

CLINICAL SAFETY & EFFECTIVENESS COHORT # 9



The Impact of a Procedure Service on Patients Presenting with Pleural Effusions



Educating for Quality Improvement & Patient Safety

Financial Disclosure

David R. Schmit, MD has no relevant financial relationships with commercial interests to disclose.

The Team



- Team Champion
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- Team Leader and CSE Participant
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- Team Members
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 - ❑ Jose Fernandez – Data analyst
 - ❑ Lisa Wammack – Data analyst

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Background – Procedure service



- Prior to July 2012, Internal Medicine residents were taught bedside procedures with simulation based training
- Follow-up training/“expertise” was dependent on patient encounters and supervision from various faculty members or upper level residents
- This method introduced variability in techniques
- Emerging data shows improved success rates and lower complication rates with ultrasound guided procedures
- Procedure Service/Patient Safety (PS²) created in July 2011

Background – Procedure service



- Curriculum consists of:
 - Ultrasound trained chief resident serving as faculty
 - Didactic lectures
 - Simulation training
 - Ultrasound training
 - Procedure videos
 - QI lectures/projects
 - Check lists, pre-testing/post-testing

PS²: Impact so far



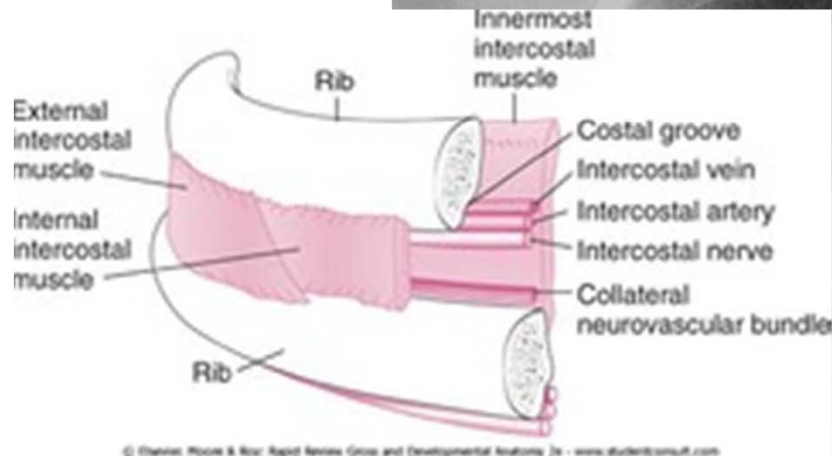
- PS² has decreased time to paracentesis at the VAH 14→11h
- 342 procedures performed
- 112 procedures not performed because of safety issues or not enough fluid to remove
- We wanted to look at the impact of the PS² service on thoracentesis success and complication rates at UH/VAH

Background - Thoracentesis

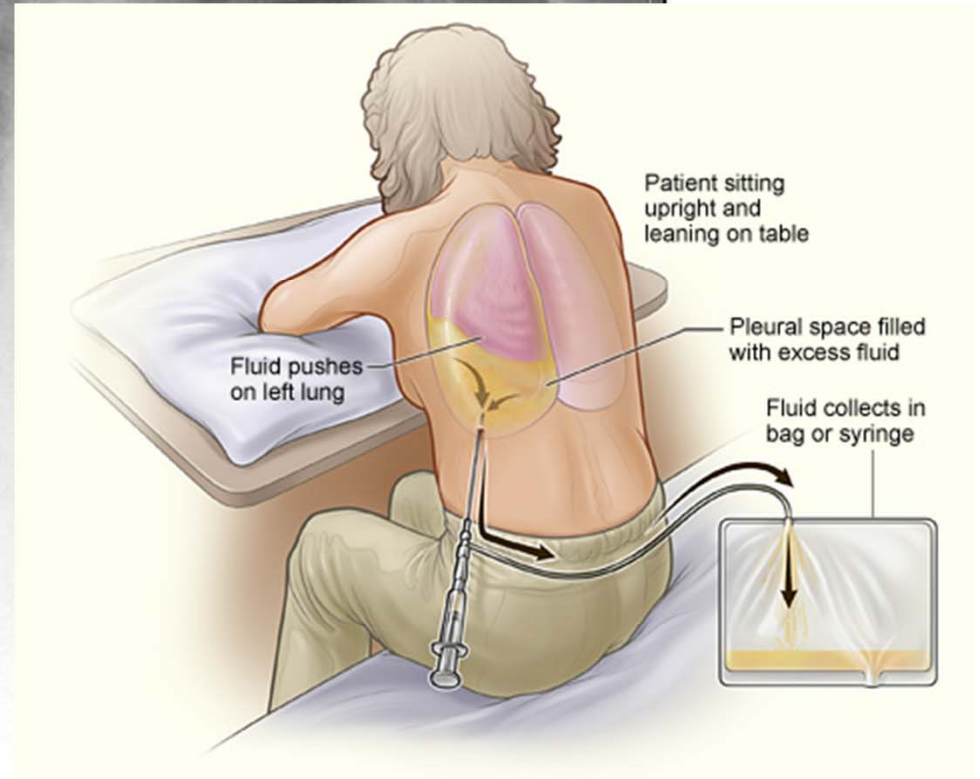


- Definition: Removal of fluid from the pleural space usually with the insertion of a needle with or without ultrasound assistance
- Common bedside procedure - estimated 200,000 thoracentesis each year
- Last year, Internal Medicine performed 219 thoracentesis
- Used to evaluate a pleural effusion of unknown etiology or provide therapeutic relief
- Complications include: pneumothorax, pain, infection, local/SQ bleeding, hematoma, injury to neurovascular bundle

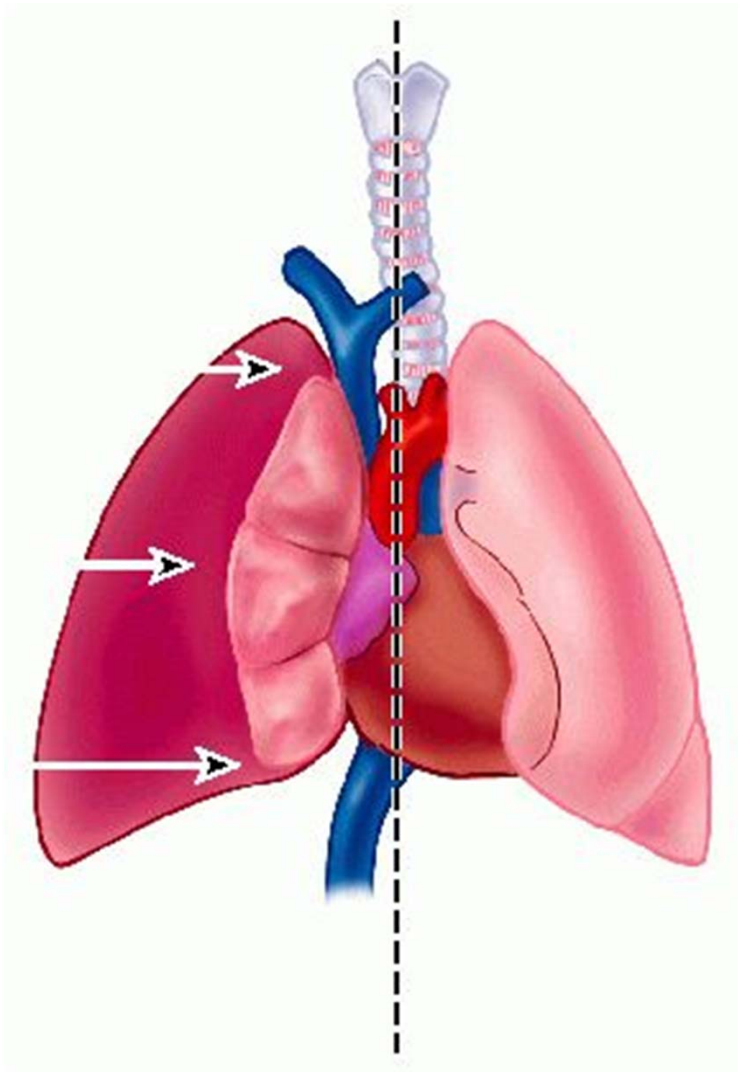
Background - Thoracentesis



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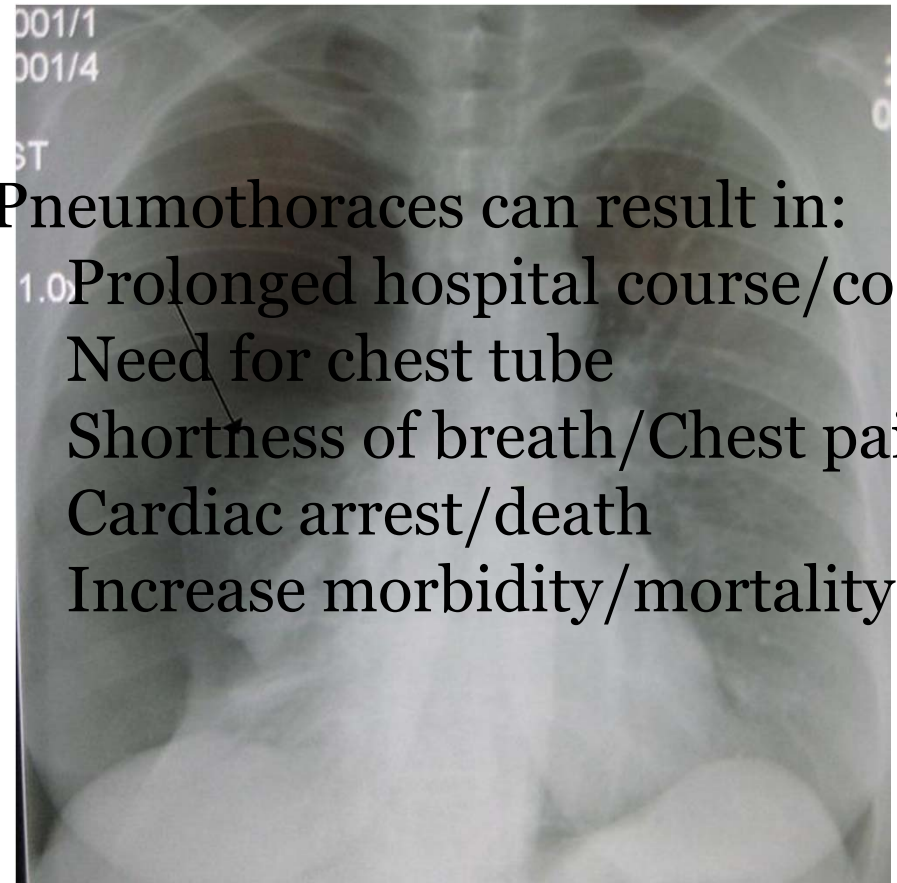


Pneumothorax



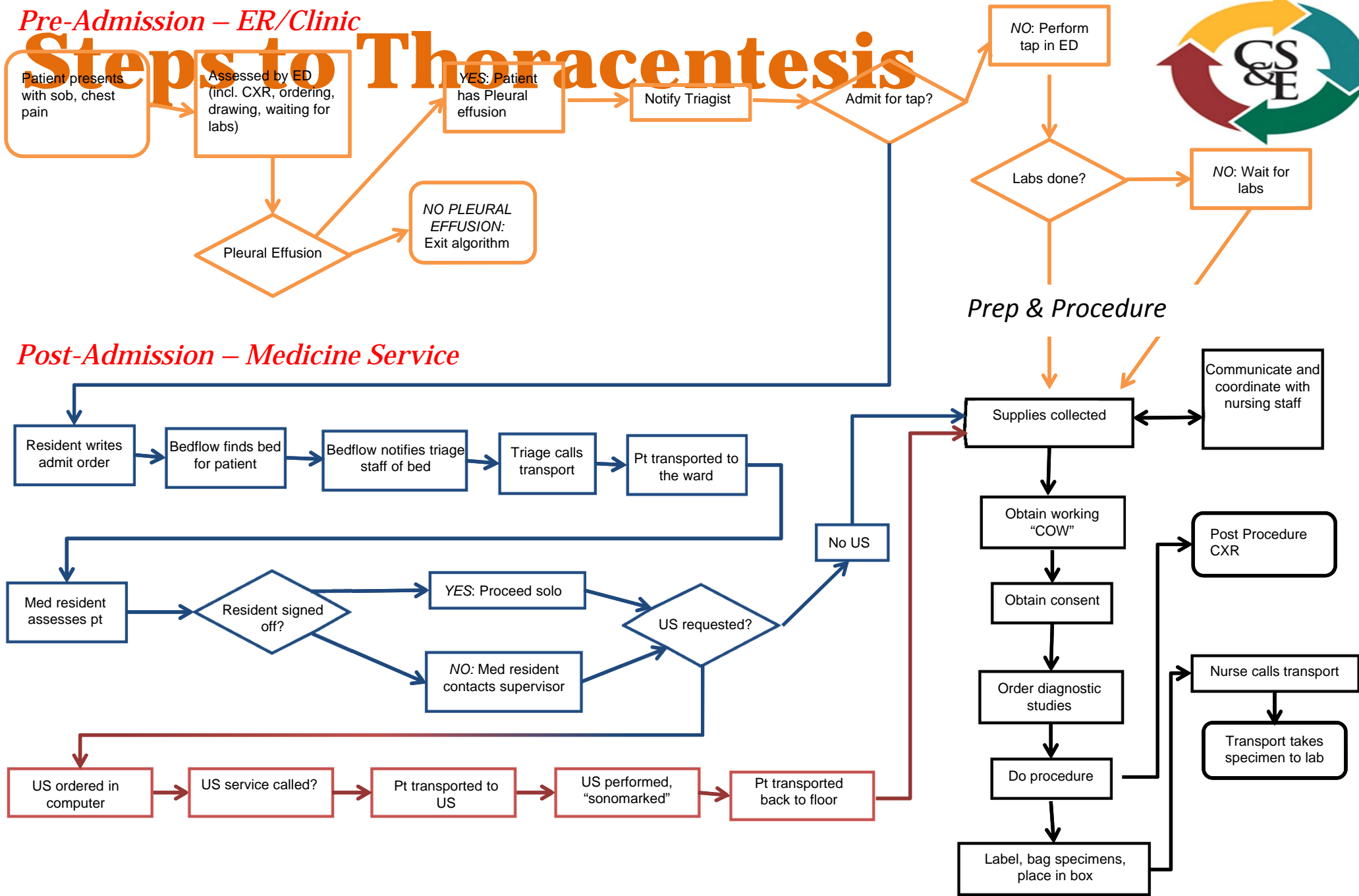
Pneumothoraces can result in:

- 1.0 Prolonged hospital course/cost
- Need for chest tube
- Shortness of breath/Chest pain
- Cardiac arrest/death
- Increase morbidity/mortality



Pre-Admission – ER/Clinic

Steps to Thoracentesis

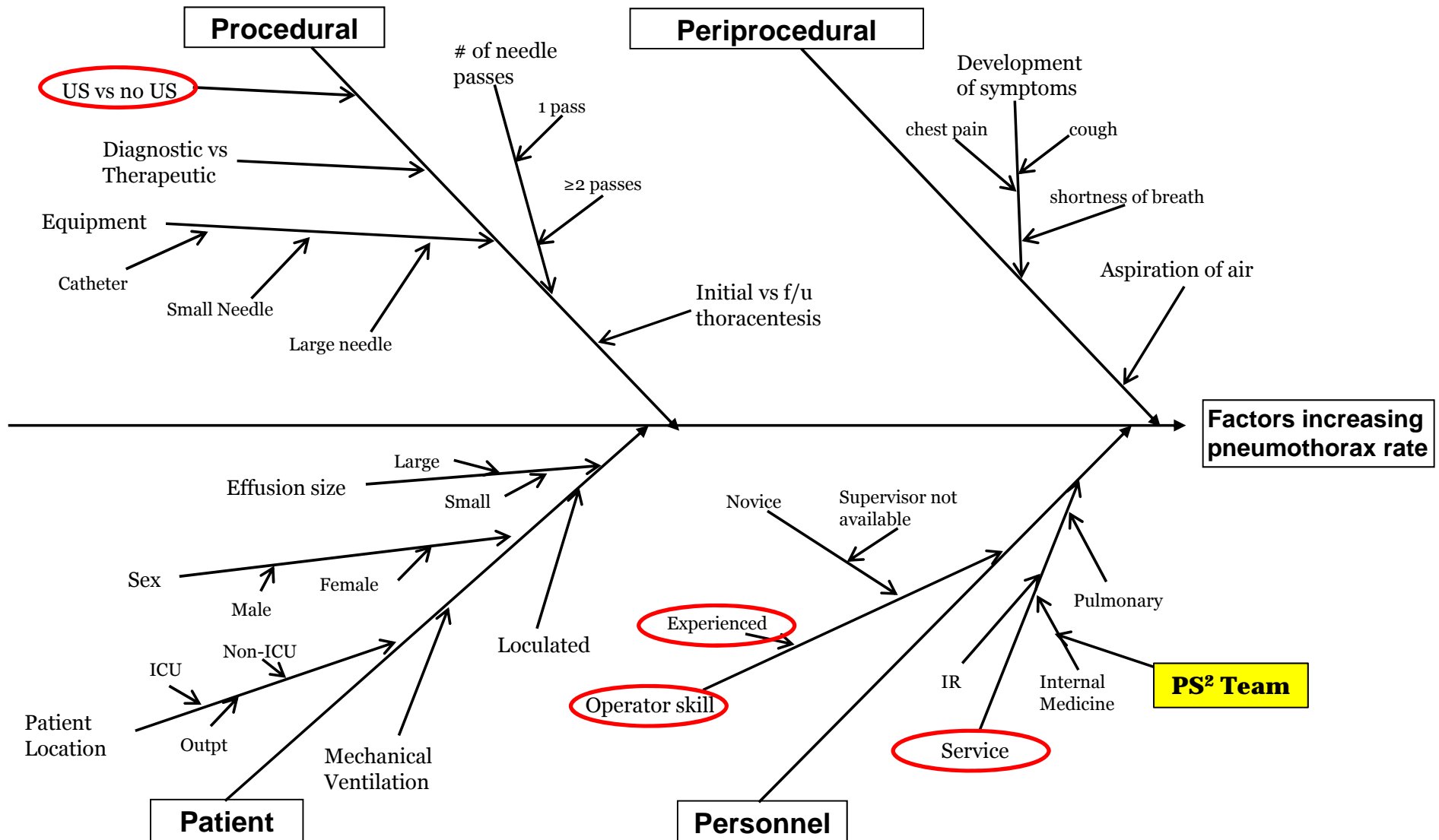


Aim Statement



➤ To decrease the pneumothorax rate at UH and VAH, with the introduction of the Procedure Service/Patient Safety (PS²) Team by 10% by February 1st, 2012

Risk Factors for Pneumothorax





What's changed with PS²

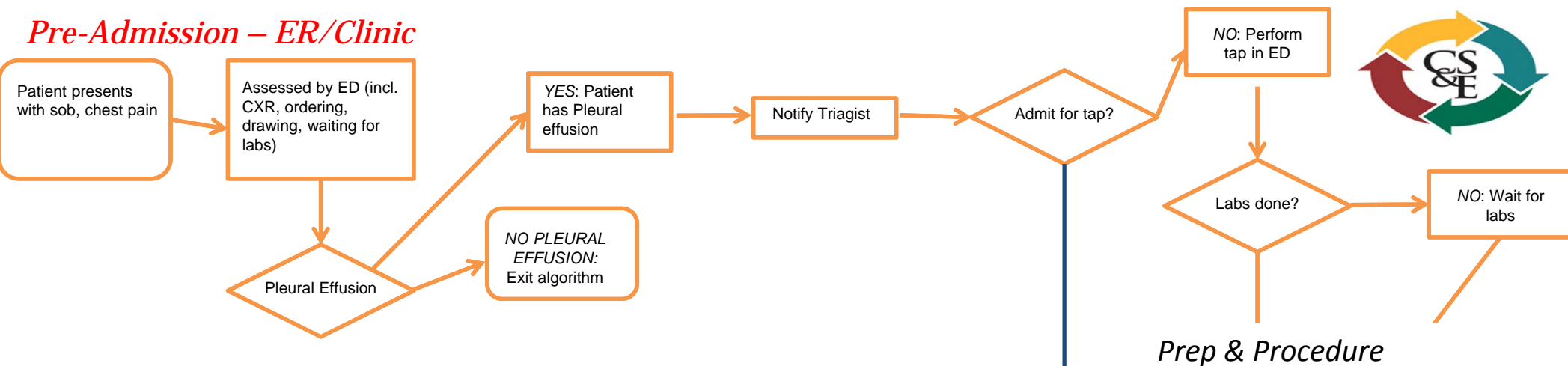
Before PS² introduced

- Ward team performs procedure
- Supervision by attending or 'experienced' resident
- Sonomarking performed by radiology, or procedure done without ultrasound

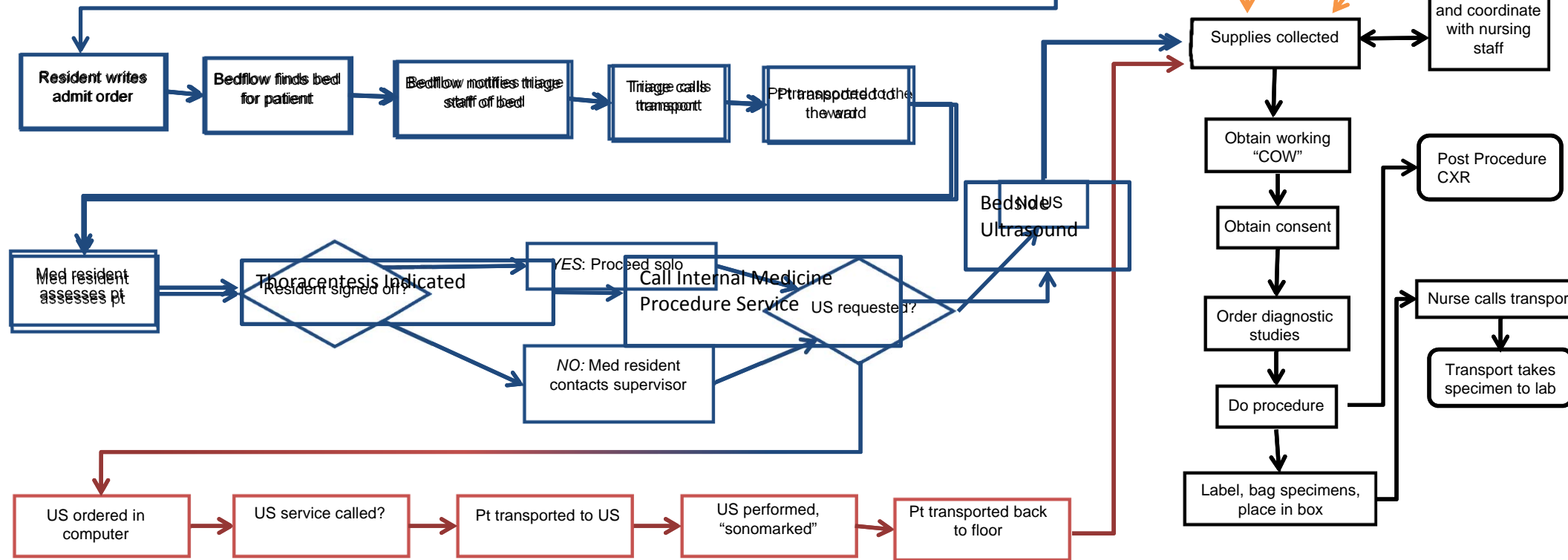
After PS² introduced

- Procedure team performs procedures (available 8 am-4 pm weekdays)
- Supervised by Internal Medicine chief resident
- Bedside ultrasound by procedure team

Pre-Admission – ER/Clinic



Post-Admission – Medicine Service with PS²



Methods



- To assess impact of IM PS², we used Institute of Medicine's six domains of quality:
 - Safe, Timely, Efficient, Effective, Equitable, & Patient-Centered [STEEP]
- Initial Step – Reviewed all Thoracentesis performed by Internal Medicine at VAH and UH from 1/1/11 to 6/30/11 to obtain baseline PTX rate
- Next Step – Reviewed all Thoracentesis performed by the PS² and Internal Medicine at VAH and UH from 7/1/11-1/31/12 to obtain post-intervention PTX rate

Data Collection



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- Population of Interest
 - Patients admitted to Internal Medicine service (IM) at the VAH or UH with a procedure code for thoracentesis
 - Exclusions
 - Infants
 - Trauma patients
 - No post procedure imaging
- Data Sources
 - Chart review (pre and post-intervention)
 - Procedure Team logs
- Diagnosis of Pneumothorax
 - Using post-procedure CXR/CT scan of chest
 - By faculty radiologist at VAH/UH
- Time Period
 - Baseline
 - VA (1/2011-6/2011, n=40)
 - UH (1/2011-6/2011, n=51)
 - Post-implementation
 - By PS² VA (7/2011-1/2012, n=36)
 - UH (7/2011-1/2012, n = 39)
 - By IM VA (7/2011-1/2012, n=24)
 - UH (7/2011-1/2012, n = 29)

