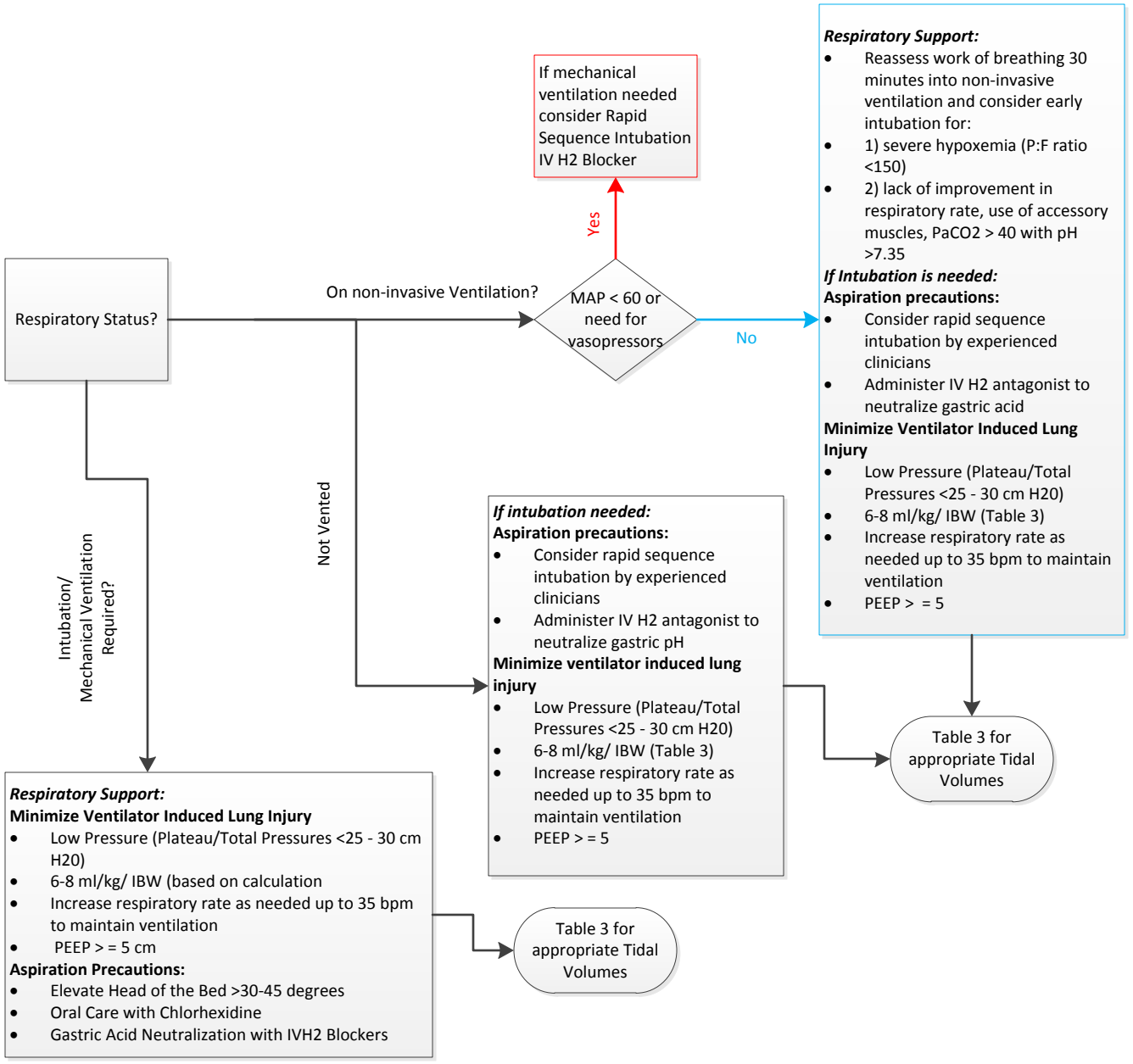
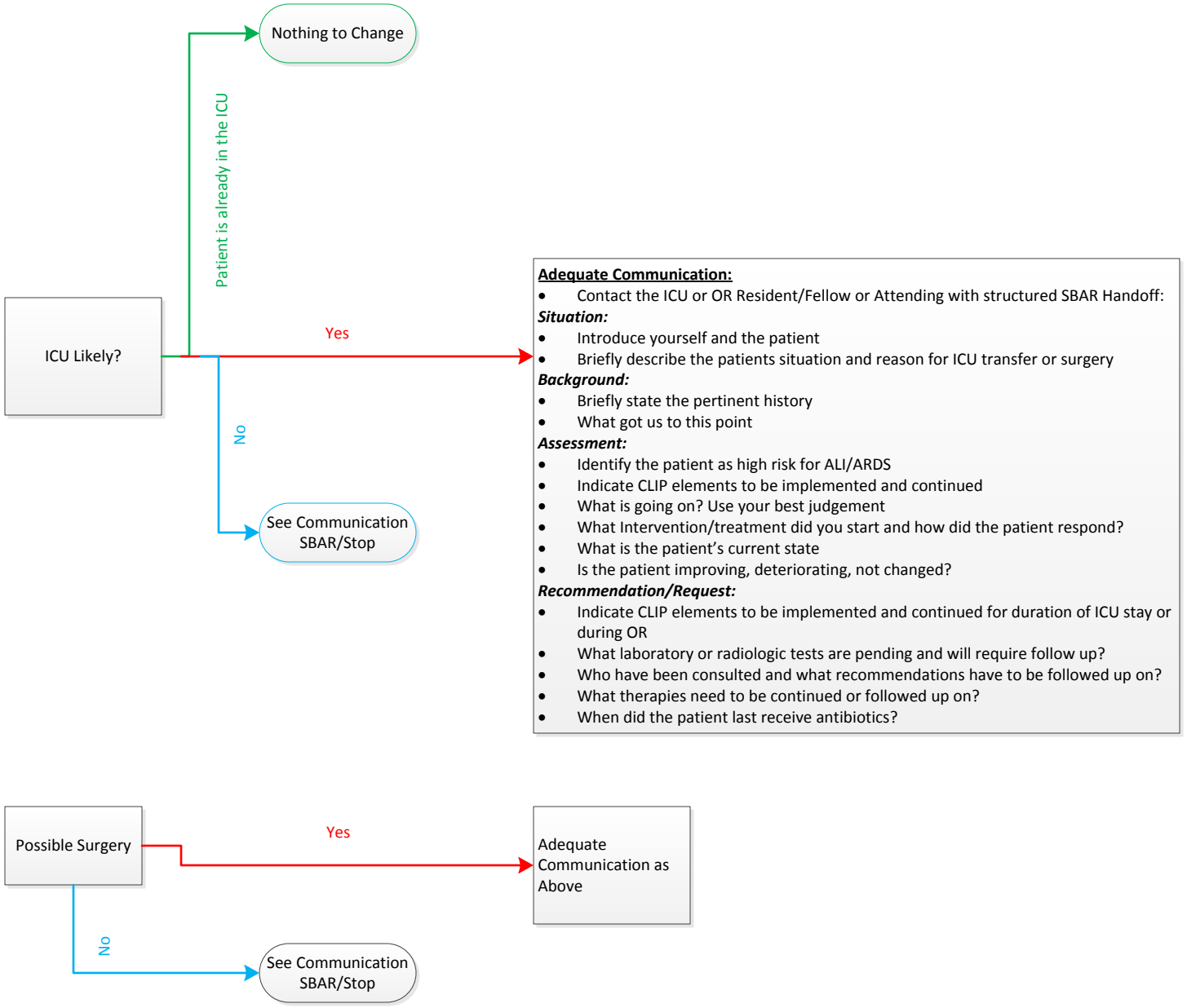
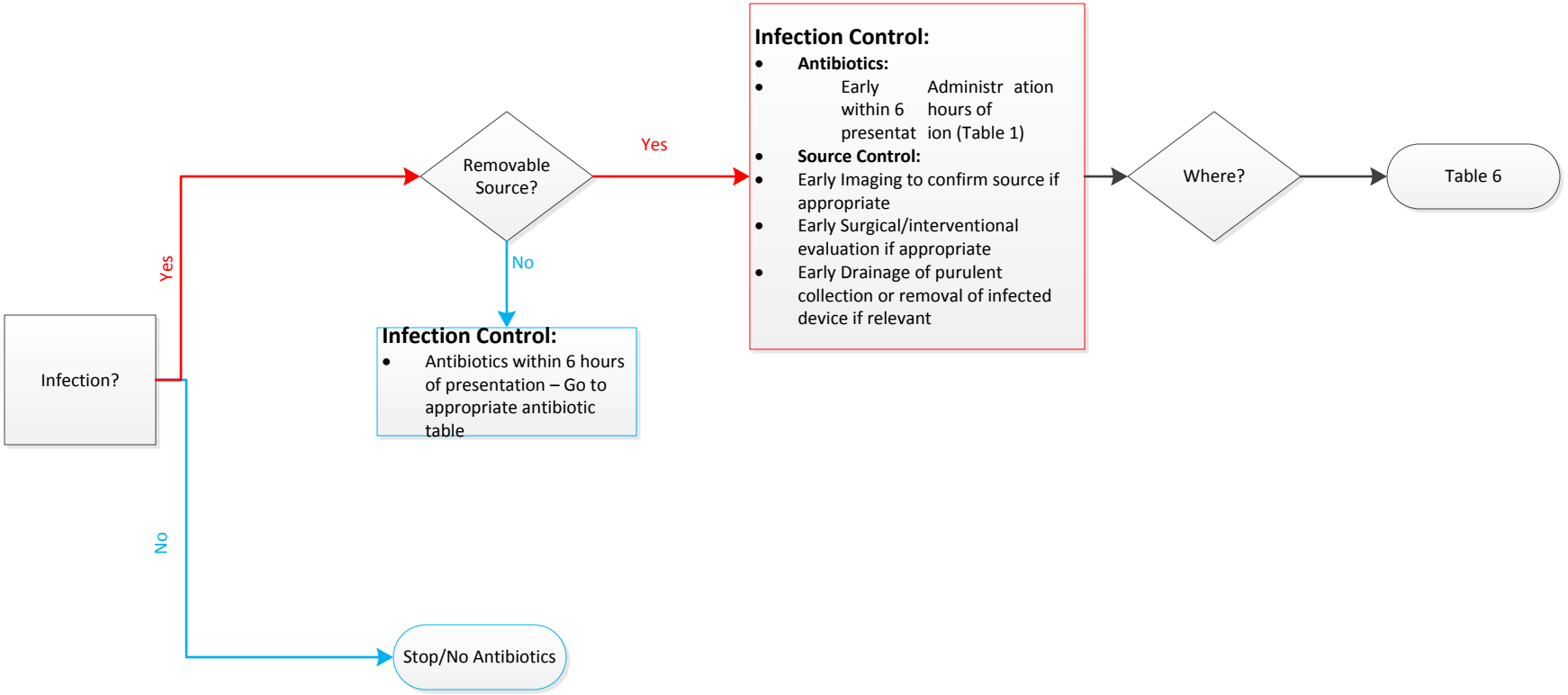
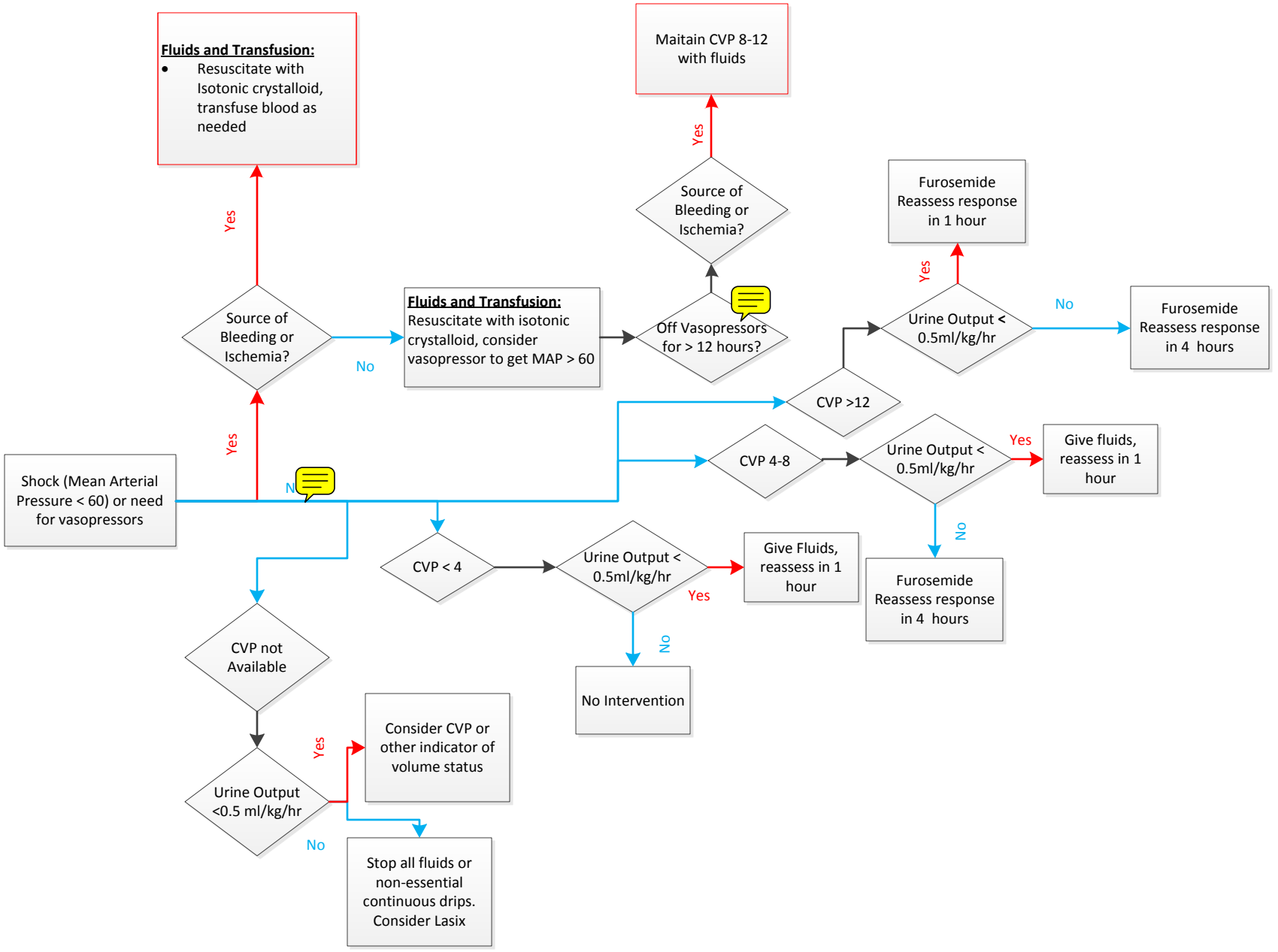

Respiratory Status?
On non-invasive Ventilation?
MAP < 60 or need for vasopressors
Yes
If mechanical ventilation needed consider Rapid Sequence Intubation IV H2 Blocker
No
Respiratory Support:
Reassess work of breathing 30 minutes into non-invasive ventilation and consider early intubation for:
1) severe hypoxemia (P:F ratio <150)
2) lack of improvement in respiratory rate, use of accessory muscles, PaCO2 > 40 with pH >7.35
If Intubation is needed:
Aspiration precautions:
Consider rapid sequence intubation by experienced clinicians
Administer IV H2 antagonist to neutralize gastric acid
Minimize Ventilator Induced Lung Injury
Low Pressure (Plateau/Total Pressures <25 - 30 cm H20)
6-8 ml/kg/ IBW (Table 3)
Increase respiratory rate as needed up to 35 bpm to maintain ventilation
PEEP > = 5
Table 3 for appropriate Tidal Volumes
Not Vented
If intubation needed:
Aspiration precautions:
Consider rapid sequence intubation by experienced clinicians
Administer IV H2 antagonist to neutralize gastric pH
Minimize ventilator induced lung injury
Low Pressure (Plateau/Total Pressures <25 - 30 cm H20)
6-8 ml/kg/ IBW (Table 3)
Increase respiratory rate as needed up to 35 bpm to maintain ventilation
PEEP > = 5
Table 3 for appropriate Tidal Volumes
Intubation/ Mechanical Ventilation Required?
Respiratory Support:
Minimize Ventilator Induced Lung Injury
Low Pressure (Plateau/Total Pressures <25 - 30 cm H20)
6-8 ml/kg/ IBW (based on calculation
Increase respiratory rate as needed up to 35 bpm to maintain ventilation
PEEP > = 5 cm
Aspiration Precautions:
Elevate Head of the Bed >30-45 degrees
Oral Care with Chlorhexidine
Gastric Acid Neutralization with IVH2 Blockers


Nothing to Change
Patient is already in the ICU
ICU Likely?
Yes
No
See Communication SBAR/Stop
Adequate Communication:
• Contact the ICU or OR Resident/Fellow or Attending with structured SBAR Handoff:
Situation:
• Introduce yourself and the patient
• Briefly describe the patients situation and reason for ICU transfer or surgery
Background:
• Briefly state the pertinent history
• What got us to this point
Assessment:
• Identify the patient as high risk for ALI/ARDS
• Indicate CLIP elements to be implemented and continued
• What is going on? Use your best judgement
• What Intervention/treatment did you start and how did the patient respond?
• What is the patient's current state
• Is the patient improving, deteriorating, not changed?
Recommendation/Request:
• Indicate CLIP elements to be implemented and continued for duration of ICU stay or during OR
• What laboratory or radiologic tests are pending and will require follow up?
• Who have been consulted and what recommendations have to be followed up on?
• What therapies need to be continued or followed up on?
• When did the patient last receive antibiotics?
Possible Surgery
Yes
Adequate Communication as Above
No
See Communication SBAR/Stop


Infection?
Yes
No
Removable Source?
Yes
No
Infection Control:
• Antibiotics within 6 hours of presentation – Go to appropriate antibiotic table
Infection Control:
• Antibiotics: Early Administration within 6 hours of presentation (Table 1)
• Source Control:
• Early Imaging to confirm source if appropriate
• Early Surgical/interventional evaluation if appropriate
• Early Drainage of purulent collection or removal of infected device if relevant
Where?
Table 6
Stop/No Antibiotics


Fluids and Transfusion:
Resuscitate with Isotonic crystalloid, transfuse blood as needed
Maitain CVP 8-12 with fluids
Yes
Source of Bleeding or Ischemia?
Furosemide Reassess response in 1 hour
Yes
Source of Bleeding or Ischemia?
Fluids and Transfusion:
Resuscitate with isotonic crystalloid, consider vasopressor to get MAP > 60
Off Vasopressors for > 12 hours?
Urine Output < 0.5ml/kg/hr
No
Furosemide Reassess response in 4 hours
Yes
No
CVP >12
Shock (Mean Arterial Pressure < 60) or need for vasopressors
CVP 4-8
Urine Output < 0.5ml/kg/hr
Yes
Give fluids, reassess in 1 hour
No
CVP < 4
Urine Output < 0.5ml/kg/hr
Give Fluids, reassess in 1 hour
Yes
Furosemide Reassess response in 4 hours
No
CVP not Available
No Intervention
Yes
Consider CVP or other indicator of volume status
Urine Output <0.5 ml/kg/hr
No
Stop all fluids or non-essential continuous drips. Consider Lasix

Information needed for LIPS score
Research? If Yes than Give Site and Unique ID
If no, allow investigator to type in Other or Hospital Name

ALI Risk Factors
- Pneumonia = 1.5
- Sepsis = 1
- Aspiration = 2
- Shock = 2

High Risk Trauma
- Lung Contusion = 1.5
- Smoke Inhalation = 2
- Near-drowning = 2
- Multiple fractures = 1.5
- Traumatic Brain Injury = 2

High Risk Surgery
- Cardiac = 2.5
- Aortic/vascular = 3.5
- Orthopoedic/Spine surgery = 1
- Acute Abdomen = 2
- Emergency Surgery = 1.5

Risk Modifiers
- Alcohol Abuse = 1
- Obesity (BMI >30) = 1 – **This must be calculated from height and weight**
- Albumin < 3.5 g/dL = 1
- Chemotherapy = 1
- FiO_2> 35% (>4L/min) = 2
- Respiratory Rate > 30 = 1.5
- Oxygen saturation < 95% = 1
- At least one Arterial pH < 7.35 = 1.5
- Diabetes Mellitus and the patient has sepsis = -1

BMI = weight (kg)/ height (m^2)
Or BMI = Weight (lb) x 703/ height^2 (in^2)

Patient Location?
Emergency Room, Operating Room, PACU, Intensive Care Unit, Floor

Information needed for CLIP treatment algorithm:
Patient Location?
Emergency Room, Operating Room, PACU, Intensive Care Unit, Floor
Initial Presentation, Hospital Day Number?

- Height for Predicted Body Weight Calculation
- Gender for Predicted Body Weight Calculation
- Weight for Urine output calculation

- Does the patient have a source of Infection? Yes or no?
- If yes what is the site? Lung, Abdomen, Urine, Central Nervous System, IV Catheter, Skin/Soft Tissue, Unknown
- Does this patient have a removable or drainable source such as abscess, line, hardware, implant, renal or gallstones, empyema, perforated viscus, acute abdomen? Yes or No
- Allergy list: penicillin, flouroquinalone, cephalosporin, imipenum, or meropenum?

- Is this patient in shock (Mean arterial pressure < 60)? Yes or No
- Is this patient on Vasopressors (this is shock) ? Yes or No
- If not in shock was the patient on vasopressors in the last 12 hours? Yes or No
- Does this patient have a central line to monitor CVP? Yes or No
- What is the Central Venous Pressure?
- What is the urine output? <0.5 ml/kg/hour or > 0.5 ml/kg/hour

- Is this patient currently bleeding? Yes or No
- Does the patient have acute Ischemia Including acute coronary syndrome, acute stroke, acute bowel ischemia? Yes or No

- Current Respiratory Status: On non-invasive ventilation,
- Spontaneously breathing and not on invasive ,or non-invasive ventilation
- If on mechanical ventilation is the PEEP at least 5 cm? Yes or No
- Admission/tranfer to Intensive Care Unit likely in the next 24 hours: Yes, No, Already in the ICU

- Will the patient possibly need surgery in the next 24-48 hours? Yes or No
-

Predicted Body Weight for Appropriate Tidal Volumes:
Please see chart – I am happy to type this up if desired

Formula from www.ardsnet.org
PBW (kg)
Males = 50 + 2.3 [height (inches) – 60]

Females = 45.5 + [height (inches) – 60]

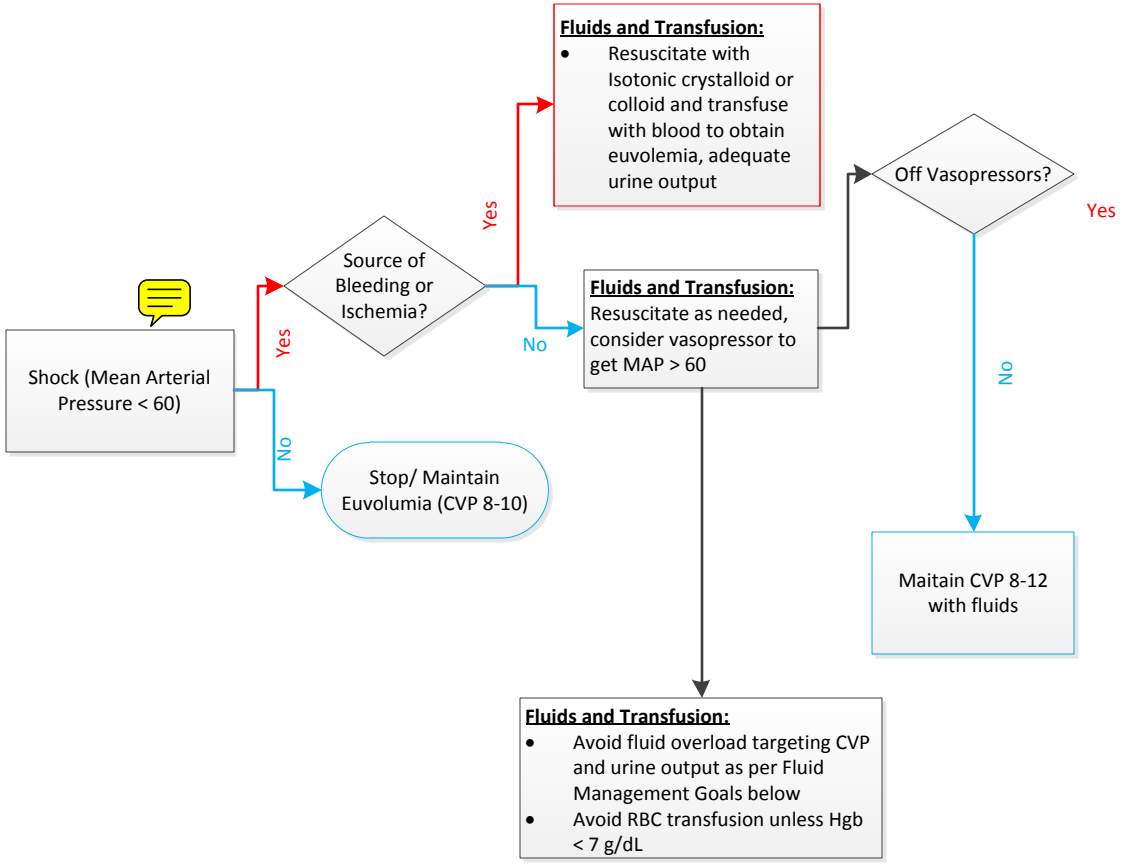
Appropriate Antibiotics by Source: Please see table. I wil discuss allergies issue with you

Study Sites:
Akdeniz University Hospital, Turkey
Beth Israel Deaconess Medical Center
Bridgeport Hospital, Yale New Haven Health
Brigham and Women's Hospital
Denver Health Medical Center
Duke University Medical Center
Denver Health Medical Center
Emory University, Atlanta
Hospital of the University of Pennsylvania
Massachusetts General Hospital
Mayo Clinic Jacksonville
Mayo Clinic Rochester
Miami Valley Hospital
Montefiore Medical Center
Mount Sinai School of Medicine
Parkland Health and Hospital System, Dallas
Temple University School of Medicine
The Johns Hopkins University
Uludag University School of Medicine, Turkey
University of Illinois at Chicago
University of Medicine and Dentistry of New Jersey
University of Michigan University Hospital
University of Missouri – Columbia
University of Washington, Harborview Medical Center
Wake Forest University Health Sciences

Other Requirements:
Day of Hospitalization

A check box or some other method to determine that each process was done

Return To CLIP Site Daily for Update recommendations or if the patients condition has changed.
Study Number becomes the link to the Daily Clip


Shock (Mean Arterial Pressure < 60)
Yes
No
Source of Bleeding or Ischemia?
Yes
No
Fluids and Transfusion:
Resuscitate with Isotonic crystalloid or colloid and transfuse with blood to obtain euvolemia, adequate urine output
Fluids and Transfusion:
Resuscitate as needed, consider vasopressor to get MAP > 60
Off Vasopressors?
Yes
No
Maitain CVP 8-12 with fluids
Stop/ Maintain Euvolumia (CVP 8-10)
Fluids and Transfusion:
Avoid fluid overload targeting CVP and urine output as per Fluid Management Goals below
Avoid RBC transfusion unless Hgb < 7 g/dL