine 1.1 mg/dL
- CBC: mild polycythemia, otherwise normal
- ABG: Respiratory acidosis with partial metabolic compensation

Initial Course

- Pt. was placed on 2 L of oxygen via nasal canula and admitted to telemetry
- Furosemide 40 mg i.v. was ordered every 12 hours
- Methylprednisolone 30 mg i.v. Qd
- Other oral out-patient medications were continued
- Albuterol nebulizer was started every 8 hours

Case

- 75 y.o. male sitting at almost 90^{o} in moderate respiratory distress, with utilization of the accessory muscles.
- Actual photo: ⟶
- A diagnostic test was performed:



Offending test: *Lack* of adequate physical examination

Lost Art of the Physical Exam

- Patients expect to be examined by the physician
- Enhances the doctor-patient relationship leading to increased confidence in the physician
- Confirms and verified the history *and* uncovers surprises
- Can prevent diagnostic and therapeutic errors and complications
  - Death, increased length of stay, disability
- “The medical laying on of hands” Hervey Scott D.O. (KCUMB late 1970’s)

Priest L, “My doctor doesn’t bother to examine me physically”, *Globe and Mail,* June 11,2011

Power of Observation

- Date back to healers of prehistory
- 17th and 18th centuries: awareness of signs and symptom to specific organ/pathology
- 19th century: *Golden Age of the Physical Exam*

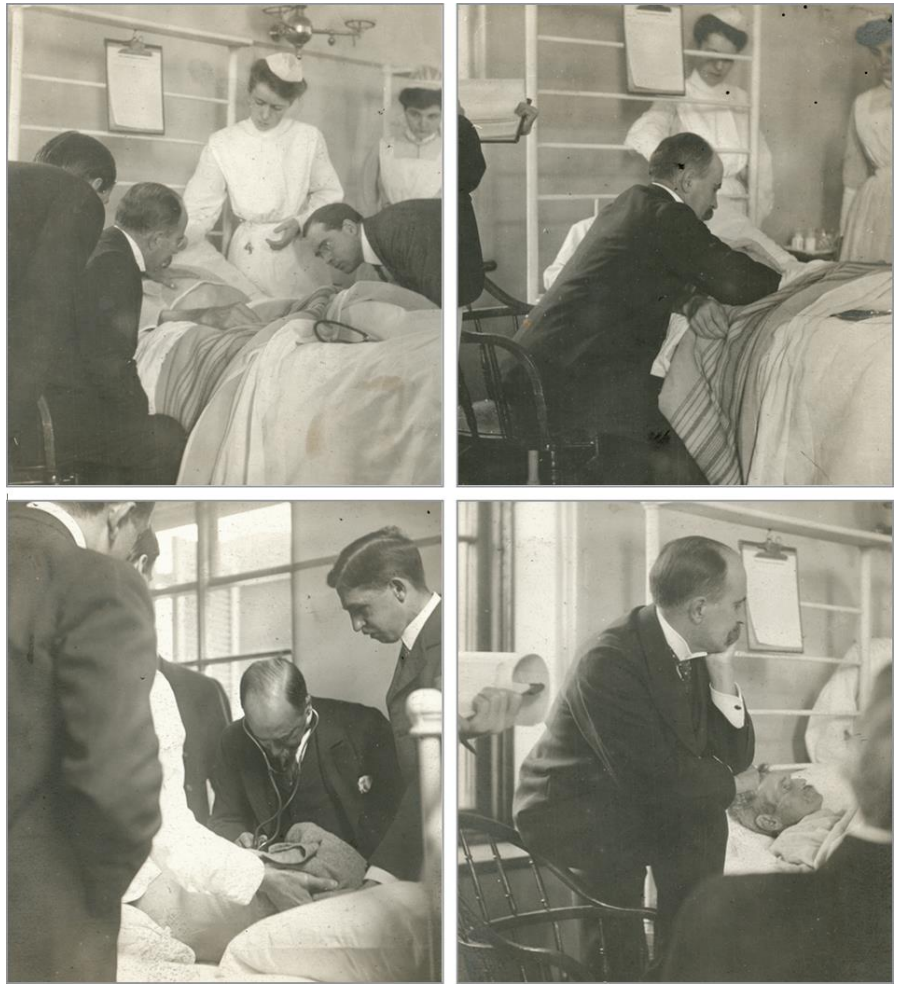
The Doctor, 1891 Louis Feldes, Tate Gallery, London

Importance of the Physical Examination in Medical Education

- “He who studies medicine without books sails an uncharted sea, but he who studies medicine without patients does not go to sea at all”.

  Sir William Osler

- Some of the most important teaching *still* occurs at the bedside not at the blackboard



Reasons

- Times pressures : length of stay, “production” goals
- Increased reliance on technology
  - But *No* improvement in outcomes!
- Limited time for comprehensive bedside rounds and teaching
- Why examine a patient when you can order a test?
  - pro-BNP
- *Lack* of *reinforcement* of exam skills or *addition* of *newer* exam skills by senior residents and attending physicians

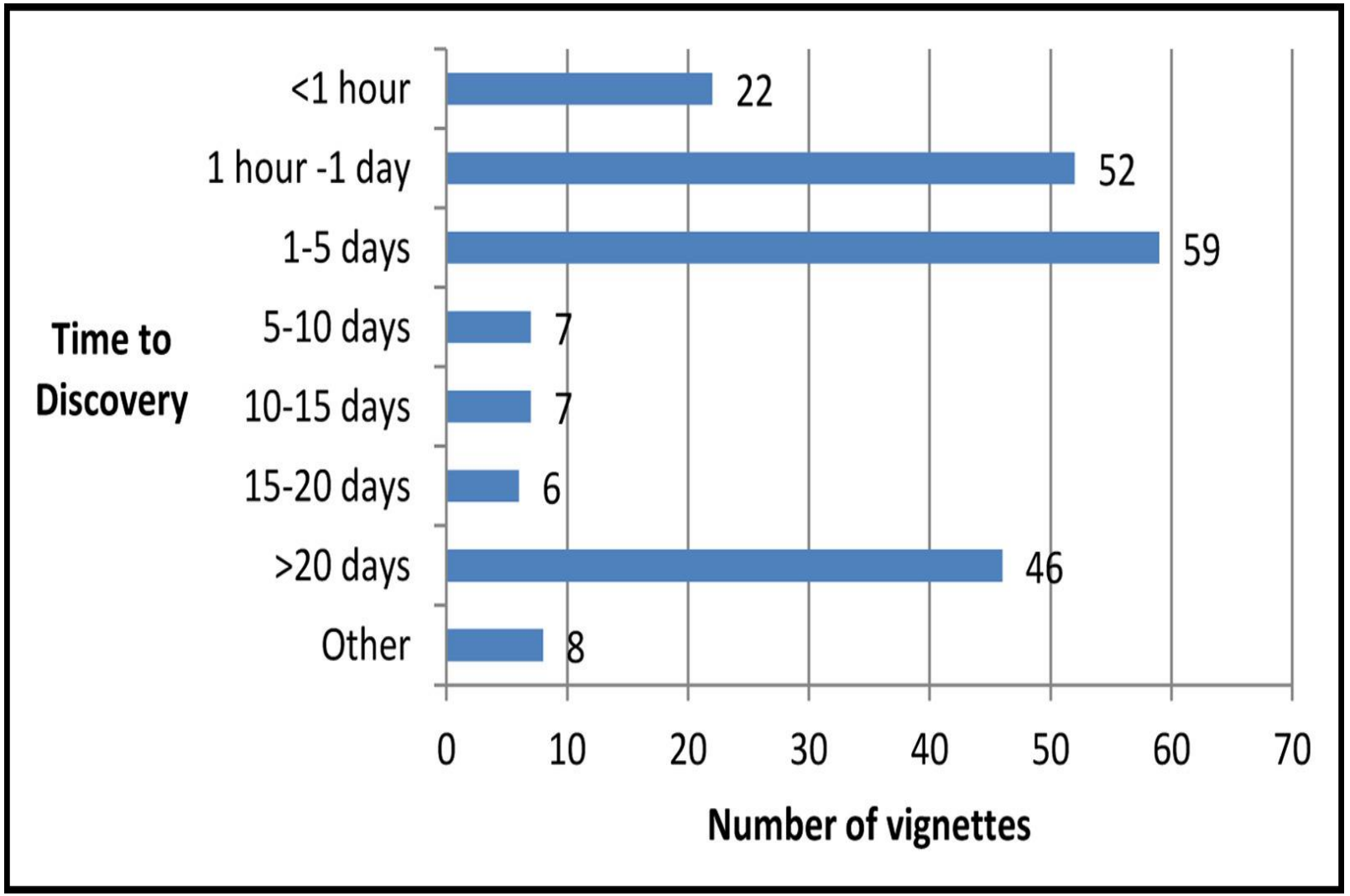
Exam and Technology

- While able to easily exam inaccessible regions (POCUS)
  - Example: Imaging cannot tell patient's reaction to palpation, rebound, or guarding
- *But*, can overlook important clues e.g., skin findings, JVD, accessory muscle use, edema
- Laboratory and tests should *complement* H&P
- 5 studies in the 1980s and 90s by AAMC and AMA on medical education
  - All emphasize the needs to improve clinical skills education

Inadequate Physical Exam as a Source of Errors

- Cross section of 11 question survey
- 208 clinical vignettes
  - 63% of poor outcomes due to *failure* to perform a physical exam
  - 14% performed the correct exam but *misinterpreted* the findings
  - 11% relevant sign *missed* or *not examined*
  - *Missed* or *delayed* Dx: 76%
  - *Incorrect* Dx: 27%
  - *No* or *delayed* tx: 42%
  - *Unnecessary* cost: 25%
  - *Unnecessary* radiation or contrast: 17%
  - *Complication* from Tx: 4%

Verghese A, et al, *Am J Medicine* 2015; 126:1322-1324



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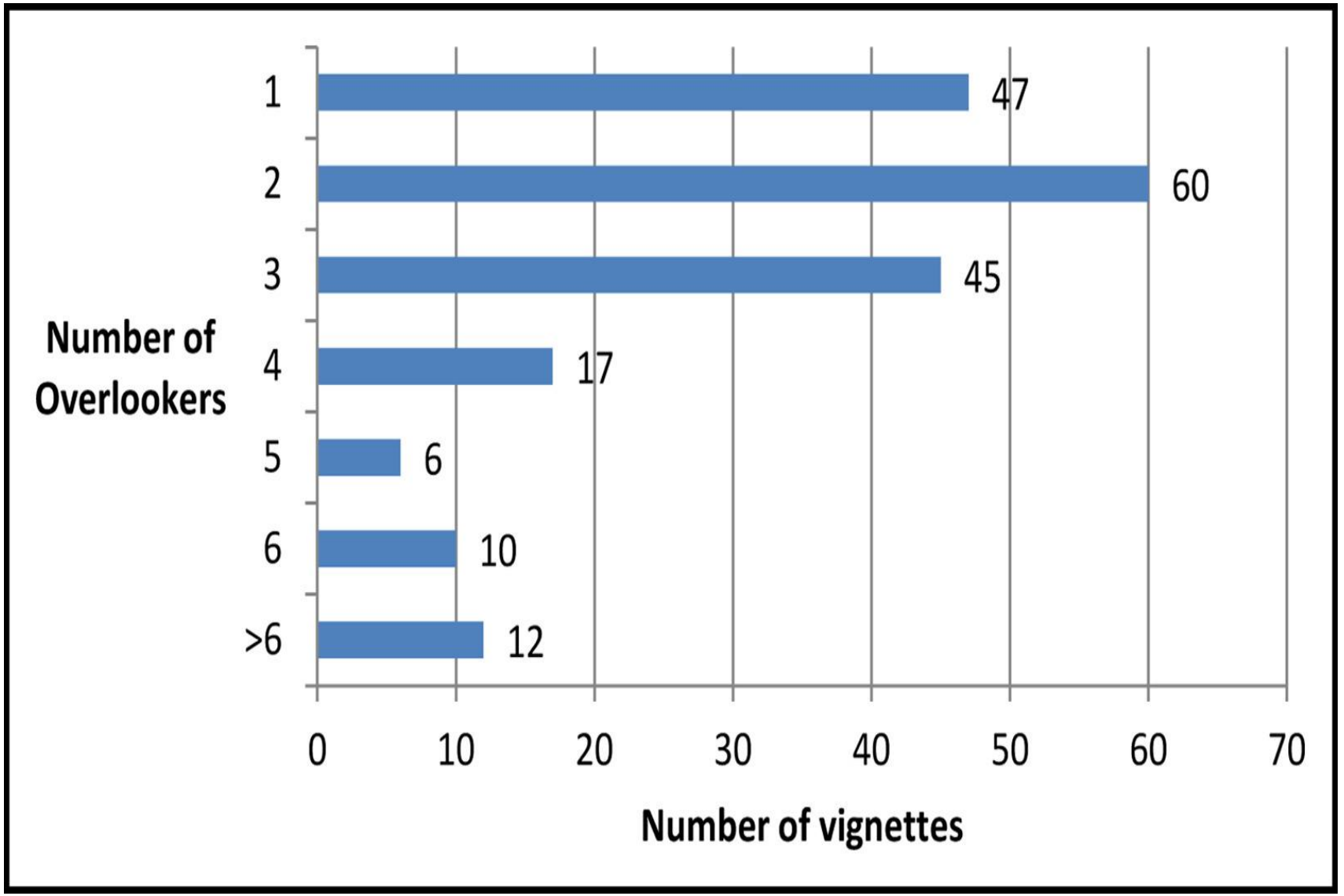

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Inadequate Physical Exam as a Source of Errors

- Common sources of diagnostic errors: skin, appendages, chest, abdomen, genitourinary

The Diagnostic Test?

- The covers were removed and the patient was examined

Case: Physical exam

- Upon physical examination
  - Lungs: dullness to percussion in both bases, diffuse scattered end expiratory wheezes and rales were noted in the lower ½ of the chest bilaterally
  - Heart: 2/6 systolic murmur, intermittent S_3
  - Abdomen: mildly distended, +fluid wave noted, +hepatojugular reflux noted, liver pulsatile
  - Extremities: moderate, bilateral pitting edema, extending to the sacrum

Clinical Course

- The patient was given 120 mg of furosemide i.v.
- HCTZ was discontinued and chlorthalidone 25 mg orally was started
- Nebulizer treatments were changed to albuterol/ipratropium bromide, every 4 hours while awake

24 hours later

- 4,100 mls of urine produced
- O_2 saturation 98% on 2 L
- Pt. able to lie at 20^o without difficulty
- Lungs exam: decreased wheezing and fewer rales noted bilaterally
- Heart: no S_3
- Extremities: less edema, but still present

When All Else Fails: Examine the Patient