Treatment of Pediatric Pneumothorax
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Abstract:
Pneumothorax is a condition where air escapes from the lungs and it collapses. Air accumulates between the lungs and the chest wall causing partial or full collapse of the lung. These rare occurrences can be caused by a traumatic incident, or can be spontaneous and often result from a ruptured bleb (small air sac on the lung). Symptoms are chest pain and shortness of breath. This disease is most common in tall, thin teen-aged males and is increasingly likely to occur with smoking as well as asthma, T.B., C.F., whooping cough, and COPD. Working with a pediatric surgeon at Akron Children’s Hospital, I reviewed patients’ charts to study past cases of this disease. The purpose of my studies are to find the best method to treat patients. I compared the results of different treatments including: inserting a chest tube, open thoracotomy (open surgery on the thorax), or a video assisted thoracoscopic surgery (surgery that uses a video and scope with smaller incisions). Often a blebectomy (removal of blebs and stapling) was needed as well as chemical or mechanical pleurodesis methods (to adhere the lung to the chest wall). The mystery is why and when this is happening. Are blebs usually present and can be detected? Mainly, what is the best way to prevent re-occurrences?

*Premature babies with lung problems, and chronic lung disease such as C.F., T.B., or emphysema cases were excluded from the study.

Statistics:
- Presence of blebs is more likely to indicate a reoccurrence of a pneumothorax
- On average a 21 French Chest Tube is used or sometimes a Pigtail Catheter
- Average surgery time for a VATs procedure is 52 minutes
- The average hospital stay for a VATs procedure is 4 days
- In general VATs has higher benefits than an open thoracotomy
- Co-morbidities of spn. ptx. include asthma and smoking patients
- Symptoms of chest pain and shortness of breath occur instantly and escalate
- Total economic cost is shown to be lower for VATs

Conclusion: Always do a CT scan if a pneumothorax is suspected, look for blebs as chest X rays are not as reliable. Blebs most often indicate a pneumothorax and more are often found during surgery. For treatment first use a chest tube, if the lung re-expands and is stable for 24 hours then pull the tube and monitor for signs of reflation. If the lung is stable the patient may be discharged home. If the lung re-collapses, or the chest tube has persistent air leak, or if it the patients second or more reoccurrence of a pneumothorax, it would be in the best interest of the patient to have a VATs procedure which is the quickest, leaves the least marks, and is efficient.