

## NQF-ENDORSED VOLUNTARY CONSENSUS STANDARDS FOR HOSPITAL CARE

### Measure Information Form Collected For: CMS Only

**Measure Set:** Sepsis

**Set Measure ID #:** SEP-1

**Performance Measure Name:** Early Management Bundle, Severe Sepsis/Septic Shock

**Description:** This measure focuses on adults 18 years and older with a diagnosis of severe sepsis or septic shock. Consistent with Surviving Sepsis Campaign guidelines, it assesses measurement of lactate, obtaining blood cultures, administering broad spectrum antibiotics, fluid resuscitation, vasopressor administration, reassessment of volume status and tissue perfusion, and repeat lactate measurement. As reflected in the data elements and their definitions, the first three interventions should occur within 3 hours of presentation of severe sepsis, while the remaining interventions are expected to occur within 6 hours of presentation of septic shock.

**Rationale:** The evidence cited for all components of this measure is directly related to decreases in organ failure, overall reductions in hospital mortality, length of stay, and costs of care.

Multicenter efforts to promote bundles of care for severe sepsis and septic shock were associated with improved guideline compliance and lower hospital mortality (Ferrer, 2008). Even with compliance rates of less than 30%, absolute reductions in mortality of 4-6% have been noted (Levy, 2010 and Ferrer, 2008). Absolute reductions in mortality of over 20% have been seen with compliance rates of 52% (Levy, 2010). Coba et al. has shown that when all bundle elements are completed and compared to patients who do not have bundle completion, the mortality difference is 14% (2011). Thus, there is a direct association between bundle compliance and improved mortality. Without a continuous quality initiative (CQI), even these compliance rates will not improve and will decrease over time (Ferrer, 2008). Multiple studies have shown that, for patients with severe sepsis, standardized order sets, enhanced bedside monitor display, telemedicine, and comprehensive CQI feedback is feasible, modifies clinician behavior, and is associated with decreased hospital mortality (Thiel, 2009; Micek, 2006; Winterbottom, 2011; Schramm, 2011; Nguyen, 2007; Loyola, 2011).

**Type of Measure:** Process

**Improvement Noted As:** An increase in the rate

**Numerator Statement:** Patients who received ALL of the following:

Received within three hours of presentation of severe sepsis:

- Initial lactate level measurement
- Broad spectrum or other antibiotics administered
- Blood cultures drawn prior to antibiotics

AND received within six hours of presentation of severe sepsis:

- Repeat lactate level measurement only if initial lactate level is elevated

AND ONLY if Septic Shock present:

Received within three hours of presentation of septic shock:

- Resuscitation with 30 ml/kg crystalloid fluids

AND ONLY IF hypotension persists after fluid administration, received within six hours of presentation of septic shock:

- Vasopressors

AND ONLY if hypotension persists after fluid administration or initial lactate  $\geq 4$  mmol/L, received within six hours of presentation of septic shock:

- Repeat volume status and tissue perfusion assessment consisting of either
  - A focused exam including:
    - Vital signs, AND
    - Cardiopulmonary exam, AND
    - Capillary refill evaluation, AND
    - Peripheral pulse evaluation, AND
    - Skin examination
  - OR
  - Any two of the following four:
    - Central venous pressure measurement
    - Central venous oxygen measurement
    - Bedside Cardiovascular Ultrasound
    - Passive Leg Raise or Fluid Challenge

**Included Populations:** As described above

**Excluded Populations:**

Patients receiving IV antibiotics for more than 24 hours prior to presentation of severe sepsis.

**Data Elements:**

- *Bedside Cardiovascular Ultrasound Date*
- *Bedside Cardiovascular Ultrasound Performed*
- *Bedside Cardiovascular Ultrasound Time*
- *Blood Culture Collection*
- *Blood Culture Collection Date*
- *Blood Culture Collection Time*
- *Broad Spectrum or Other Antibiotic Administration*
- *Broad Spectrum or Other Antibiotic Administration Date*
- *Broad Spectrum or Other Antibiotic Administration Selection*
- *Broad Spectrum or Other Antibiotic Administration Time*
- *Capillary Refill Examination Date*

- *Capillary Refill Examination Performed*
- *Capillary Refill Examination Time*
- *Cardiopulmonary Evaluation Date*
- *Cardiopulmonary Evaluation Performed*
- *Cardiopulmonary Evaluation Time*
- *Central Venous Oxygen Measurement*
- *Central Venous Oxygen Measurement Date*
- *Central Venous Oxygen Measurement Time*
- *Central Venous Pressure Measurement*
- *Central Venous Pressure Measurement Date*
- *Central Venous Pressure Measurement Time*
- *Crystalloid Fluid Administration*
- *Crystalloid Fluid Administration Date*
- *Crystalloid Fluid Administration Time*
- *Fluid Challenge Date*
- *Fluid Challenge Performed*
- *Fluid Challenge Time*
- *Initial Lactate Level Collection*
- *Initial Lactate Level Date*
- *Initial Lactate Level Result*
- *Initial Lactate Level Time*
- *Passive Leg Raise Exam Date*
- *Passive Leg Raise Exam Performed*
- *Passive Leg Raise Exam Time*
- *Peripheral Pulse Evaluation Date*
- *Peripheral Pulse Evaluation Performed*
- *Peripheral Pulse Evaluation Time*
- *Persistent Hypotension*
- *Repeat Lactate Level Collection*
- *Repeat Lactate Level Date*
- *Repeat Lactate Level Time*
- *Septic Shock Present*
- *Septic Shock Presentation Date*
- *Septic Shock Presentation Time*
- *Severe Sepsis Present*
- *Severe Sepsis Presentation Date*
- *Severe Sepsis Presentation Time*
- *Skin Examination Date*
- *Skin Examination Performed*
- *Skin Examination Time*
- *Vasopressor Administration*
- *Vasopressor Administration Date*
- *Vasopressor Administration Time*
- *Vital Signs Review Date*
- *Vital Signs Review Performed*

- *Vital Signs Review Time*

**Denominator Statement:** Inpatients age 18 and over with an *ICD-10-CM Principal or Other Diagnosis Code* of Sepsis, Severe Sepsis, or Septic Shock.

**Included Populations:** Discharges age 18 and over with an *ICD-10-CM Principal or Other Diagnosis Code* of Sepsis, Severe Sepsis, or Septic Shock as defined in Appendix A, Table 4.01.

**Excluded Populations:**

- Directive for Comfort Care within 3 hours of presentation of severe sepsis
- Directive for Comfort Care within 6 hours of presentation of septic shock
- Administrative contraindication to care
- Length of Stay >120 days
- Transfer in from another acute care facility
- Patients with severe sepsis who expire within 3 hours of presentation
- Patients with septic shock who expire within 6 hours of presentation

**Data Elements:**

- *Administrative Contraindication to Care*
- *Admission Date*
- *Birthdate*
- *Directive for Comfort Care, Septic Shock*
- *Directive for Comfort Care, Severe Sepsis*
- *Discharge Date*
- *Discharge Disposition*
- *Discharge Time*
- *Transfer From Another Hospital or ASC*

**Risk Adjustment:** None

**Data Collection Approach:** Retrospective data sources for required data elements include administrative data and medical record documents. Some hospitals may prefer to gather data concurrently by identifying patients in the population of interest. This approach provides opportunity for improvement at the point of care/service. However, complete documentation includes the principal or other ICD-10-CM diagnosis and procedure codes, which require retrospective data entry.

**Data Accuracy:** Variation may exist in the assignment of ICD-10-CM codes; therefore, coding practices may require evaluation to ensure consistency.

**Measure Analysis Suggestions:** Hospitals may wish to aggregate the reasons for failure to meet this measure so that gaps in care may be identified and educationally addressed.

**Sampling:** Yes, please refer to the measure set specific sampling requirements and for additional information see the Population and Sampling Specifications.

**Data Reported As:** Aggregate rate generated from count data reported as a proportion

**Selected References:**

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## SEP-1: Early Management Bundle, Severe Sepsis/Septic Shock

**Numerator:** Patients who received ALL of the following:

Received within three hours of presentation of severe sepsis:

- Initial lactate level measurement
- Broad spectrum or other antibiotics administered
- Blood cultures drawn prior to antibiotics

AND received within six hours of presentation of severe sepsis:

- Repeat lactate level measurement only if initial lactate level is elevated

AND ONLY if Septic Shock present:

Received within three hours of presentation of septic shock:

- Resuscitation with 30 ml/kg crystalloid fluids

AND ONLY if hypotension persists after fluid administration, received within six hours of presentation of septic shock:

- Vasopressors

AND ONLY if hypotension persists after fluid administration or initial lactate  $\geq 4$  mmol/L, received within six hours of presentation of septic shock:

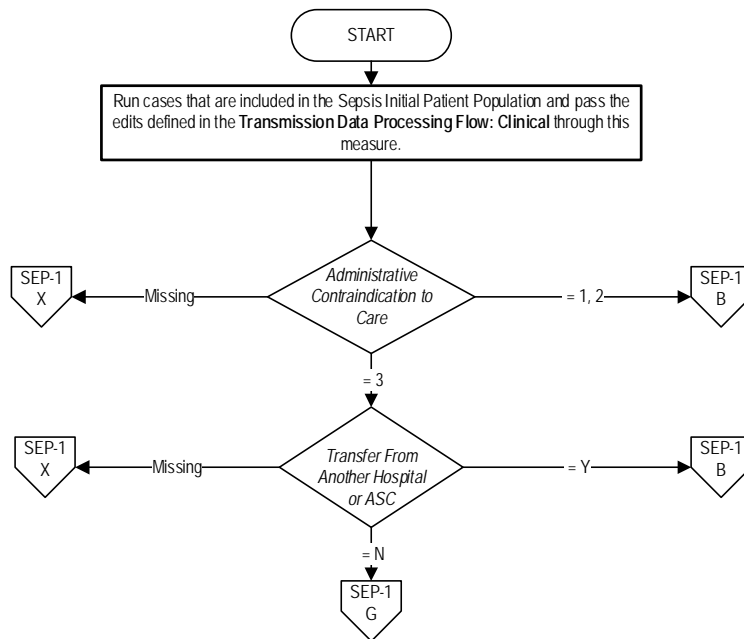
- Repeat volume status and tissue perfusion assessment consisting of either:

- A focused exam including:
  - Vital signs, AND
  - Cardiopulmonary exam, AND
  - Capillary refill evaluation, AND
  - Peripheral pulse evaluation, AND
  - Skin examination

OR

- Any two of the following four:
  - Central venous pressure measurement
  - Central venous oxygen measurement
  - Bedside cardiovascular ultrasound
  - Passive leg raise or fluid challenge

**Denominator:** Inpatients age 18 and over with an ICD-10-CM Principal or Other Diagnosis Code of Sepsis, Severe Sepsis or Septic Shock as defined in Appendix A, Table 4.01




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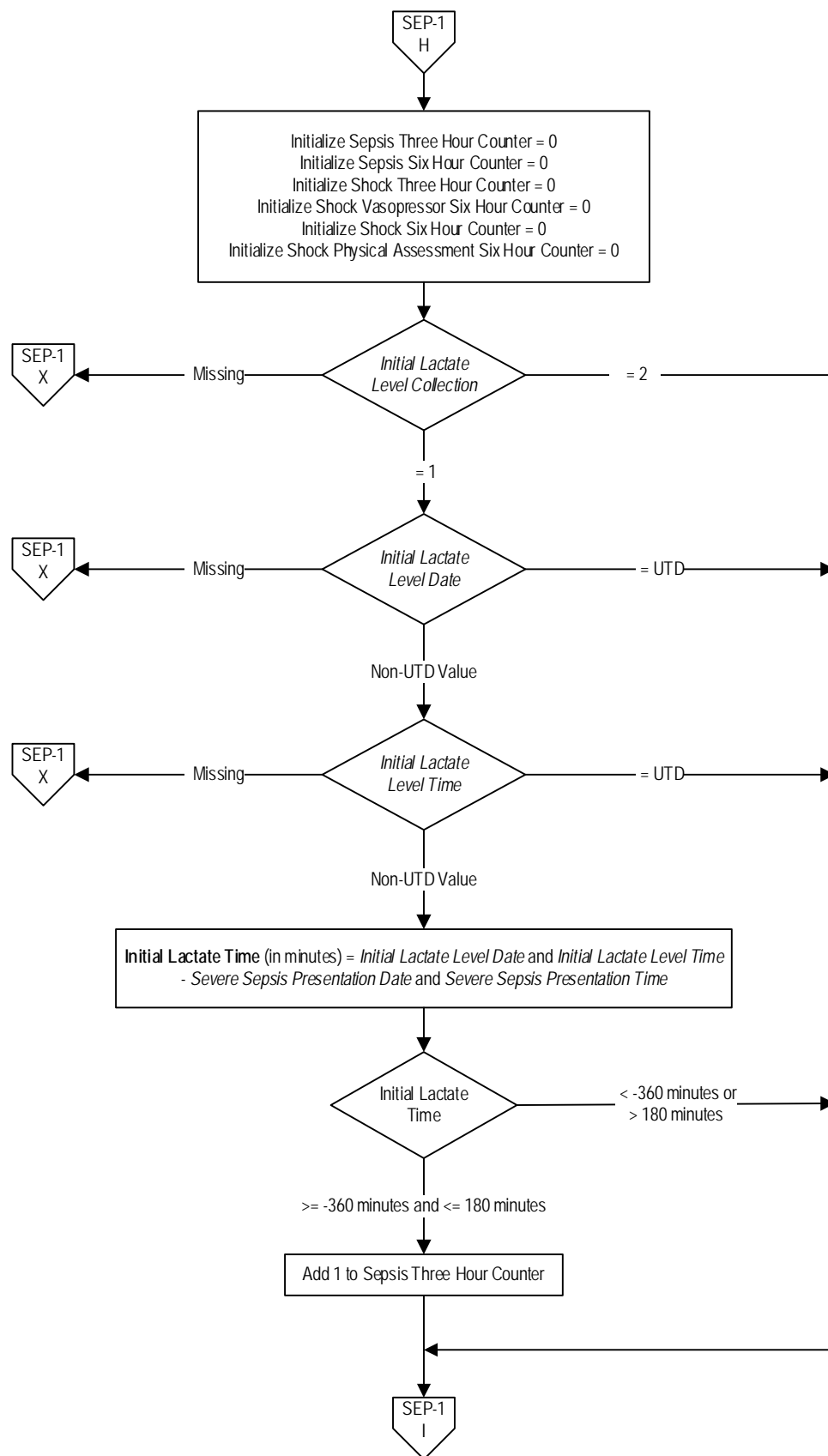
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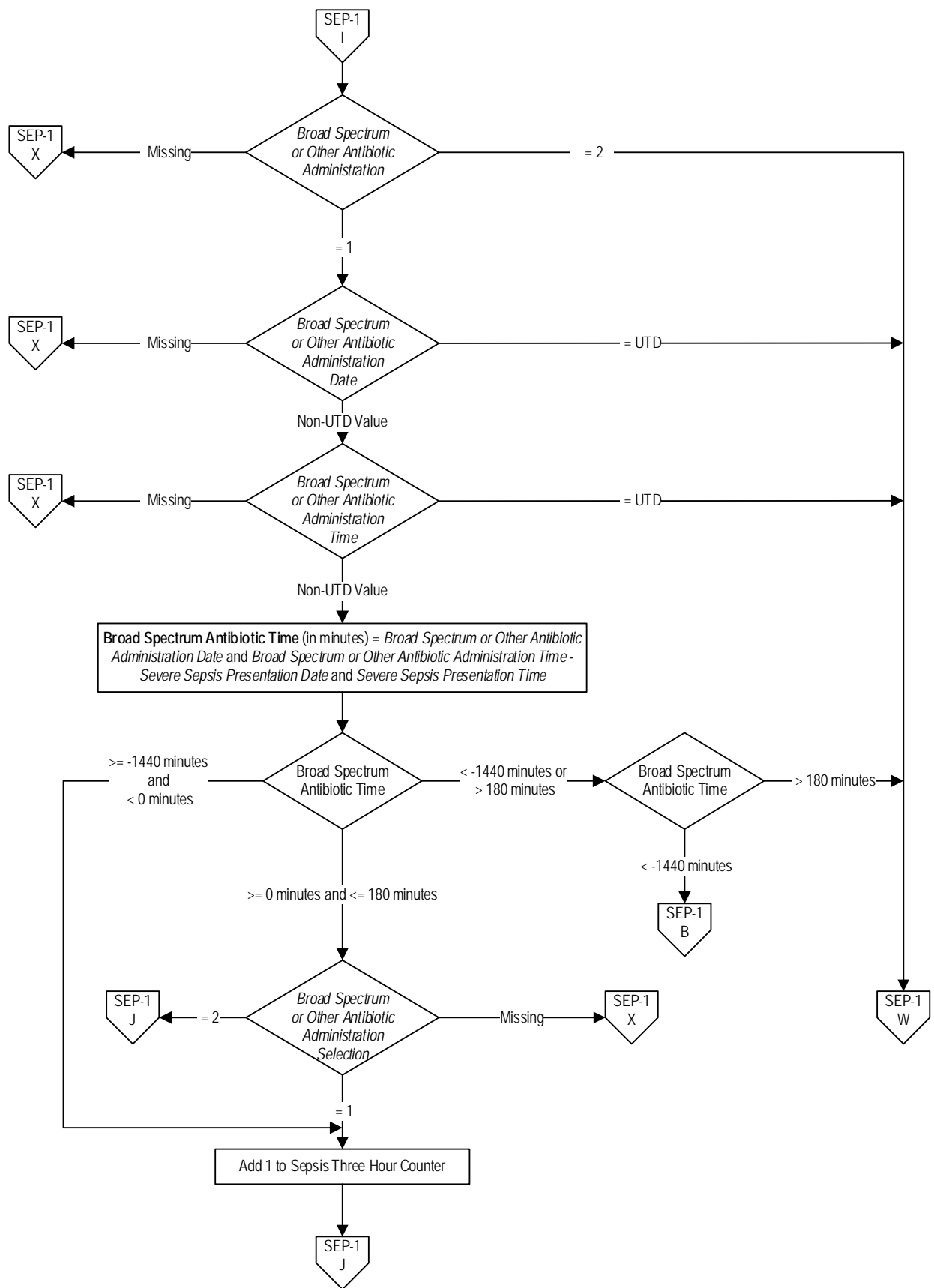
Sepsis Expired Time
Shock Expired Time
Sepsis Three Hour Counter
Sepsis Six Hour Counter
Shock Three Hour Counter
Shock Vasopressor Six Hour Counter
Shock Six Hour Counter
Shock Physical Assessment Six Hour Counter
Initial Lactate Time
Broad Spectrum Antibiotic Time
Blood Culture Time
Blood Culture Antibiotic Time
Repeat Lactate Time
Shock Presentation Time
Crystalloid Fluid Admin Time
Vasopressor Time
Vital Signs Time
Vital Signs Fluid Time
Cardiopulmonary Eval Time
Cardiopulmonary Evaluation Fluid Time
Capillary Refill Time
Capillary Refill Fluid Time
Peripheral Pulse Time
Peripheral Pulse Fluid Time
Skin Exam Time
Skin Exam Fluid Time
Central Venous Pressure Time
Central Venous Pressure Fluid Time
Central Venous Oxygen Time
Central Venous Oxygen Fluid Time
Bedside Ultrasound Time
Bedside Ultrasound Fluid Time
Passive Leg Raise Time
Passive Leg Raise Fluid Time
Fluid Shock Time
Fluid Challenge Fluid Time

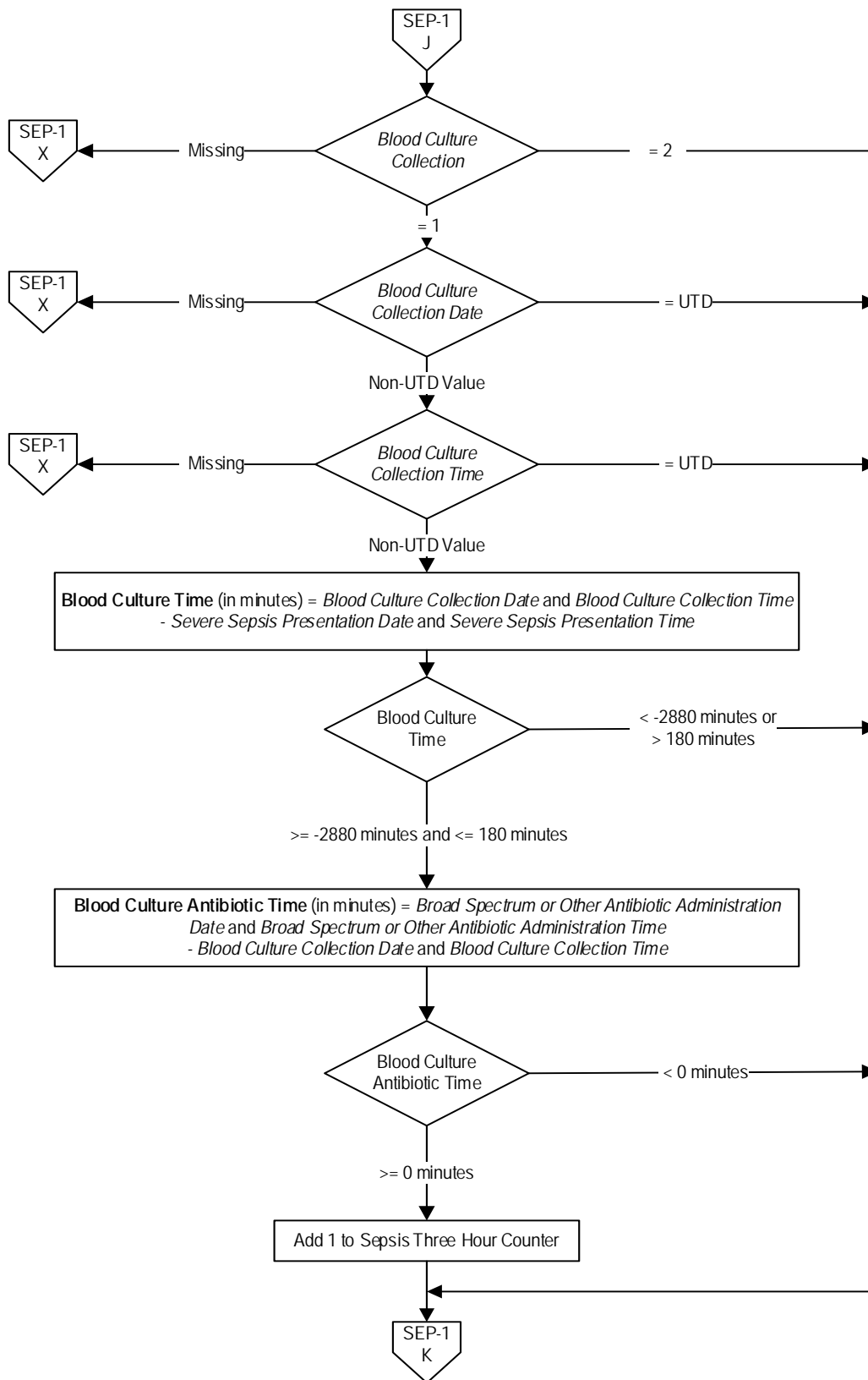
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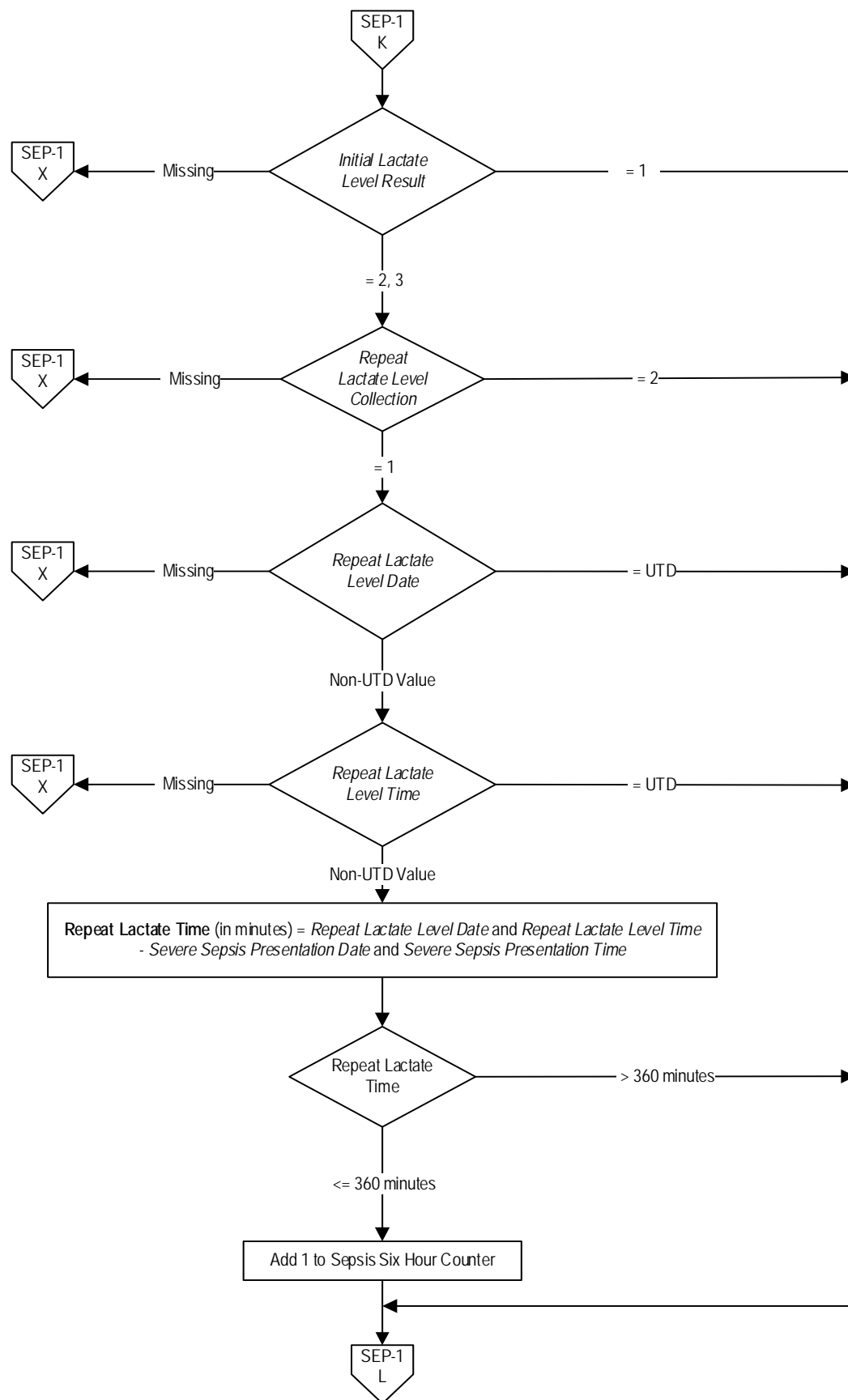


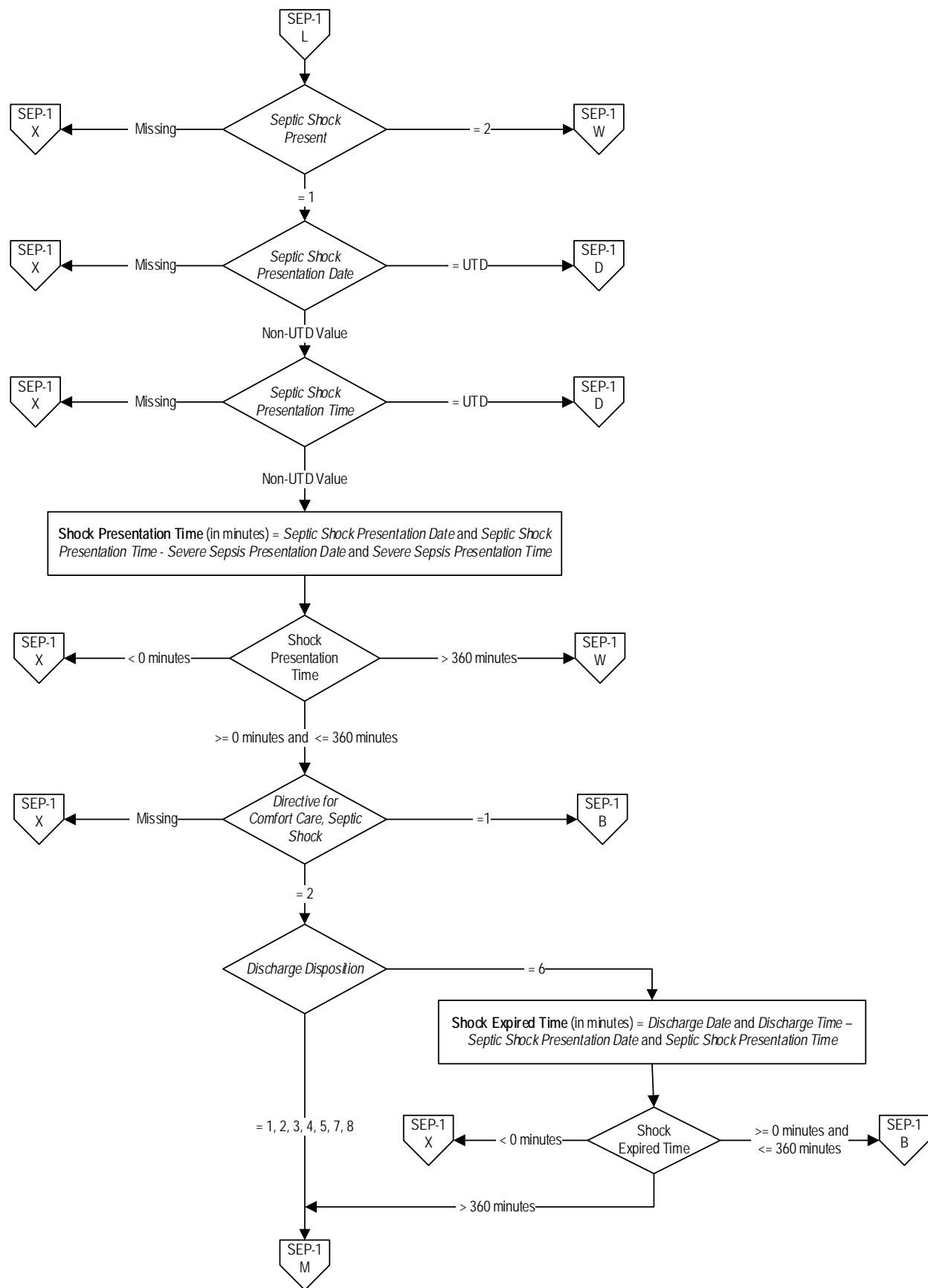


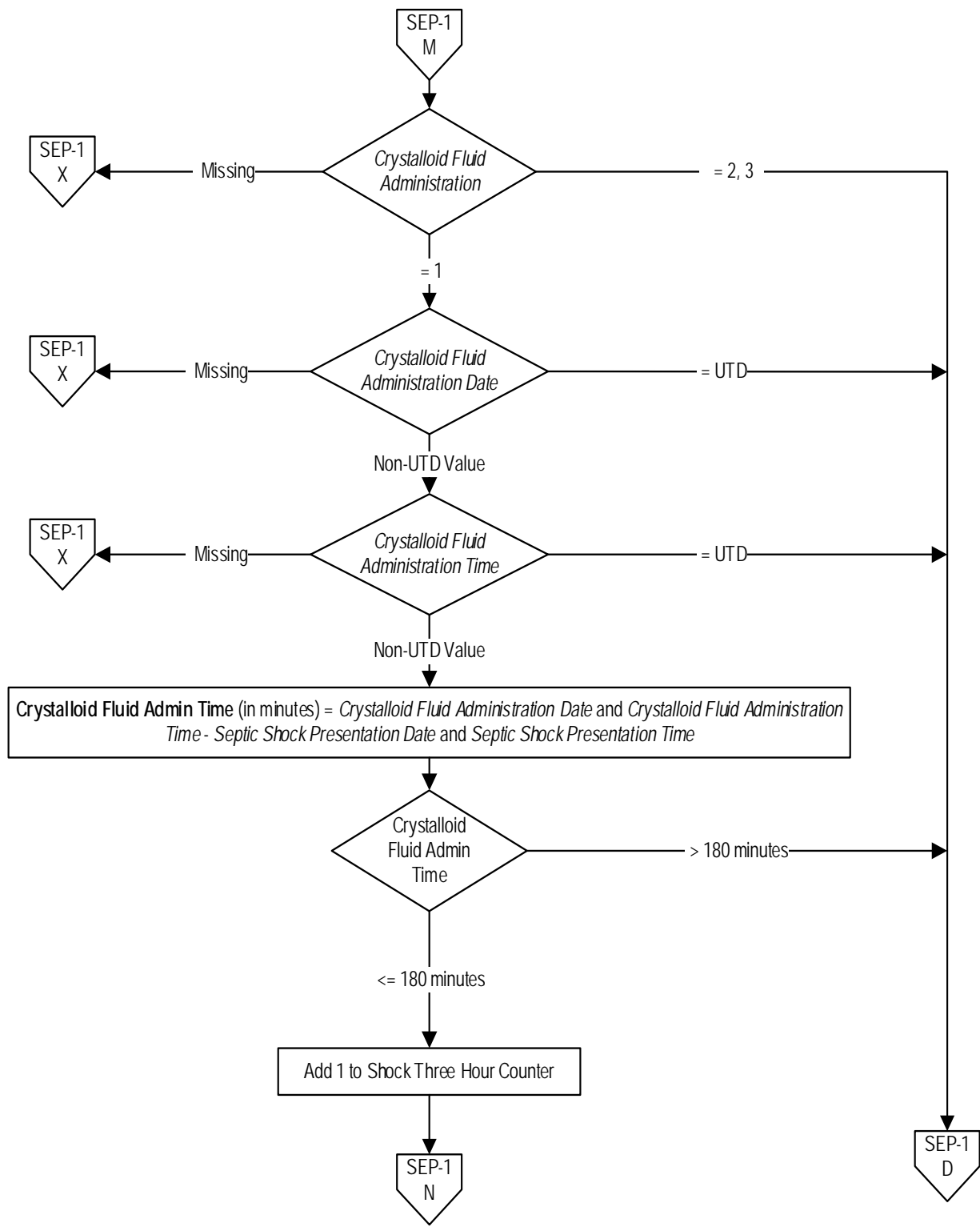


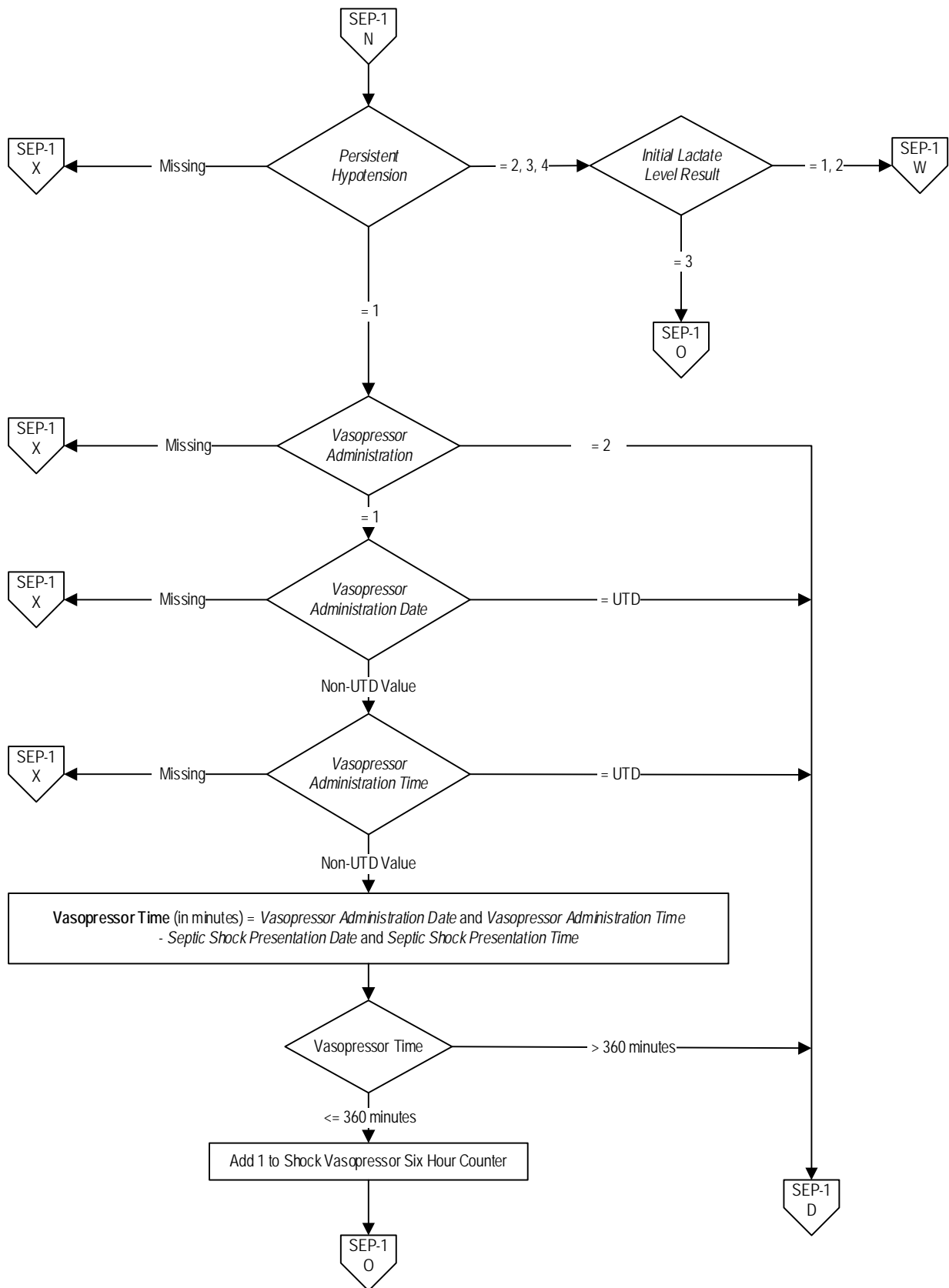




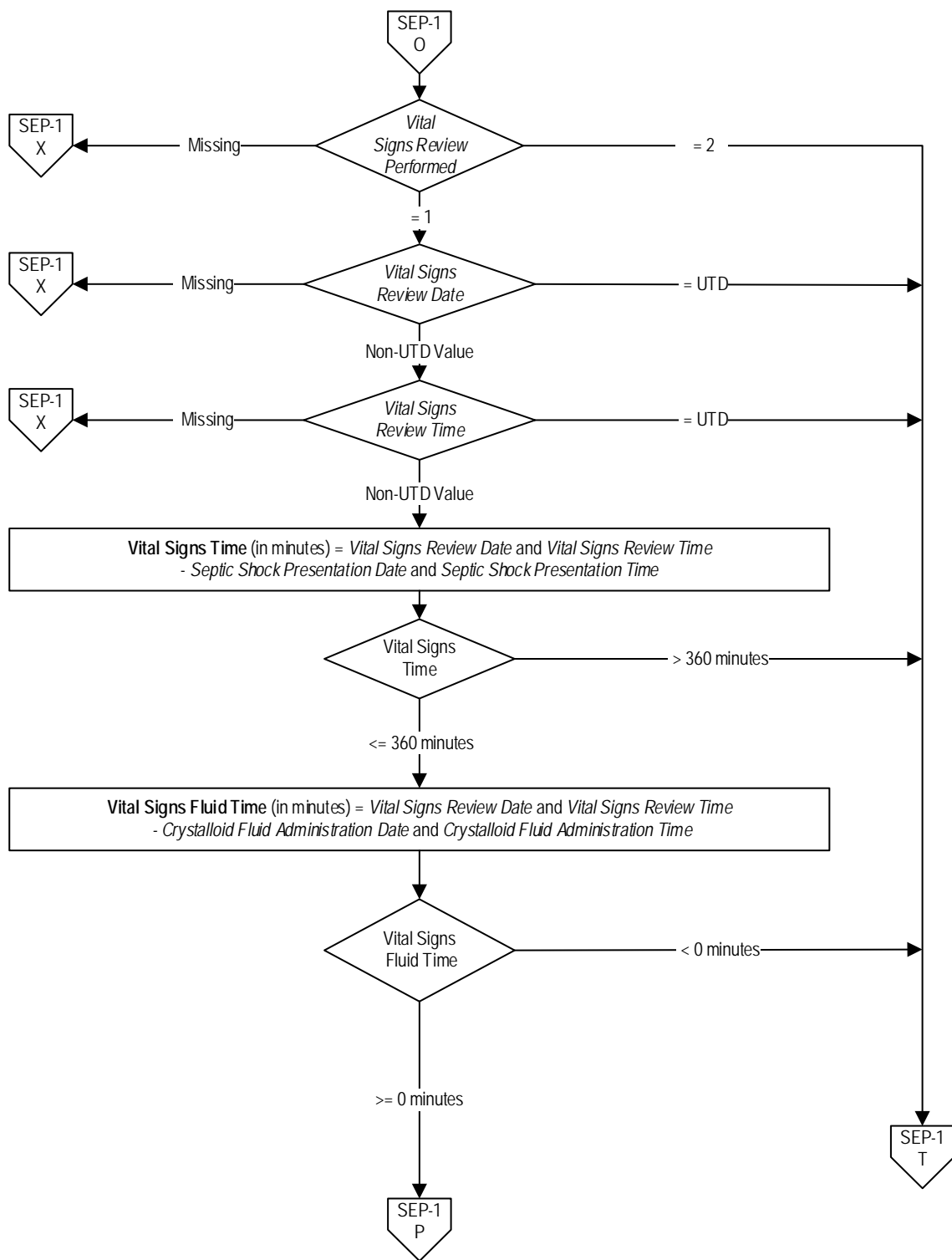


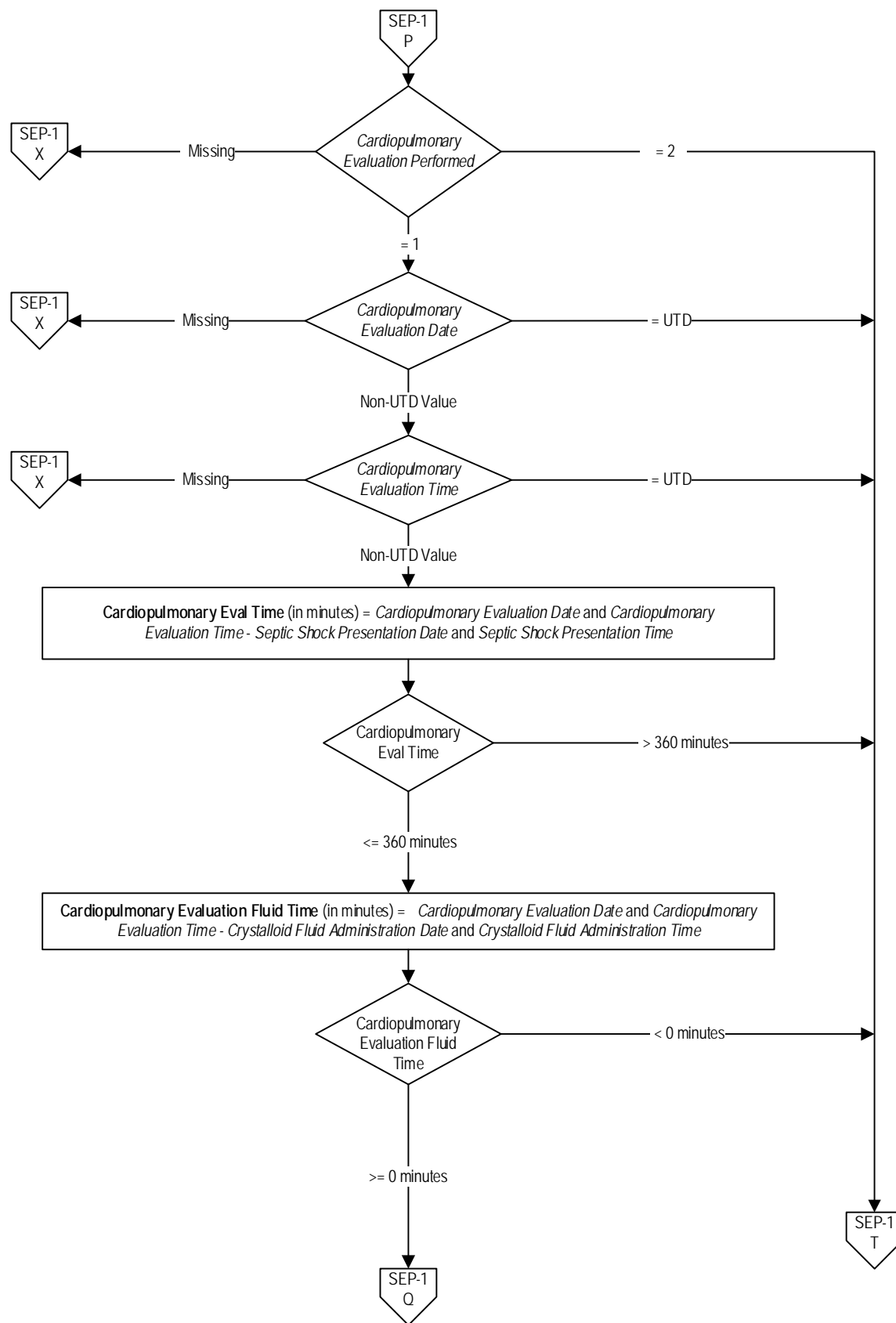


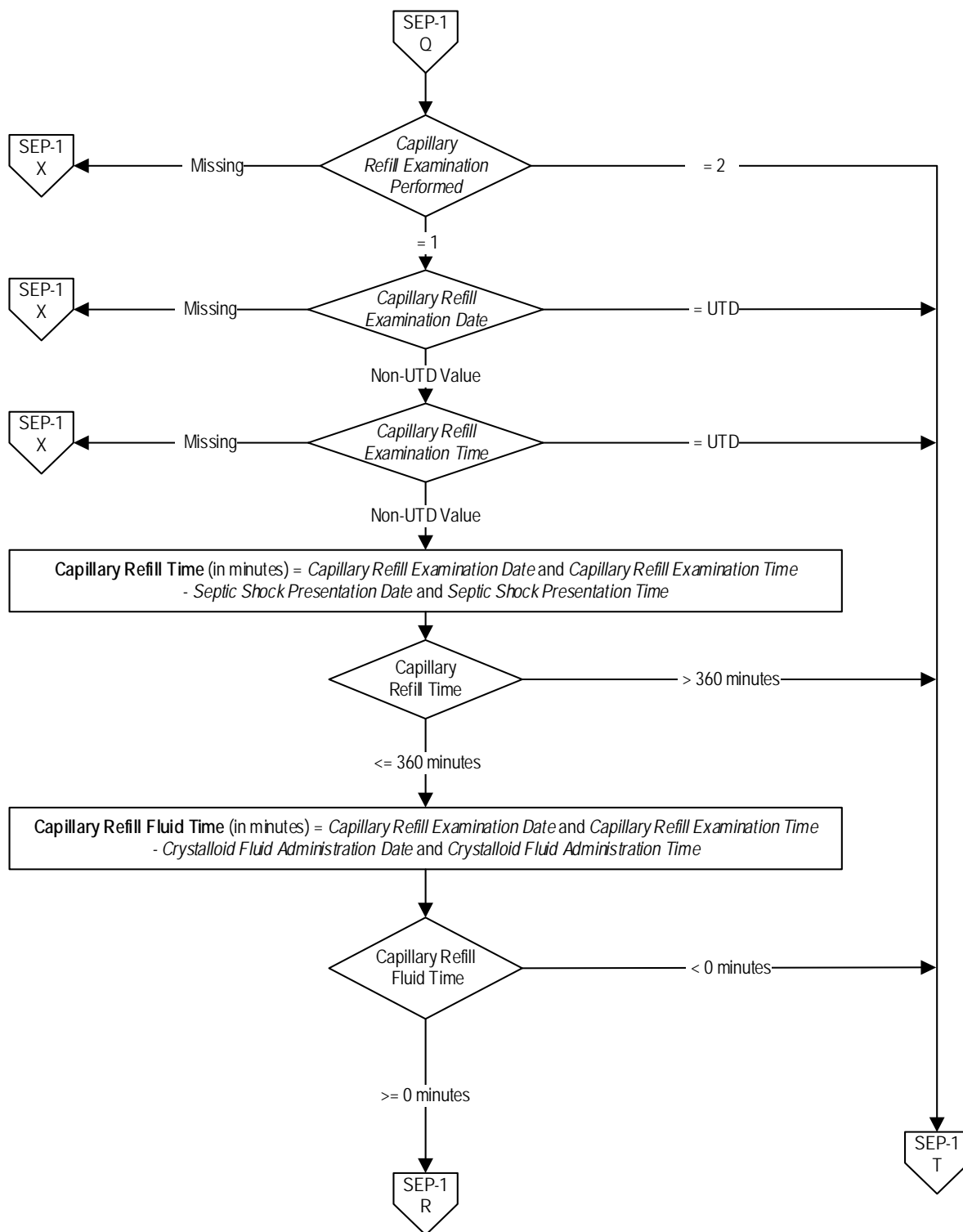


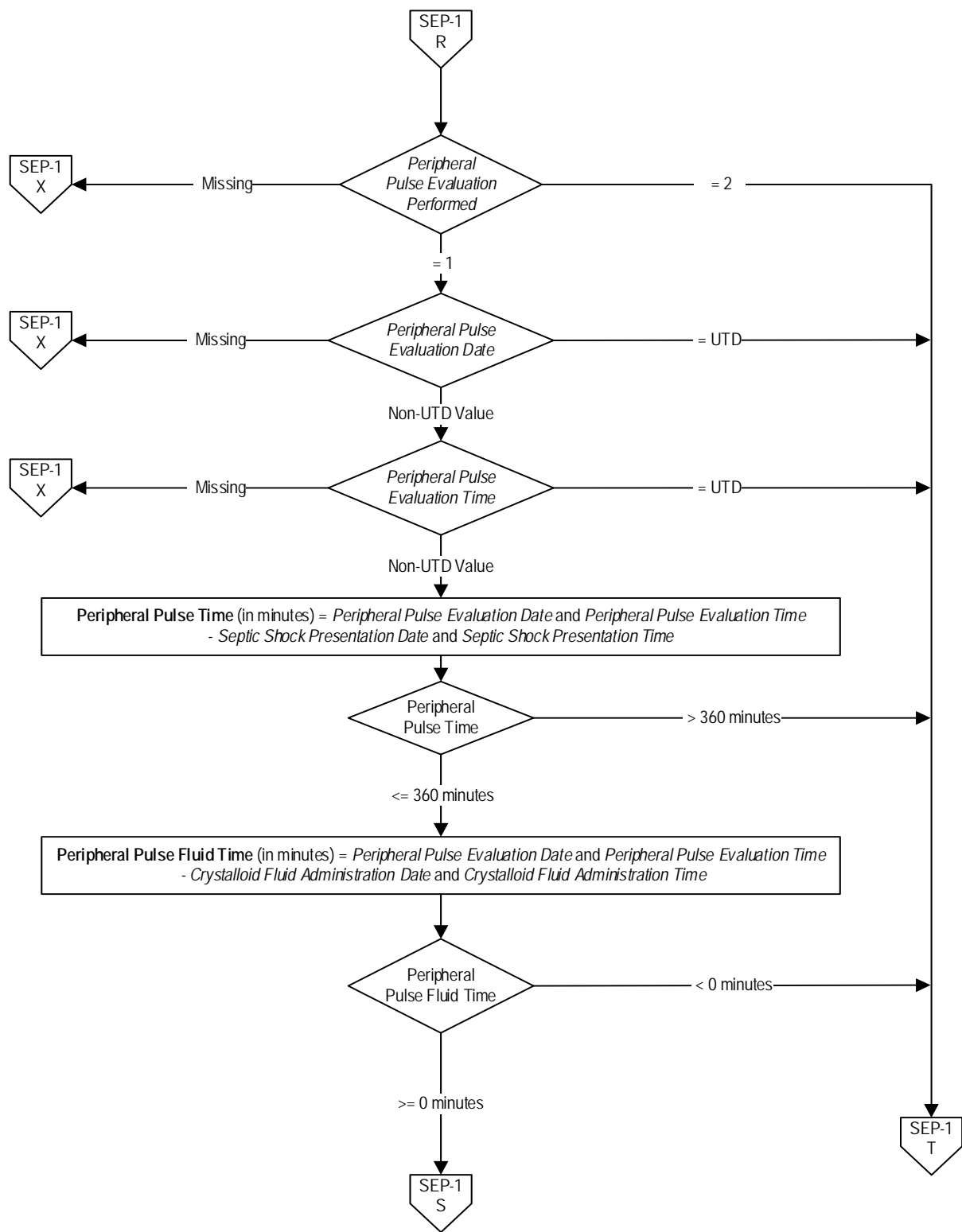


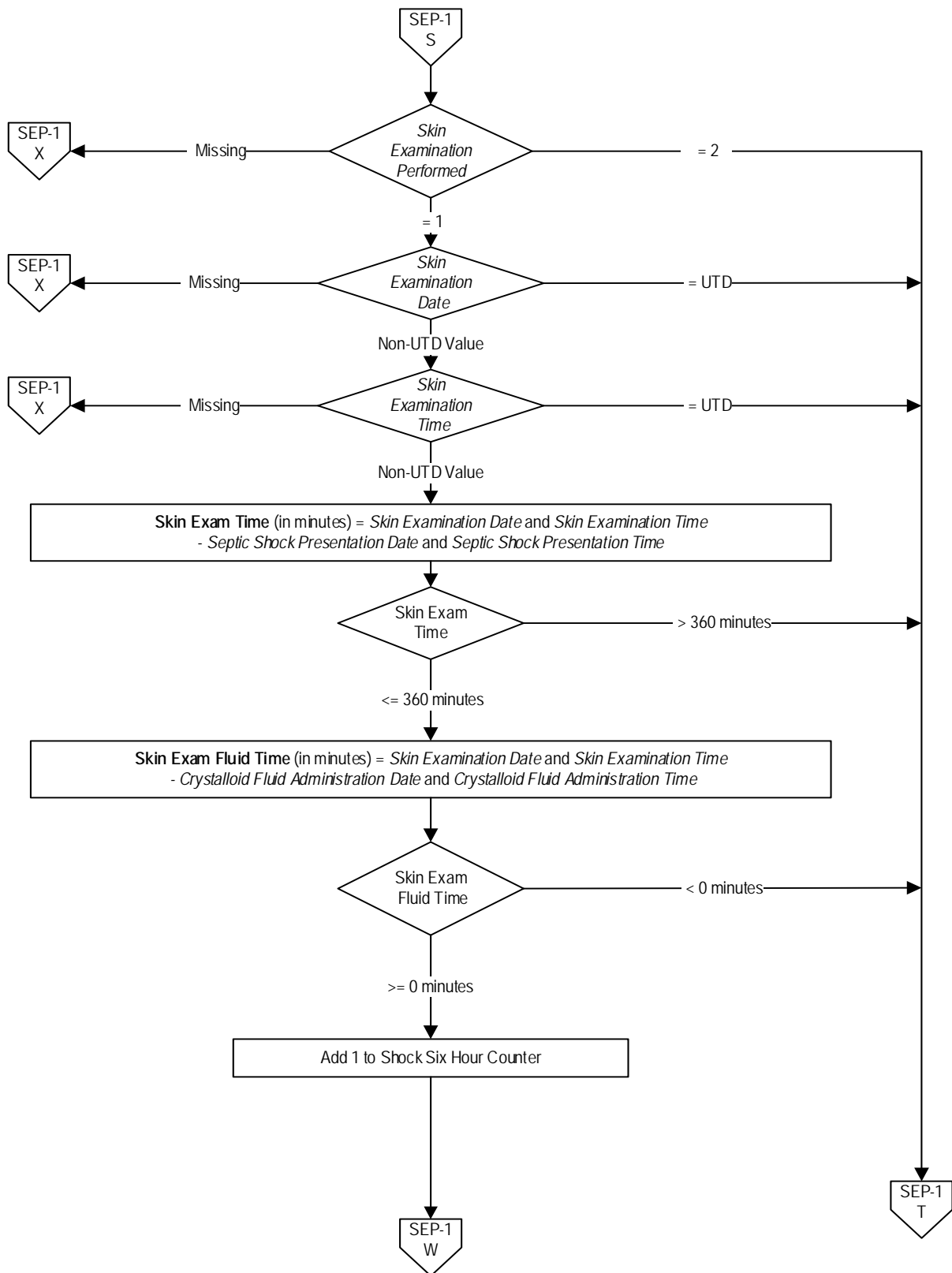


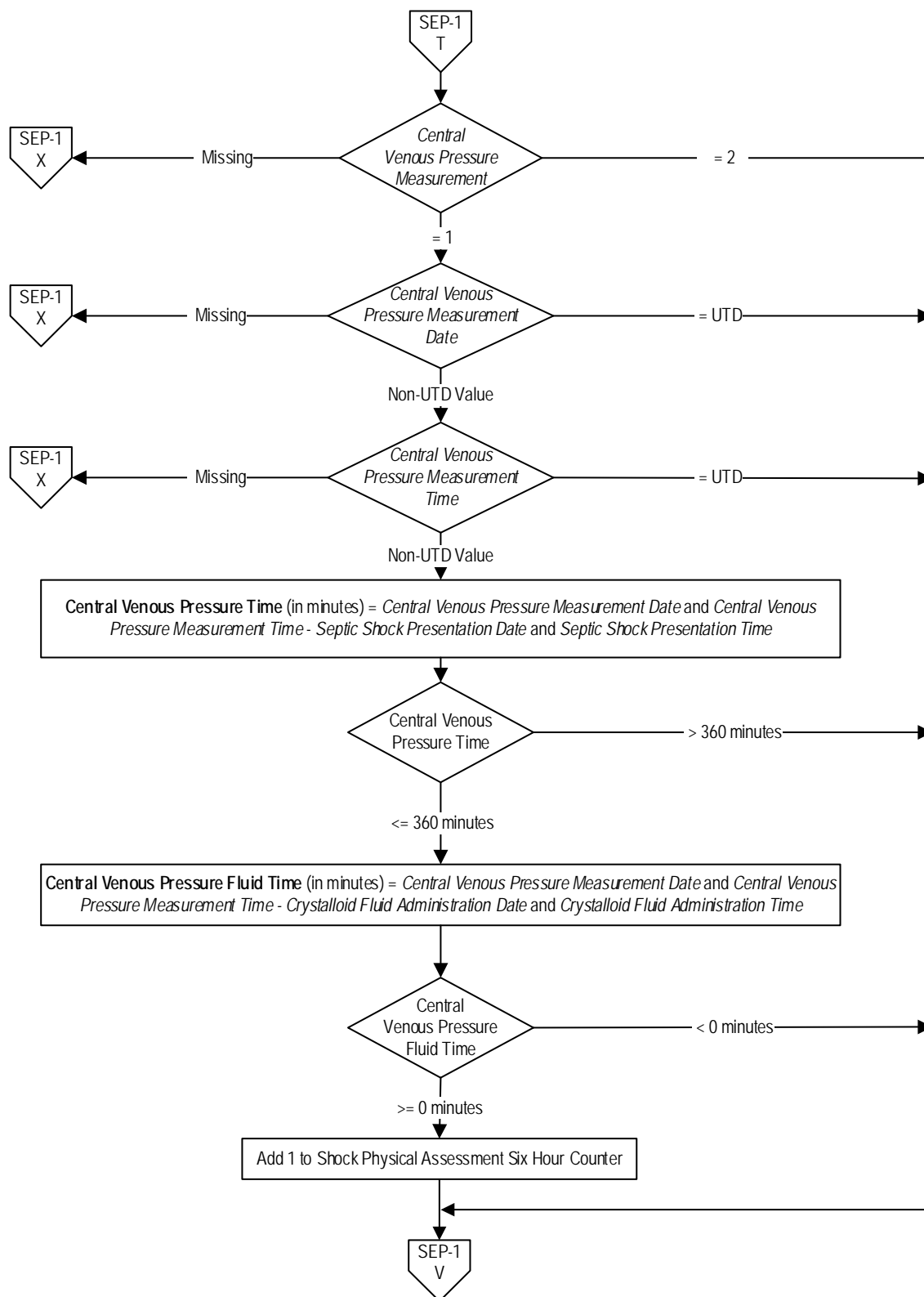


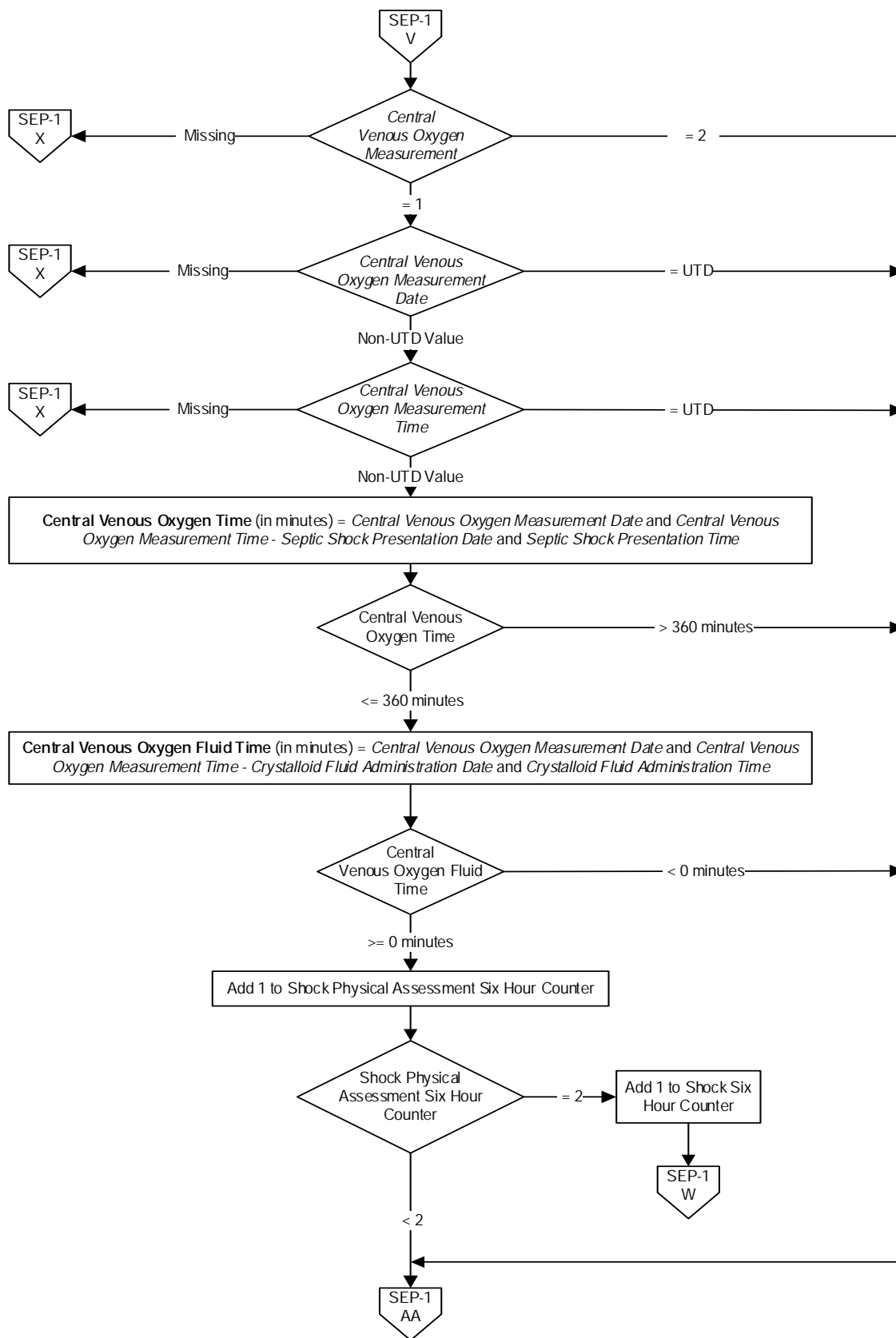


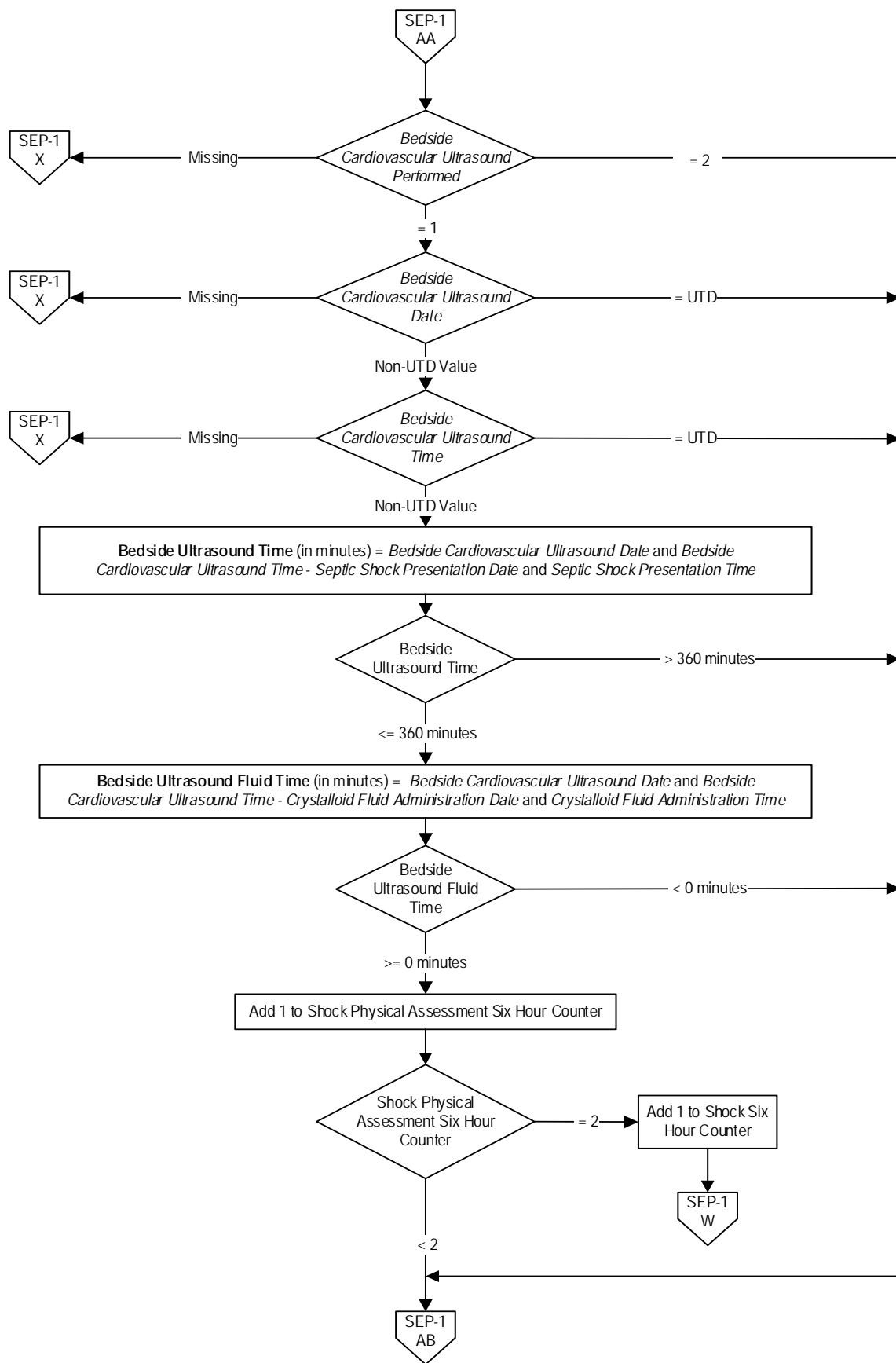




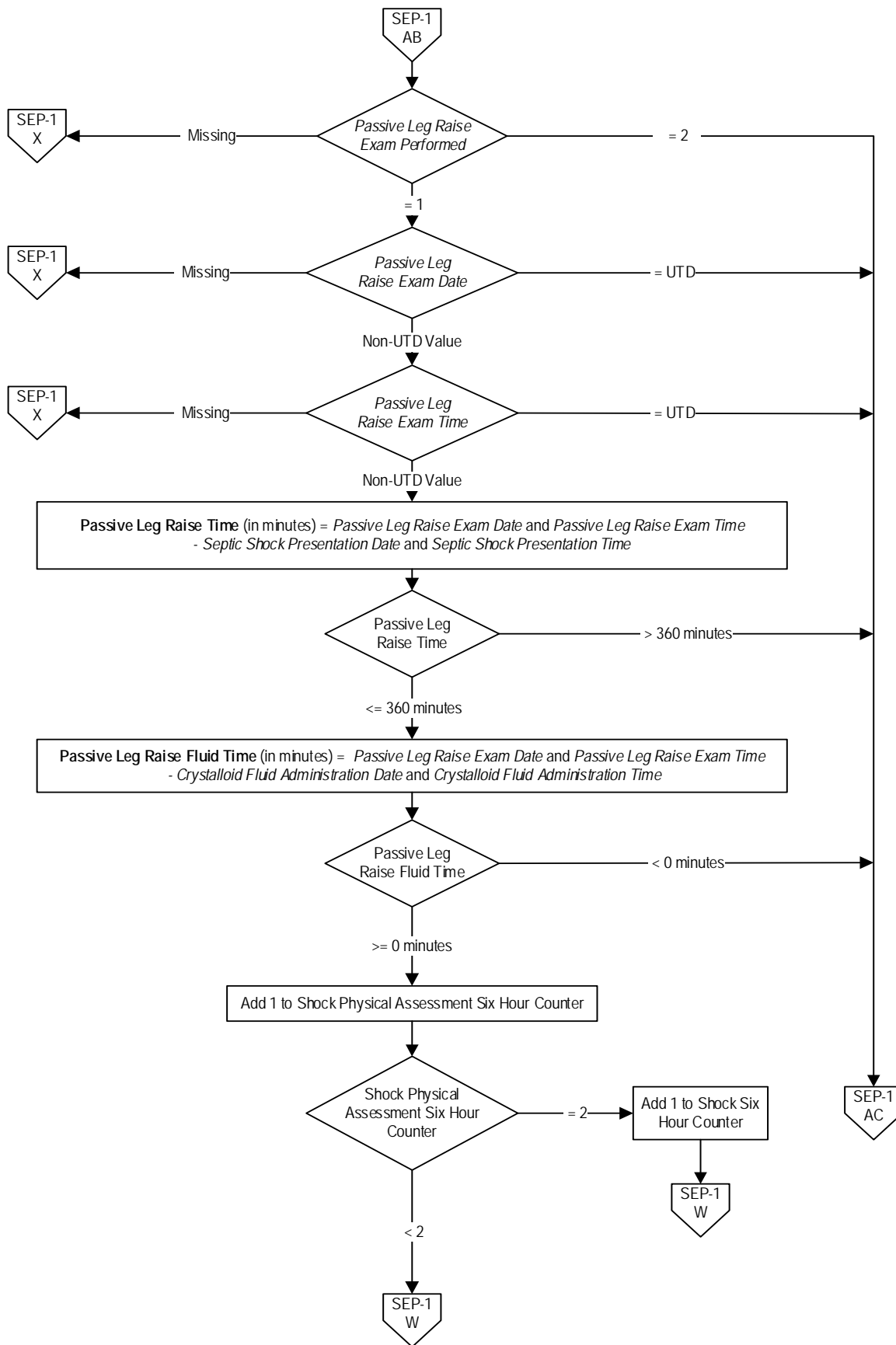


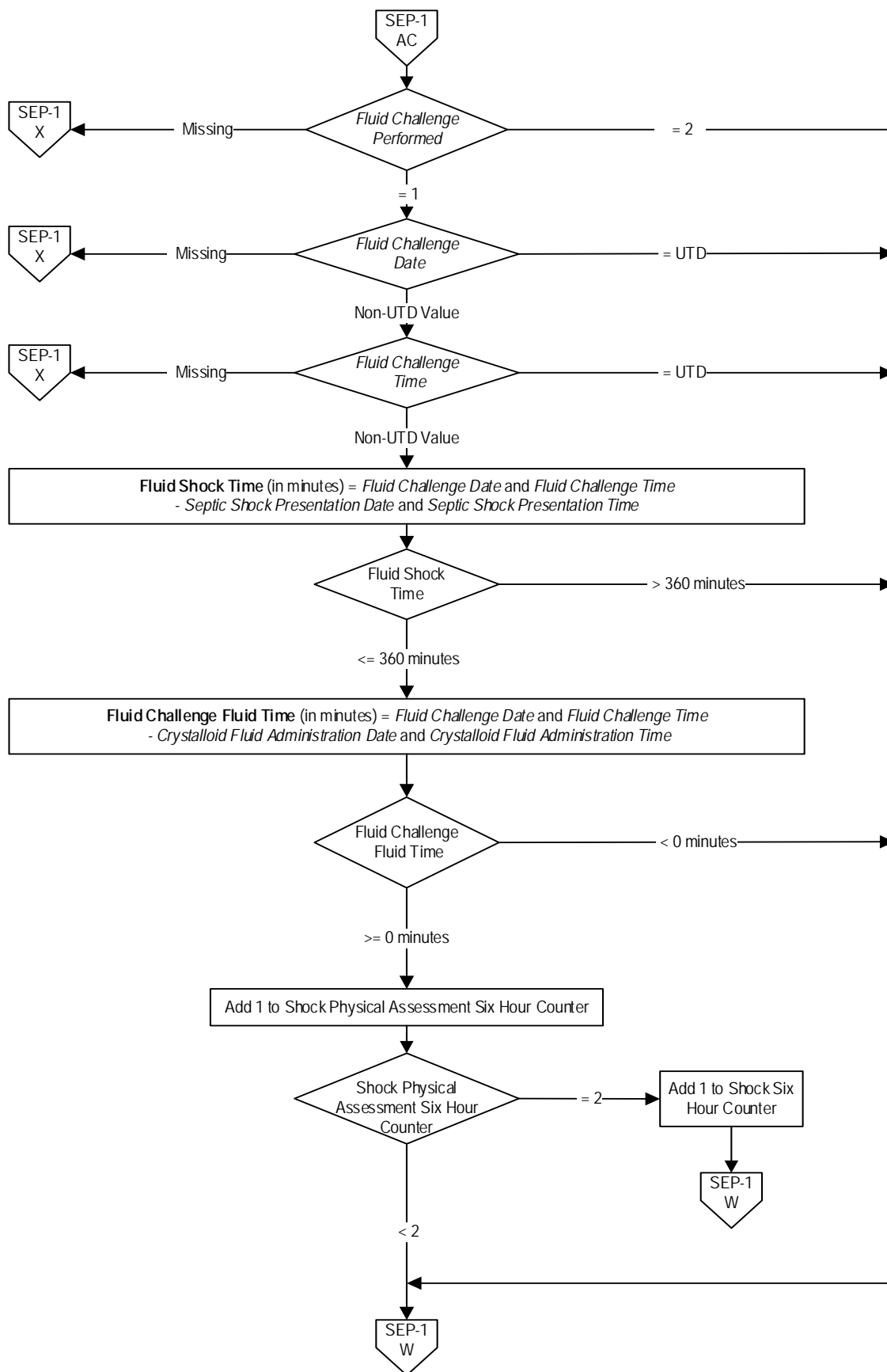


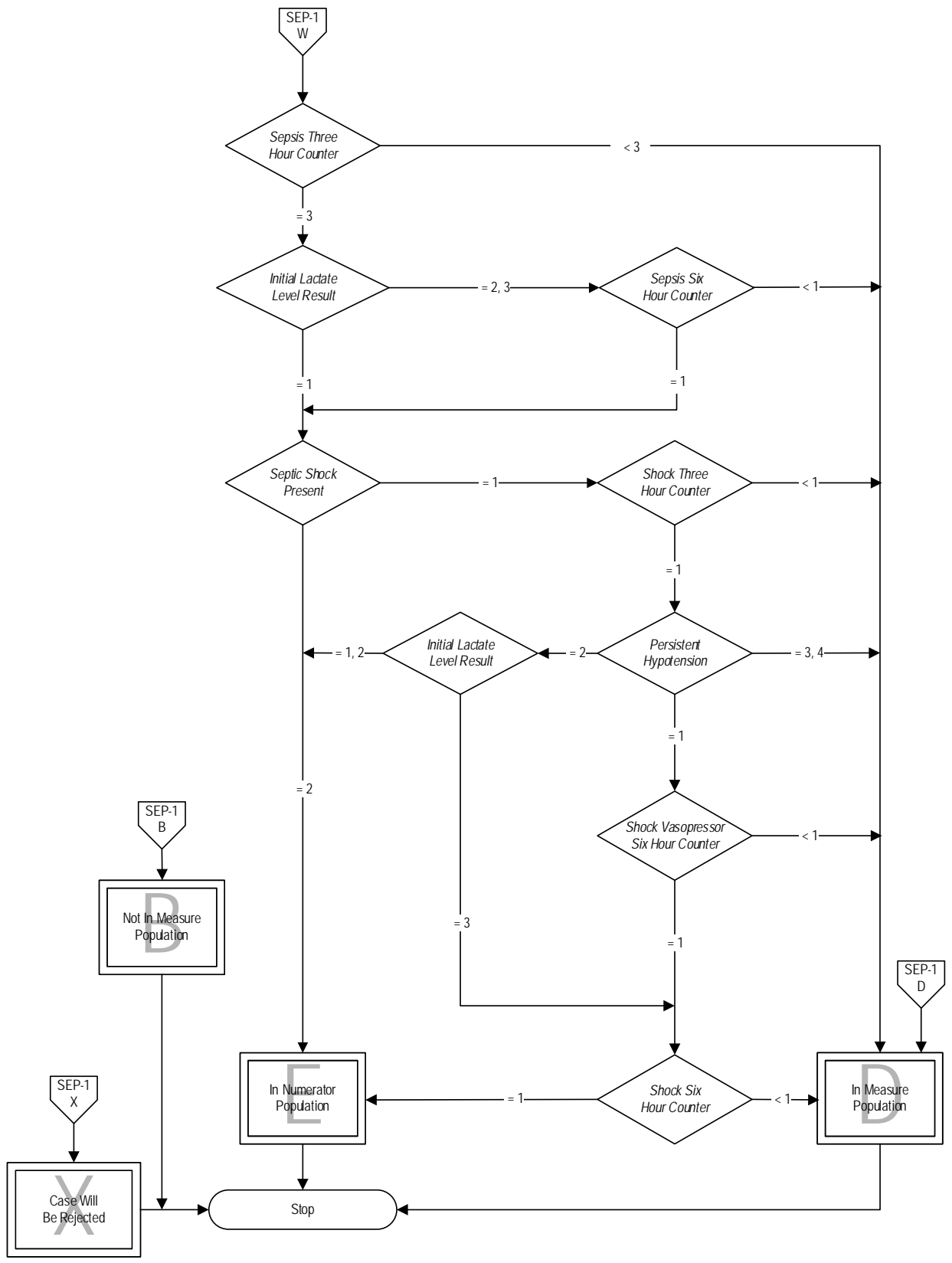












## Sepsis (SEP)-1: Early Management Bundle, Severe Sepsis/Septic Shock Narrative

**Numerator:** Patients who received ALL of the following:

Received within three hours of presentation of severe sepsis:

- Initial lactate level measurement
- Broad spectrum or other antibiotics administered
- Blood cultures drawn prior to antibiotics

AND received within six hours of presentation of severe sepsis:

- Repeat lactate level measurement only if initial lactate level is elevated

AND ONLY if Septic Shock present:

Received within three hours of presentation of septic shock:

- Resuscitation with 30 ml/kg crystalloid fluids

AND ONLY IF hypotension persists after fluid administration, received within six hours of presentation of septic shock:

- Vasopressors

AND ONLY if hypotension persists after fluid administration or initial lactate  $\geq 4$  mmol/L, received within six hours of presentation of septic shock:

- Repeat volume status and tissue perfusion assessment consisting of either:
  - A focused exam including:
    - Vital signs, AND
    - Cardiopulmonary exam, AND
    - Capillary refill evaluation, AND
    - Peripheral pulse evaluation, AND
    - Skin examination
  - OR
  - Any two of the following four:
    - Central venous pressure measurement
    - Central venous oxygen measurement
    - Bedside cardiovascular ultrasound
    - Passive leg raise or fluid challenge

**Denominator:** Inpatients age 18 and over with an ICD-10-CM Principal or Other Diagnosis Code of Sepsis, Severe Sepsis or Septic Shock as defined in Appendix A, Table 4.01

**Variable Key:** Sepsis Expired Time, Shock Expired Time, Sepsis Three Hour Counter, Sepsis Six Hour Counter, Shock Three Hour Counter, Shock Vasopressor Six Hour Counter, Shock Six Hour Counter, Shock Physical Assessment Six Hour Counter, Initial Lactate Time,

Broad Spectrum Antibiotic Time, Blood Culture Time, Blood Culture Antibiotic Time, Repeat Lactate Time, Shock Presentation Time, Crystalloid Fluid Admin Time, Vasopressor Time, Vital Signs Time, Vital Signs Fluid Time, Cardiopulmonary Eval Time, Cardiopulmonary Evaluation Fluid Time, Capillary Refill Time, Capillary Refill Fluid Time, Peripheral Pulse Time, Peripheral Pulse Fluid Time, Skin Exam Time, Skin Exam Fluid Time, Central Venous Pressure Time, Central Venous Pressure Fluid Time, Central Venous Oxygen Time, Central Venous Oxygen Fluid Time, Bedside Ultrasound Time, Bedside Ultrasound Fluid Time, Passive Leg Raise Time, Passive Leg Raise Fluid Time, Fluid Shock Time, Fluid Challenge Fluid Time

1. Start processing. Run cases that are included in the Sepsis Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Check Administrative Contraindication to Care
  - a. If Administrative Contraindication to Care is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Administrative Contraindication to Care equals 1 or 2, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - c. If Administrative Contraindication to Care equals 3, continue processing and proceed to Transfer from Another Hospital or ASC.
3. Check Transfer from Another Hospital or ASC
  - a. If Transfer from Another Hospital or ASC is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Transfer from Another Hospital or ASC equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - c. If Transfer from Another Hospital or ASC equals No, continue processing and proceed to Severe Sepsis Present.
4. Check Severe Sepsis Present
  - a. If Severe Sepsis Present is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

- b. If Severe Sepsis Present equals 2, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - c. If Severe Sepsis Present equals 1, continue processing and proceed to Severe Sepsis Presentation Date.
5. Check Severe Sepsis Presentation Date
- a. If Severe Sepsis Presentation Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Severe Sepsis Presentation Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - c. If Severe Sepsis Presentation Date equals a Non Unable to Determine Value, continue processing and proceed to Severe Sepsis Presentation Time.
6. Check Severe Sepsis Presentation Time
- a. If Severe Sepsis Presentation Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Severe Sepsis Presentation Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - c. If Severe Sepsis Presentation Time equals a Non Unable to Determine Value, continue processing and proceed to Directive for Comfort Care, Severe Sepsis.
7. Check Directive for Comfort Care, Severe Sepsis
- a. If Directive for Comfort Care, Severe Sepsis is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Directive for Comfort Care, Severe Sepsis equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - c. If Directive for Comfort Care, Severe Sepsis equals 2, continue processing and proceed to Discharge Disposition.
8. Check Discharge Disposition
- a. If Discharge Disposition is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

- b. If Discharge Disposition equals 1, 2, 3, 4, 5, 7 or 8 continue processing and proceed to Step 12.
  - c. If Discharge Disposition equals 6, continue processing and proceed to Discharge Time.
9. Check Discharge Time
  - a. If Discharge Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Discharge Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - c. If Discharge Time equals a Non Unable to Determine Value, continue processing and proceed to Sepsis Expired Time calculation.
10. Calculate Sepsis Expired Time. Sepsis Expired Time, in minutes, is equal to the Discharge Date and Discharge Time minus the Severe Sepsis Presentation Date and Severe Sepsis Presentation Time.
11. Check Sepsis Expired Time
  - a. If Sepsis Expired Time is less than 0 minutes, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Sepsis Expired Time is greater than or equal to 0 minutes and less than or equal to 180 minutes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
  - c. If Sepsis Expired Time is greater than 180 minutes, continue processing and proceed to Initialization step.
12. Initialize the following variables: Initialize Sepsis Three Hour Counter = 0, Initialize Sepsis Six Hour Counter = 0, Initialize Shock Three Hour Counter = 0, Initialize Shock Vasopressor Six Hour Counter = 0, Initialize Shock Six Hour Counter = 0, Initialize Shock Physical Assessment Six Hour Counter = 0.
13. Check Initial Lactate Level Collection
  - a. If Initial Lactate Level Collection is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Initial Lactate Level Collection equals 2 continue processing and proceed to Step 18.
  - c. If Initial Lactate Level Collection equals 1, continue processing and proceed to Initial Lactate Level Date.
14. Check Initial Lactate Level Date

- a. If Initial Lactate Level Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Initial Lactate Level Date equals Unable to Determine, continue processing and proceed to Step 18.
  - c. If Initial Lactate Level Date equals a Non Unable to Determine Value, continue processing and proceed to Initial Lactate Level Time.
15. Check Initial Lactate Level Time
- a. If Initial Lactate Level Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Initial Lactate Level Time equals Unable to Determine, continue processing and proceed to Step 18.
  - c. If Initial Lactate Level Time equals a Non Unable to Determine Value, continue processing and proceed to Initial Lactate Time calculation.
16. Calculate Initial Lactate Time. Initial Lactate Time, in minutes, is equal to the Initial Lactate Level Date and Initial Lactate Level Time minus the Severe Sepsis Presentation Date and Severe Sepsis Presentation Time.
17. Check Initial Lactate Time
- a. If Initial Lactate Time is less than -360 minutes or greater than 180 minutes, continue processing and proceed to Step 18.
  - b. If Initial Lactate Time is greater than or equal to -360 minutes and less than or equal to 180 minutes, add 1 to the Sepsis Three Hour Counter, continue processing and proceed to Broad Spectrum or Other Antibiotic Administration.
18. Check Broad Spectrum or Other Antibiotic Administration
- a. If Broad Spectrum or Other Antibiotic Administration is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Broad Spectrum or Other Antibiotic Administration equals 2, continue processing and proceed to Step 131.
  - c. If Broad Spectrum or Other Antibiotic Administration equals 1, continue processing and proceed to Broad Spectrum or Other Antibiotic Administration Date.
19. Check Broad Spectrum or Other Antibiotic Administration Date
- a. If Broad Spectrum or Other Antibiotic Administration Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.



- b. If Broad Spectrum or Other Antibiotic Administration Date equals Unable to Determine, continue processing and proceed to Step 131.
  - c. If Broad Spectrum or Other Antibiotic Administration Date equals a Non Unable to Determine Value, continue processing and proceed to Broad Spectrum or Other Antibiotic Administration Time.
20. Check Broad Spectrum or Other Antibiotic Administration Time
- a. If Broad Spectrum or Other Antibiotic Administration Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Broad Spectrum or Other Antibiotic Administration Time equals Unable to Determine, continue processing and proceed to Step 131.
  - c. If Broad Spectrum or Other Antibiotic Administration Time equals a Non Unable to Determine Value, continue processing and proceed to Broad Spectrum Antibiotic Time calculation.
21. Calculate Broad Spectrum Antibiotic Time. Broad Spectrum Antibiotic Time, in minutes, is equal to the Broad Spectrum or Other Antibiotic Administration Date and Broad Spectrum or Other Antibiotic Administration Time minus the Severe Sepsis Presentation Date and Severe Sepsis Presentation Time.
22. Check Broad Spectrum Antibiotic Time
- a. If Broad Spectrum Antibiotic Time is less than -1440 minutes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - b. If Broad Spectrum Antibiotic Time is greater than 180 minutes, continue processing and proceed to Step 132.
  - c. If Broad Spectrum Antibiotic Time is greater than or equal to -1440 minutes and less than 0 minutes, Add 1 to Sepsis Three Hour Counter, continue processing and proceed to Step 24.
  - d. If Broad Spectrum Antibiotic Time is greater than or equal to 0 minutes and less than or equal to 180 minutes, continue processing and proceed to Broad Spectrum or Other Antibiotic Administration Selection.
23. Check Broad Spectrum or Other Antibiotic Administration Selection
- a. If Broad Spectrum or Other Antibiotic Administration Selection is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Broad Spectrum or Other Antibiotic Administration Selection equals 2, continue processing and proceed to Step 24.

- c. If Broad Spectrum or Other Antibiotic Administration Selection equals 1, add 1 to Sepsis Three Hour Counter, continue processing and proceed to Blood Culture Collection.
- 24. Check Blood Culture Collection
  - a. If Blood Culture Collection is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Blood Culture Collection Selection equals 2, continue processing and proceed to Step 31.
  - c. If Blood Culture Collection Selection equals 1, continue processing and proceed to Blood Culture Collection Date.
- 25. Check Blood Culture Collection Date
  - a. If Blood Culture Collection Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Blood Culture Collection Date equals Unable to Determine, continue processing and proceed to Step 31.
  - c. If Blood Culture Collection Date equals a Non Unable to Determine Value, continue processing and proceed to Blood Culture Collection Time.
- 26. Check Blood Culture Collection Time
  - a. If Blood Culture Collection Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Blood Culture Collection Time equals Unable to Determine, continue processing and proceed to Step 31.
  - c. If Blood Culture Collection Time equals a Non Unable to Determine Value, continue processing and proceed to Blood Culture Time calculation.
- 27. Calculate Blood Culture Time. Blood Culture Time, in minutes, is equal to the Blood Culture Collection Date and Blood Culture Collection Time minus the Severe Sepsis Presentation Date and Severe Sepsis Presentation Time.
- 28. Check Blood Culture Time
  - a. If Blood Culture Time is less than -2880 minutes or greater than 180 minutes, continue processing and proceed to Step 31.
  - b. If Blood Culture Time is greater than or equal to -2880 minutes and less than or equal to 180 minutes, continue processing and proceed to Blood Culture Antibiotic Time calculation.
- 29. Calculate Blood Culture Antibiotic Time. Blood Culture Antibiotic Time, in minutes, is equal to the Broad Spectrum or Other Antibiotic Administration Date

and Broad Spectrum or Other Antibiotic Administration Time minus the Blood Culture Collection Date and Blood Culture Collection Time.

30. Check Blood Culture Antibiotic Time
  - a. If Blood Culture Antibiotic Time is less than 0 minutes, continue processing and proceed to Step 31.
  - b. If Blood Culture Antibiotic Time is greater than or equal to 0 minutes, add 1 to Sepsis Three Hour Counter, continue processing and proceed to Initial Lactate Level Result.
31. Check Initial Lactate Level Result
  - a. If Initial Lactate Level Result is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Initial Lactate Level Result equals 1, continue processing and proceed to Step 37.
  - c. If Initial Lactate Level Result equals 2 or 3, continue processing and proceed to Repeat Lactate Level Collection.
32. Check Repeat Lactate Level Collection
  - a. If Repeat Lactate Level Collection is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Repeat Lactate Level Collection equals 2, continue processing and proceed to Step 37.
  - c. If Repeat Lactate Level Collection equals 1, continue processing and proceed to Repeat Lactate Level Date.
33. Check Repeat Lactate Level Date
  - a. If Repeat Lactate Level Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Repeat Lactate Level Date equals Unable to Determine, continue processing and proceed to Step 37.
  - c. If Repeat Lactate Level Date equals a Non Unable to Determine Value, continue processing and proceed to Repeat Lactate Level Time.
34. Check Repeat Lactate Level Time
  - a. If Repeat Lactate Level Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Repeat Lactate Level Time equals Unable to Determine, continue processing and proceed to Step 37.

- c. If Repeat Lactate Level Time equals a Non Unable to Determine Value, continue processing and proceed to Repeat Lactate Time calculation.
35. Calculate Repeat Lactate Time. Repeat Lactate Time, in minutes, is equal to the Repeat Lactate Level Date and Repeat Lactate Level Time minus the Severe Sepsis Presentation Date and Severe Sepsis Presentation Time.
36. Check Repeat Lactate Time
  - a. If Repeat Lactate Time is greater than 360 minutes, continue processing and proceed to Step 37.
  - b. If Repeat Lactate Time is less than or equal to 360 minutes, add 1 to Sepsis Six Hour Counter, continue processing and proceed to Septic Shock Present.
37. Check Septic Shock Present
  - a. If Septic Shock Present is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Septic Shock Present equals 2, continue processing and proceed to Step 132.
  - c. If Septic Shock Present equals 1, continue processing and proceed to Septic Shock Presentation Date.
38. Check Septic Shock Presentation Date
  - a. If Septic Shock Presentation Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Septic Shock Presentation Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - c. If Septic Shock Presentation Date equals a Non Unable to Determine Value, continue processing and proceed to Septic Shock Presentation Time.
39. Check Septic Shock Presentation Time
  - a. If Septic Shock Presentation Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Septic Shock Presentation Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - c. If Septic Shock Presentation Time equals a Non Unable to Determine Value, continue processing and proceed to Shock Presentation Time calculation.

40. Calculate Shock Presentation Time. Shock Presentation Time, in minutes, is equal to the Septic Shock Presentation Date and Septic Shock Presentation Time minus the Severe Sepsis Presentation Date and Severe Sepsis Presentation Time.
41. Check Shock Presentation Time
  - a. If Shock Presentation Time is greater than 360 minutes, continue processing and proceed to Step 132.
  - b. If Shock Presentation Time is less than 0 minutes, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - c. If Shock Presentation Time is greater than or equal to 0 minutes and less than or equal to 360 minutes, continue processing and proceed to Directive for Comfort Care, Septic Shock.
42. Check Directive for Comfort Care, Septic Shock
  - a. If Directive for Comfort Care, Septic Shock is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Directive for Comfort Care, Septic Shock equals 1, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
  - c. If Directive for Comfort Care, Septic Shock equals 2, continue processing and proceed to Discharge Disposition.
43. Check Discharge Disposition
  - a. If Discharge Disposition equals 1, 2, 3, 4, 5, 7 or 8 continue processing and proceed to Step 46.
  - b. If Discharge Disposition equals 6, continue processing and proceed to Shock Expired Time calculation.
44. Calculate Shock Expired Time. Shock Expired Time, in minutes, is equal to the Discharge Date and Discharge Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
45. Check Shock Expired Time
  - a. If Shock Expired Time is greater than or equal to 0 minutes and less than or equal to 360 minutes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population.
  - b. If Shock Expired Time is less than 0 minutes, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

- c. If Shock Expired Time is greater than 360 minutes, continue processing and proceed to Crystalloid Fluid Administration.
46. Check Crystalloid Fluid Administration
- a. If Crystalloid Fluid Administration is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Crystalloid Fluid Administration equals 2 or 3, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - c. If Crystalloid Fluid Administration equals 1, continue processing and proceed to Crystalloid Fluid Administration Date.
47. Check Crystalloid Fluid Administration Date
- a. If Crystalloid Fluid Administration Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Crystalloid Fluid Administration Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - c. If Crystalloid Fluid Administration Date equals a Non Unable to Determine Value, continue processing and proceed to Crystalloid Fluid Administration Time.
48. Check Crystalloid Fluid Administration Time
- a. If Crystalloid Fluid Administration Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Crystalloid Fluid Administration Time equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - c. If Crystalloid Fluid Administration Time equals a Non Unable to Determine Value, continue processing and proceed to Crystalloid Fluid Admin Time calculation.
49. Calculate Crystalloid Fluid Admin Time. Crystalloid Fluid Admin Time, in minutes, is equal to the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
50. Check Crystalloid Fluid Admin Time

- a. If Crystalloid Fluid Admin Time is greater than 180 minutes, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - b. If Crystalloid Fluid Admin Time is less than or equal to 180 minutes, add 1 to the Shock Three Hour Counter, continue processing and proceed to Persistent Hypotension.
51. Check Persistent Hypotension
- a. If Persistent Hypotension is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Persistent Hypotension equals 1, continue processing and proceed to Step 53.
  - c. If Persistent Hypotension equals 2, 3 or 4, continue processing and proceed to Initial Lactate Level Result.
52. Check Initial Lactate Level Result
- a. If Initial Lactate Level Result equals 1 or 2, continue processing and proceed to Step 132.
  - b. If Initial Lactate Level Result equals 3, continue processing and proceed to Step 58.
53. Check Vasopressor Administration
- a. If Vasopressor Administration is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Vasopressor Administration equals 2, continue processing and proceed to Step 58.
  - c. If Vasopressor Administration equals 1, continue processing and proceed to Vasopressor Administration Date.
54. Check Vasopressor Administration Date
- a. If Vasopressor Administration Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Vasopressor Administration Date equals Unable to Determine, continue processing and proceed to Step 58.
  - c. If Vasopressor Administration Date equals a Non Unable to Determine Value, continue processing and proceed to Vasopressor Administration Time.
55. Check Vasopressor Administration Time

- a. If Vasopressor Administration Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Vasopressor Administration Time equals Unable to Determine, continue processing and proceed to Step 58.
  - c. If Vasopressor Administration Time equals a Non Unable to Determine Value, continue processing and proceed to Vasopressor Time calculation.
56. Calculate Vasopressor Time. Vasopressor Time, in minutes, is equal to the Vasopressor Administration Date and Vasopressor Administration Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
57. Check Vasopressor Time
- a. If Vasopressor Time is greater than 360 minutes, continue processing and proceed to Step 58.
  - b. If Vasopressor Time is less than or equal to 360 minutes, add 1 to the Shock Vasopressor Six Hour Counter, continue processing and proceed to Vital Signs Review Performed.
58. Check Vital Signs Review Performed
- a. If Vital Signs Review Performed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Vital Signs Review Performed equals 2, continue processing and proceed to Step 93.
  - c. If Vital Signs Review Performed equals 1, continue processing and proceed to Vital Signs Review Date.
59. Check Vital Signs Review Date
- a. If Vital Signs Review Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Vital Signs Review Date equals Unable to Determine, continue processing and proceed to Step 93.
  - c. If Vital Signs Review Date equals a Non Unable to Determine Value, continue processing and proceed to Vital Signs Review Time.
60. Check Vital Signs Review Time
- a. If Vital Signs Review Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Vital Signs Review Time equals Unable to Determine, continue processing and proceed to Step 93.



- c. If Vital Signs Review Time equals a Non Unable to Determine Value, continue processing and proceed to Vital Signs Time calculation.
61. Calculate Vital Signs Time. Vital Signs Time, in minutes, is equal to the Vital Signs Review Date and Vital Signs Review Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
62. Check Vital Signs Time
- a. If Vital Signs Time is greater than 360 minutes, continue processing and proceed to Step 93.
  - b. If Vital Signs Time is less than or equal to 360 minutes, continue processing and proceed to Vital Signs Fluid Time calculation.
63. Calculate Vital Signs Fluid Time. Vital Signs Fluid Time, in minutes, is equal to the Vital Signs Review Date and Vital Signs Review Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.
64. Check Vital Signs Fluid Time
- a. If Vital Signs Fluid Time is less than 0 minutes, continue processing and proceed to Step 93.
  - b. If Vital Signs Fluid Time is greater than or equal to 0 minutes, continue processing and proceed to Cardiopulmonary Evaluation Performed.
65. Check Cardiopulmonary Evaluation Performed
- a. If Cardiopulmonary Evaluation Performed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Cardiopulmonary Evaluation Performed equals 2, continue processing and proceed to Step 93.
  - c. If Cardiopulmonary Evaluation Performed equals 1, continue processing and proceed to Cardiopulmonary Evaluation Date.
66. Check Cardiopulmonary Evaluation Date
- a. If Cardiopulmonary Evaluation Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Cardiopulmonary Evaluation Date equals Unable to Determine, continue processing and proceed to Step 93.
  - c. If Cardiopulmonary Evaluation Date equals a Non Unable to Determine Value, continue processing and proceed to Cardiopulmonary Evaluation Time.
67. Check Cardiopulmonary Evaluation Time

- a. If Cardiopulmonary Evaluation Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Cardiopulmonary Evaluation Time equals Unable to Determine, continue processing and proceed to Step 93.
  - c. If Cardiopulmonary Evaluation Time equals a Non Unable to Determine Value, continue processing and proceed to Cardiopulmonary Eval Time calculation.
68. Calculate Cardiopulmonary Eval Time. Cardiopulmonary Eval Time, in minutes, is equal to the Cardiopulmonary Evaluation Date and Cardiopulmonary Evaluation Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
69. Check Cardiopulmonary Eval Time
- a. If Cardiopulmonary Eval Time is greater than 360 minutes, continue processing and proceed to Step 93.
  - b. If Cardiopulmonary Eval Time is less than or equal to 360 minutes, continue processing and proceed to Cardiopulmonary Evaluation Fluid Time calculation.
70. Calculate Cardiopulmonary Evaluation Fluid Time. Cardiopulmonary Evaluation Fluid Time, in minutes, is equal to the Cardiopulmonary Evaluation Date and Cardiopulmonary Evaluation Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.
71. Check Cardiopulmonary Evaluation Fluid Time
- a. If Cardiopulmonary Evaluation Fluid Time is less than 0 minutes, continue processing and proceed to Step 93.
  - b. If Cardiopulmonary Evaluation Fluid Time is greater than or equal to 0 minutes, continue processing and proceed to Capillary Refill Examination Performed.
72. Check Capillary Refill Examination Performed
- a. If Capillary Refill Examination Performed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Capillary Refill Examination Performed equals 2, continue processing and proceed to Step 93.
  - c. If Capillary Refill Examination Performed equals 1, continue processing and proceed to Capillary Refill Examination Date.
73. Check Capillary Refill Examination Date

- a. If Capillary Refill Examination Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Capillary Refill Examination Date equals Unable to Determine, continue processing and proceed to Step 93.
  - c. If Capillary Refill Examination Date equals a Non Unable to Determine Value, continue processing and proceed to Capillary Refill Examination Time.
74. Check Capillary Refill Examination Time
- a. If Capillary Refill Examination Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Capillary Refill Examination Time equals Unable to Determine, continue processing and proceed to Step 93.
  - c. If Capillary Refill Examination Time equals a Non Unable to Determine Value, continue processing and proceed to Capillary Refill Time calculation.
75. Calculate Capillary Refill Time. Capillary Refill Time, in minutes, is equal to the Capillary Refill Examination Date and Capillary Refill Examination Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
76. Check Capillary Refill Time
- a. If Capillary Refill Time is greater than 360 minutes, continue processing and proceed to Step 93.
  - b. If Capillary Refill Time is less than or equal to 360 minutes, continue processing and proceed to Capillary Refill Fluid Time calculation.
77. Calculate Capillary Refill Fluid Time. Capillary Refill Fluid Time, in minutes, is equal to the Capillary Refill Examination Date and Capillary Refill Examination Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.
78. Check Capillary Refill Fluid Time
- a. If Capillary Refill Fluid Time is less than 0 minutes, continue processing and proceed to Step 93.
  - b. If Capillary Refill Fluid Time is greater than or equal to 0 minutes, continue processing and proceed to Peripheral Pulse Evaluation Performed.
79. Check Peripheral Pulse Evaluation Performed
- a. If Peripheral Pulse Evaluation Performed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

- b. If Peripheral Pulse Evaluation Performed equals 2, continue processing and proceed to Step 93.
  - c. If Peripheral Pulse Evaluation Performed equals 1, continue processing and proceed to Peripheral Pulse Evaluation Date.
80. Check Peripheral Pulse Evaluation Date
- a. If Peripheral Pulse Evaluation Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Peripheral Pulse Evaluation Date equals Unable to Determine, continue processing and proceed to Step 93.
  - c. If Peripheral Pulse Evaluation Date equals a Non Unable to Determine Value, continue processing and proceed to Peripheral Pulse Evaluation Time.
81. Check Peripheral Pulse Evaluation Time
- a. If Peripheral Pulse Evaluation Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Peripheral Pulse Evaluation Time equals Unable to Determine, continue processing and proceed to Step 93.
  - c. If Peripheral Pulse Evaluation Time equals a Non Unable to Determine Value, continue processing and proceed to Peripheral Pulse Time calculation.
82. Calculate Peripheral Pulse Time. Peripheral Pulse Time, in minutes, is equal to the Peripheral Pulse Evaluation Date and Peripheral Pulse Evaluation Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
83. Check Peripheral Pulse Time
- a. If Peripheral Pulse Time is greater than 360 minutes, continue processing and proceed to Step 93.
  - b. If Peripheral Pulse Time is less than or equal to 360 minutes, continue processing and proceed to Peripheral Pulse Fluid Time calculation.
84. Calculate Peripheral Pulse Fluid Time. Peripheral Pulse Fluid Time, in minutes, is equal to the Peripheral Pulse Evaluation Date and Peripheral Pulse Evaluation Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.
85. Check Peripheral Pulse Fluid Time
- a. If Peripheral Pulse Fluid Time is less than 0 minutes, continue processing and proceed to Step 93.

- b. If Peripheral Pulse Fluid Time is greater than or equal to 0 minutes, continue processing and proceed to Skin Examination Performed.
86. Check Skin Examination Performed
- a. If Skin Examination Performed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Skin Examination Performed equals 2, continue processing and proceed to Step 93.
  - c. If Skin Examination Performed equals 1, continue processing and proceed to Skin Examination Date.
87. Check Skin Examination Date
- a. If Skin Examination Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Skin Examination Date equals Unable to Determine, continue processing and proceed to Step 93.
  - c. If Skin Examination Date equals a Non Unable to Determine Value, continue processing and proceed to Skin Examination Time.
88. Check Skin Examination Time
- a. If Skin Examination Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Skin Examination Time equals Unable to Determine, continue processing and proceed to Step 93.
  - c. If Skin Examination Time equals a Non Unable to Determine Value, continue processing and proceed to Skin Exam Time calculation.
89. Calculate Skin Exam Time. Skin Exam Time, in minutes, is equal to the Skin Examination Date and Skin Examination Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
90. Check Skin Exam Time
- a. If Skin Exam Time is greater than 360 minutes, continue processing and proceed to Step 93.
  - b. If Skin Exam Time is less than or equal to 360 minutes, continue processing and proceed to Skin Exam Fluid Time calculation.
91. Calculate Skin Exam Fluid Time. Skin Exam Fluid Time, in minutes, is equal to the Skin Examination Date and Skin Examination Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.
92. Check Skin Exam Fluid Time

- a. If Skin Exam Fluid Time is less than 0 minutes, continue processing and proceed to Step 93.
  - b. If Skin Exam Fluid Time is greater than or equal to 0 minutes, add 1 to the Shock Six Hour Counter, continue processing and proceed to step 132.
93. Check Central Venous Pressure Measurement
- a. If Central Venous Pressure Measurement is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Central Venous Pressure Measurement equals 2, continue processing and proceed to Step 100.
  - c. If Central Venous Pressure Measurement equals 1, continue processing and proceed to Central Venous Pressure Measurement Date.
94. Check Central Venous Pressure Measurement Date
- a. If Central Venous Pressure Measurement Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Central Venous Pressure Measurement Date equals Unable to Determine, continue processing and proceed to Step 100.
  - c. If Central Venous Pressure Measurement Date equals a Non Unable to Determine Value, continue processing and proceed to Central Venous Pressure Measurement Time.
95. Check Central Venous Pressure Measurement Time
- a. If Central Venous Pressure Measurement Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Central Venous Pressure Measurement Time equals Unable to Determine, continue processing and proceed to Step 100.
  - c. If Central Venous Pressure Measurement Time equals a Non Unable to Determine Value, continue processing and proceed to Central Venous Pressure Time calculation.
96. Calculate Central Venous Pressure Time. Central Venous Pressure Time, in minutes, is equal to the Central Venous Pressure Measurement Date and Central Venous Pressure Measurement Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
97. Check Central Venous Pressure Time

- a. If Central Venous Pressure Time is greater than 360 minutes, continue processing and proceed to Step 100.
  - b. If Central Venous Pressure Time is less than or equal to 360 minutes, continue processing and proceed to Central Venous Pressure Fluid Time calculation.
98. Calculate Central Venous Pressure Fluid Time. Central Venous Pressure Fluid Time, in minutes, is equal to the Central Venous Pressure Measurement Date and Central Venous Pressure Measurement Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.
99. Check Central Venous Pressure Fluid Time
- a. If Central Venous Pressure Fluid Time is less than 0 minutes, continue processing and proceed to Step 100.
  - b. If Central Venous Pressure Fluid Time is greater than or equal to 0 minutes, add 1 to the Shock Physical Assessment Six Hour Counter, continue processing and proceed to Central Venous Oxygen Measurement.
100. Check Central Venous Oxygen Measurement
- a. If Central Venous Oxygen Measurement is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Central Venous Oxygen Measurement equals 2, continue processing and proceed to Step 108.
  - c. If Central Venous Oxygen Measurement equals 1, continue processing and proceed to Central Venous Oxygen Measurement Date.
101. Check Central Venous Oxygen Measurement Date
- a. If Central Venous Oxygen Measurement Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Central Venous Oxygen Measurement Date equals Unable to Determine, continue processing and proceed to Step 108.
  - c. If Central Venous Oxygen Measurement Date equals a Non Unable to Determine Value, continue processing and proceed to Central Venous Oxygen Measurement Time.
102. Check Central Venous Oxygen Measurement Time

- a. If Central Venous Oxygen Measurement Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Central Venous Oxygen Measurement Time equals Unable to Determine, continue processing and proceed to Step 108.
  - c. If Central Venous Oxygen Measurement Time equals a Non Unable to Determine Value, continue processing and proceed to Central Venous Oxygen Time calculation.
103. Calculate Central Venous Oxygen Time. Central Venous Oxygen Time, in minutes, is equal to the Central Venous Oxygen Measurement Date and Central Venous Oxygen Measurement Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
104. Check Central Venous Oxygen Time
- a. If Central Venous Oxygen Time is greater than 360 minutes, continue processing and proceed to Step 108.
  - b. If Central Venous Oxygen Time is less than or equal to 360 minutes, continue processing and proceed to Central Venous Oxygen Fluid Time calculation.
105. Calculate Central Venous Oxygen Fluid Time. Central Venous Oxygen Fluid Time, in minutes, is equal to the Central Venous Oxygen Measurement Date and Central Venous Oxygen Measurement Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.
106. Check Central Venous Oxygen Fluid Time
- a. If Central Venous Oxygen Fluid Time is less than 0 minutes, continue processing and proceed to Step 108.
  - b. If Central Venous Oxygen Fluid Time is greater than or equal to 0 minutes, add 1 to the Shock Physical Assessment Six Hour Counter, continue processing and proceed to Shock Physical Assessment Six Hour Counter.
107. Check Shock Physical Assessment Six Hour Counter
- a. If Shock Physical Assessment Six Hour Counter equals 2, add 1 to the Shock Six Hour Counter, continue processing and proceed to Step 132.
  - b. If Shock Physical Assessment Six Hour Counter is less than 2, continue processing and proceed to Bedside Cardiovascular Ultrasound Performed.
108. Check Bedside Cardiovascular Ultrasound Performed



- a. If Bedside Cardiovascular Ultrasound Performed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Bedside Cardiovascular Ultrasound Performed equals 2, continue processing and proceed to Step 116.
  - c. If Bedside Cardiovascular Ultrasound Performed equals 1, continue processing and proceed to Bedside Cardiovascular Ultrasound Date.
109. Check Bedside Cardiovascular Ultrasound Date
- a. If Bedside Cardiovascular Ultrasound Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Bedside Cardiovascular Ultrasound Date equals Unable to Determine, continue processing and proceed to Step 116.
  - c. If Bedside Cardiovascular Ultrasound Date equals a Non Unable to Determine Value, continue processing and proceed to Bedside Cardiovascular Ultrasound Time.
110. Check Bedside Cardiovascular Ultrasound Time
- a. If Bedside Cardiovascular Ultrasound Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Bedside Cardiovascular Ultrasound Time equals Unable to Determine, continue processing and proceed to Step 116.
  - c. If Bedside Cardiovascular Ultrasound Time equals a Non Unable to Determine Value, continue processing and proceed to Bedside Ultrasound Time calculation.
111. Calculate Bedside Ultrasound Time. Bedside Ultrasound Time, in minutes, is equal to the Bedside Cardiovascular Ultrasound Date and Bedside Cardiovascular Ultrasound Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
112. Check Bedside Ultrasound Time
- a. If Bedside Ultrasound Time is greater than 360 minutes, continue processing and proceed to Step 116.
  - b. If Bedside Ultrasound Time is less than or equal to 360 minutes, continue processing and proceed to Bedside Ultrasound Fluid Time calculation.
113. Calculate Bedside Ultrasound Fluid Time. Bedside Ultrasound Fluid Time, in minutes, is equal to the Bedside Cardiovascular Ultrasound Date and Bedside

Cardiovascular Ultrasound Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.

114. Check Bedside Ultrasound Fluid Time
  - a. If Bedside Ultrasound Fluid Time is less than 0 minutes, continue processing and proceed to Step 116.
  - b. If Bedside Ultrasound Fluid Time is greater than or equal to 0 minutes, add 1 to the Shock Physical Assessment Six Hour Counter, continue processing and proceed to Shock Physical Assessment Six Hour Counter.
115. Check Shock Physical Assessment Six Hour Counter
  - a. If Shock Physical Assessment Six Hour Counter equals 2, add 1 to the Shock Six Hour Counter, continue processing and proceed to Step 132.
  - b. If Shock Physical Assessment Six Hour Counter is less than 2, continue processing and proceed to Passive Leg Raise Exam Performed.
116. Check Passive Leg Raise Exam Performed
  - a. If Passive Leg Raise Exam Performed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Passive Leg Raise Exam Performed equals 2, continue processing and proceed to Step 124.
  - c. If Passive Leg Raise Exam Performed equals 1, continue processing and proceed to Passive Leg Raise Exam Date.
117. Check Passive Leg Raise Exam Date
  - a. If Passive Leg Raise Exam Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Passive Leg Raise Exam Date equals Unable to Determine, continue processing and proceed to Step 124.
  - c. If Passive Leg Raise Exam Date equals a Non Unable to Determine Value, continue processing and proceed to Passive Leg Raise Exam Time.
118. Check Passive Leg Raise Exam Time
  - a. If Passive Leg Raise Exam Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Passive Leg Raise Exam Time equals Unable to Determine, continue processing and proceed to Step 124.

- c. If Passive Leg Raise Exam Time equals a Non Unable to Determine Value, continue processing and proceed to Passive Leg Raise Time calculation.
119. Calculate Passive Leg Raise Time. Passive Leg Raise Time, in minutes, is equal to the Passive Leg Raise Exam Date and Passive Leg Raise Exam Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
120. Check Passive Leg Raise Time
- a. If Passive Leg Raise Time is greater than 360 minutes, continue processing and proceed to Step 124.
  - b. If Passive Leg Raise Time is less than or equal to 360 minutes, continue processing and proceed to Passive Leg Raise Fluid Time calculation.
121. Calculate Passive Leg Raise Fluid Time. Passive Leg Raise Fluid Time, in minutes, is equal to the Passive Leg Raise Exam Date and Passive Leg Raise Exam Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.
122. Check Passive Leg Raise Fluid Time
- a. If Passive Leg Raise Fluid Time is less than 0 minutes, continue processing and proceed to Step 124.
  - b. If Passive Leg Raise Fluid Time is greater than or equal to 0 minutes, add 1 to the Shock Physical Assessment Six Hour Counter, continue processing and proceed to Shock Physical Assessment Six Hour Counter.
123. Check Shock Physical Assessment Six Hour Counter
- a. If Shock Physical Assessment Six Hour Counter equals 2, add 1 to the Shock Six Hour Counter, continue processing and proceed to Step 132.
  - b. If Shock Physical Assessment Six Hour Counter is less than 2, continue processing and proceed to Step 132.
124. Check Fluid Challenge Performed
- a. If Fluid Challenge Performed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Fluid Challenge Performed equals 2, continue processing and proceed to Step 132.
  - c. If Fluid Challenge Performed equals 1, continue processing and proceed to Fluid Challenge Date.
125. Check Fluid Challenge Date

- a. If Fluid Challenge Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Fluid Challenge Date equals Unable to Determine, continue processing and proceed to Step 132.
  - c. If Fluid Challenge Date equals a Non Unable to Determine Value, continue processing and proceed to Fluid Challenge Time.
126. Check Fluid Challenge Time
- a. If Fluid Challenge Time is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
  - b. If Fluid Challenge Time equals Unable to Determine, continue processing and proceed to Step 132.
  - c. If Fluid Challenge Time equals a Non Unable to Determine Value, continue processing and proceed to Fluid Shock Time calculation.
127. Calculate Fluid Shock Time. Fluid Shock Time, in minutes, is equal to the Fluid Challenge Date and Fluid Challenge Exam Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.
128. Check Fluid Shock Time
- a. If Fluid Shock Time is greater than 360 minutes, continue processing and proceed to Step 132.
  - b. If Fluid Shock Time is less than or equal to 360 minutes, continue processing and proceed to Fluid Challenge Fluid Time calculation.
129. Calculate Fluid Challenge Fluid Time. Fluid Challenge Fluid Time, in minutes, is equal to the Fluid Challenge Date and Fluid Challenge Time minus the Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time.
130. Check Fluid Challenge Fluid Time
- a. If Fluid Challenge Fluid Time is less than 0 minutes, continue processing and proceed to Step 132.
  - b. If Fluid Challenge Fluid Time is greater than or equal to 0 minutes, add 1 to the Shock Physical Assessment Six Hour Counter, continue processing and proceed to Shock Physical Assessment Six Hour Counter.
131. Check Shock Physical Assessment Six Hour Counter
- a. If Shock Physical Assessment Six Hour Counter equals 2, add 1 to the Shock Six Hour Counter, continue processing and proceed to Step 132.
  - b. If Shock Physical Assessment Six Hour Counter is less than 2, continue processing and proceed to Sepsis Three Hour Counter.

132. Check Sepsis Three Hour Counter
  - a. If Sepsis Three Hour Counter is less than 3, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - b. If Sepsis Three Hour Counter equals 3, continue processing and proceed to Initial Lactate Level Result.
133. Check Initial Lactate Level Result
  - a. If Initial Lactate Level Result equals 1, continue processing and proceed to Step 135.
  - b. If Initial Lactate Level Result equals 2 or 3, continue processing and proceed to Sepsis Six Hour Counter.
134. Check Sepsis Six Hour Counter
  - a. If Sepsis Six Hour Counter is less than 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - b. If Sepsis Six Hour Counter equals 1, continue processing and proceed to Septic Shock Present.
135. Check Septic Shock Present
  - a. If Septic Shock Present equals 2, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.
  - b. If Septic Shock Present equals 1, continue processing and proceed to Shock Three Hour Counter.
136. Check Shock Three Hour Counter
  - a. If Shock Three Hour Counter is less than 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - b. If Shock Three Hour Counter equals 1, continue processing and proceed to Persistent Hypotension.
137. Check Persistent Hypotension
  - a. If Persistent Hypotension equals 3 or 4, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - b. If Persistent Hypotension equals 1, continue processing and proceed to Step 139.

- c. If Persistent Hypotension equals 2, continue processing and proceed to Initial Lactate Level Result.
138. Check Initial Lactate Level Result
- a. If Initial Lactate Level Result equals 1 or 2, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.
  - b. If Initial Lactate Level Result equals 3, continue processing and proceed to Step 140.
139. Check Shock Vasopressor Six Hour Counter
- a. If Shock Vasopressor Six Hour Counter is less than 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - b. If Shock Vasopressor Six Hour Counter equals 1, continue processing and proceed to Shock Six Hour Counter.
140. Check Shock Six Hour Counter
- a. If Shock Six Hour Counter is less than 1, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
  - b. If Shock Six Hour Counter equals 1, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.