

# Scenarios for Ventilator-Associated Pneumonia (VAP) & Pneumonia

PIPS Committee  
Occurrence Reporting Work-Group

# 10 Scenarios

These were used in the survey sent out by the PIPS Committee.  
The question for each scenario; would you report:

- VAP
- Pneumonia
- Neither

**Q6:** While walking with a cane, a 78-year-old patient tripped and fell. He was seen at an outside hospital where he was found to have a large SDH. He was then transferred to a Level 1 facility as a Level 1 Alert. Admission chest x-ray was clear. Chest CT showed mild dependent atelectasis, no signs of aspiration. He had decreasing mental status in the ED and **required intubation**. Taken to the OR for evacuation of the SDH, remained intubated post-op in the ICU. PTD 1 to PTD 4: Patient unable to be weaned from the ventilator, **having large amount** oral and **ETT secretions**. Chest x-rays basically unchanged. PTD 5: **Febrile to 102**, pan-cultured. **Sputum culture positive for moderate Klebsiella pneumoniae**. Placed on Ceftriaxone. PTD 6: Chest x-ray noted slight improvement of opacities in the right. PTD 7: Near-complete opacification of the left hemithorax – suggestive of atelectasis.

**Q7:** Patient was a 37-year-old unrestrained driver of a motor vehicle that crashed head-on into a tree. EMS reported that the patient had blunt chest and pelvic trauma, began to complain of shortness of breath, and was hemodynamically unstable with significant tachycardia and hypotension. They **intubated** him and gave a blood transfusion. Chest x-ray and CT of the chest show left pleural effusion with bibasilar **consolidation** with multiple rib fractures. PTD 1: Chest x-ray: R lung is clear; L lung field is hazy. PTD 2 to PTD 9: Chest x-rays/CT scan were basically unchanged; ETT secretions were noted to be thin and scant. PTD 10: Chest x-ray shows a slight increase in haziness. **WBC is elevated to 21.8. Secretions increased to thick, tan;** rhonchi noted bilaterally. Bronchoscopy was performed at bedside. PTD 11: **Bronch culture (>100,000 colonies/ml streptococcus pneumoniae, >100,000 colonies/ml beta streptococcus not group A).** Patient was placed on Vancomycin and Cefepime.

**Q8:** 60-year-old patient was found down and unresponsive with an open wound to back of head. She was **intubated** in the Trauma Bay. PTD 1: Plan was for vent wean to a minimal setting, with a goal for extubation in the AM. PTD 3: **Episode of aspiration of tube feeds** noted by nurse. CXR read as “possible atelectasis vs. consolidation vs. infectious process.” Lungs are clear bilaterally. Vent settings PSV 40%/5/5. PTD 4: **Questionable ventilator-associated event** requiring both an **increase in FiO2 to 50% and an increase in PEEP from 5 to 10**. CXR demonstrates multifocal opacities. Pt. is **febrile with persistent leukocytosis**. PTD 5: **Bronchoscopy done and preliminary culture positive for Gram Positive Cocci**. Levaquin started until final culture returns. PTD 6: Nasal swab positive for MRSA; Vancomycin added. Patient tolerating PSV, reduction of PS tolerated. PTD7: Pt. passed a spontaneous breathing trial and was extubated.

**Q9:** A 56-year-old patient who fell from a roof was intubated PTD 2 due to worsening PCO2 and increasing oxygen requirements. CXR revealed new left lower lung airspace opacity concerning for aspiration pneumonitis. WBC to 19.9. PTD 6: PEEP and FiO2 requirements have increased along with an increase in secretions. Possible left lingula/lower lobe infiltrate by chest x-ray read. Bronchoscopy and BAL performed. PTD 7: Gram negative rods identified on previous sputum culture. Plan was to continue current antibiotics until the final culture results are available. PTD 10: S/p bronchoscopy with BAL cultures positive for E. coli. Patient is on antibiotic therapy day 5. Pneumonia with left lower lung opacity documented by resident.

**Q10:** 62-year-old involved in an MVC/rollover with ejection, Level 1 alert.

Diagnosed with traumatic subarachnoid hemorrhage with LOC, L flail chest with pneumothorax, C3-5 and left scapula fractures. Pt was intubated in Trauma Bay, placed on FIO2 100% with a PEEP of 10. A 28 Fr. chest tube was placed on left. CXR post-procedures: Interval placement of a left chest tube. No significant pneumothorax is seen. Demonstration of multiple left-sided rib fractures as well as bilateral ground glass opacities. PTD 2: CXR: Previously seen bilateral pulmonary opacifications have resolved. No pneumothorax. Multiple bilateral acute rib fractures. PTD 3: Temp to 101.5, WBC is WNL. Sputum culture is sent. Pt. initially tolerating CPAP mode on vent. Pt. reaching for ETT, being treated for ETOH withdrawal. Pt. is a smoker and having moderate amount ETT secretions. Lung sounds coarse bilaterally. Concern for fluid overload, and desaturation requiring an increase in FIO2 and PEEP. Bronchodilators and a diuretic are given. *(continued)*

**Q10:** 62-year-old involved in an MVC/rollover with ejection, Level 1 alert. *(continued)*

PTD 4: CXR with Interval increase in left mid lung/perihilar opacity which may represent increased atelectasis, infiltrate, or contusion. Stable right perihilar airspace disease. Mild interval improvement in right midlung airspace disease. PTD 6: Temp 100.2. Suctioned for moderate amount yellow-green sputum from ETT tube, blood culture x 2, empiric antibiotics started for “presumed pneumonia.” PTD 7: Remains intubated but tolerating PS. Temp to 99, WBC trending down. Sputum Culture positive for *Citrobacter koseri*, *Haemophilus influenzae* which is sensitive to Levaquin which is ordered. PTD 9: Passed Spontaneous breathing trial and extubated. CXR with questionable effusion vs. atelectasis vs. infiltrate.



**Q11:** 74-year-old Level 2 alert with Hx of COPD that fell backwards down 4 steps. The patient was complaining of shortness of breath and left rib pain. DX: traumatic pneumothorax, acute displaced fractures of left lateral ribs (3, 4, 5, and 6). SPO2 85% on room air without work of breathing and increases >94% on O2 4 l/m. He denies dyspnea but notes painful inspiration secondary to chest wall pain. Pulmonary toilet, IS, flutter valve. Steroids given in ED for COPD exacerbation. Admitted to MS Floor. PTD 2: Patient placed on non-rebreather mask after SpO2 dropping to 80% while getting OOB to chair with PT. Later that evening 40% Venturi mask for desat to 89% PTD 3: Intubation considered due to underlying disease process and pt. being heavy smoker, conservative management continued at this time. IV magnesium given for COPD. Transferred to ICU. Placed on Vasopressors for hypotension, acute kidney injury Pulmonary consulted. Pan-culture and sensitivity including MRSA Screen (result negative). PTD 4: CXR: Progressive patchy airspace opacity diffusely involving both lungs. PTD 5: Patient intubated per Trauma. Post-intubation CXR: Progressive left greater than right pulmonary infiltrates; consider infection process. PTD 7: Remained intubated. Chest x-ray improved. PTD 8: Active weaning from ventilator, extubated later that evening.

**Q12:** 95-year-old female found down covered in blood. Trauma alert Level 2. Confused but protecting her airway, vital signs stable. DX: scalp soft tissue laceration in left parietal region. Dispo to med/surg unit from ED. PTD 2: Rapid response called on patient for episode of episode of vomiting and inability to speak. When Trauma arrived, patient was alert and oriented x4 and following commands. Neurologically stable. Coarse breath sounds noted. **NT-suctioning required for thick tan-green secretions.** Pt was transferred to ICU. **CXR: New right mid and lower lung field pulmonary infiltrate most compatible with pneumonia.** Pt placed on BiPAP. **Started on levofloxacin 750mg / Lasix 40 mg.** PTD 3: Patient went into a fib: cardiology consulted/treated. **CXR: Extensive right lung infiltrate,** similar in comparison to the prior study. Trauma paged to room, suffered Ischemic CVA. Pt transferred to medical service. Managed in ICU by Intensivist. PTD 4: Remains under critical care management in the ICU, Levofloxacin discontinued. PTD 5: Lungs decreased breath sounds bilaterally. Few scattered rhonchi. PTD 6: Discharged to Skilled Nursing Facility (SNF)\*No sputum was obtained during hospital course

**Q13:** 46-year-old male, presented to the hospital after an MVC, unrestrained driver of utility truck who left roadway with multiple roll overs and struck a tree. Prolonged extrication. Initial scene vitals were: P-125 R-30 SBP-80, GCS 9. Patient had multiple episodes of vomiting en route and was **intubated prior to arrival** by EMS. Injuries included multiple facial fractures, L pulmonary contusion, L hemothorax, questionable cardiac contusion, R pneumothorax, fx scapula, fx L humerus, multiple bilateral rib fractures. CXR in the trauma resuscitation area read as bilateral consolidation L > R. Bilateral chest tubes were inserted, and pt. was admitted to the ICU. PTD 3: **Desaturations required an increase in FiO2 to 80% and PEEP of 14.** The patient is febrile to 100.5. The patient had multiple episodes of mucous plugging. BAL done and preliminary culture with extracellular GNR. CXR read, "right lower lobe infiltrate."

**Q14:** 72-year-old woman is admitted after a fall from standing. A head CT scan showed a subdural hemorrhage. She has a **history of COPD, CHF**, and reports that she has not been using her home meds as she “couldn’t afford them this month.” She also shared that she is still smoking about 1-2 pack-per-day and “has been feeling congested with a cough for a few days.” PTD 2: Resuming home medications and bronchodilators are ineffective in improving the respiratory status. Patient had increased oral secretions with inability to clear them, gradually becomes more somnolent. A repeat head CT scan was unchanged. PTD 3: A medical consultant noted that the patient was having an acute exacerbation of her COPD with possible pneumonia. A decision was made by family not to place her on a ventilator; DNR/DNI ordered. PTD 4: Patient develops a **fever** overnight. She requires **frequent oral suctioning for yellow secretions**. CBC shows **WBC up to 13.5**. **Empiric antibiotics** are ordered by the on-call resident for “**HAP**” per documentation.

**Q15:** 29 yo with GSW to left chest and left back over scapula. Intubated by EMS, had 2 minutes of CPR for cardiac arrest with ROSC. The patient was persistently hypotensive with large amounts of blood drained from a left chest tube. He was taken emergently to the OR for L anterolateral thoracotomy with L upper lobectomy, and decompressive laparotomy. He received multiple rounds of MTP, bilateral chest tubes were in place, and the abdomen was left open. PTD 2: Pt. required sedation and paralytic until his abdomen was closed. PTD 3: Bronchoscopy done for large amount blood-tinged secretions. BAL resulted with "normal flora." Attempts at spontaneous breathing trials were complicated by the patient's history of substance abuse. Signs and symptoms of withdrawal/delirium were exhibited requiring sedation and antipsychotics which delayed extubation. PTD 8: The patient was febrile to 102, WBC up to 17.9. Sputum culture, obtained on this day, was positive for Gram negative rods. CXR read as "diffuse airspace opacities." Repeat abdominal and chest CT scans were concerning for a fluid collection. Blood cultures are pending. The trauma attending documented concern for an abdominal abscess.