SEPSIS BUNDLE PROJECT (SEP)
NATIONAL HOSPITAL INPATIENT QUALITY MEASURES

SEP Measure Set Table

Set Measure ID #	Measure Short Name
SEP-1	Early Management Bundle, Severe Sepsis/Septic Shock

SEP DATA ELEMENT LIST

General Data Elements Table

Name	Collected For:
Admission Date	All Records
Birthdate	All Records
Discharge Date	All Records
First Name	All Records
Hispanic Ethnicity	All Records
ICD-10-CM Other Diagnosis Codes	All Records
ICD-10-CM Other Procedure Codes	All Records
ICD-10-CM Other Procedure Dates	All Records
ICD-10-CM Principal Diagnosis Code	All Records
ICD-10-CM Principal Procedure Code	All Records
ICD-10-CM Principal Procedure Date	All Records
Last Name	All Records
Patient HIC#	Collected by CMS for patients with a standard HIC #
Patient Identifier	All Records
Payment Source	All Records
Physician 1	Optional for All Records
Physician 2	Optional for All Records
Postal Code	All Records
Race	All Records
Sample	Used in transmission of the Joint Commission's aggregate data file and the Hospital Clinical Data file
Sex	All Records

Algorithm Output Data Element Table

Name	Collected For:
Measure Category Assignment	Used in the calculation of the Joint Commission's aggregate data and in the transmission of the Hospital Clinical Data file

SEP DATA ELEMENT LIST

SEP Data Elements Table

Name	Collected For:
Administrative Contraindication to Care, Septic Shock	SEP-1
Administrative Contraindication to Care, Severe Sepsis	SEP-1
Bedside Cardiovascular Ultrasound Date	SEP-1
Bedside Cardiovascular Ultrasound Performed	SEP-1
Bedside Cardiovascular Ultrasound Time	SEP-1
Blood Culture Collection	SEP-1
Blood Culture Collection Acceptable Delay	SEP-1
Blood Culture Collection Date	SEP-1
Blood Culture Collection Time	SEP-1
Broad Spectrum or Other Antibiotic Administration	SEP-1
Broad Spectrum or Other Antibiotic Administration Date	SEP-1
Broad Spectrum or Other Antibiotic Administration Selection	SEP-1
Broad Spectrum or Other Antibiotic Administration Time	SEP-1
Capillary Refill Examination Date	SEP-1
Capillary Refill Examination Performed	SEP-1
Capillary Refill Examination Time	SEP-1
Cardiopulmonary Evaluation Date	SEP-1
Cardiopulmonary Evaluation Performed	SEP-1
Cardiopulmonary Evaluation Time	SEP-1
Central Venous Oxygen Measurement	SEP-1
Central Venous Oxygen Measurement Date	SEP-1
Central Venous Oxygen Measurement Time	SEP-1
Central Venous Pressure Measurement	SEP-1
Central Venous Pressure Measurement Date	SEP-1
Central Venous Pressure Measurement Time	SEP-1
Crystalloid Fluid Administration	SEP-1
Crystalloid Fluid Administration Date	SEP-1
Crystalloid Fluid Administration Time	SEP-1
Directive for Comfort Care or Palliative Care, Septic Shock	SEP-1
Directive for Comfort Care or Palliative Care, Severe Sepsis	SEP-1
Discharge Disposition	SEP-1
Discharge Time	SEP-1
Documentation of Septic Shock	SEP-1
Fluid Challenge Date	SEP-1
Fluid Challenge Performed	SEP-1
Fluid Challenge Time	SEP-1
Initial Hypotension	SEP-1
Initial Lactate Level Collection	SEP-1
Initial Lactate Level Date	SEP-1
Initial Lactate Level Result	SEP-1
Initial Lactate Level Time	SEP-1
Passive Leg Raise Exam Date	SEP-1
Passive Leg Raise Exam Performed	SEP-1

SEP Data Elements Table

Name	Collected For:
Passive Leg Raise Exam Time	SEP-1
Peripheral Pulse Evaluation Date	SEP-1
Peripheral Pulse Evaluation Performed	SEP-1
Peripheral Pulse Evaluation Time	SEP-1
Persistent Hypotension	SEP-1
Repeat Lactate Level Collection	SEP-1
Repeat Lactate Level Date	SEP-1
Repeat Lactate Level Time	SEP-1
Septic Shock Present	SEP-1
Septic Shock Presentation Date	SEP-1
Septic Shock Presentation Time	SEP-1
Severe Sepsis Present	SEP-1
Severe Sepsis Presentation Date	SEP-1
Severe Sepsis Presentation Time	SEP-1
Skin Examination Date	SEP-1
Skin Examination Performed	SEP-1
Skin Examination Time	SEP-1
Transfer From Another Hospital or ASC	SEP-1
Vasopressor Administration	SEP-1
Vasopressor Administration Date	SEP-1
Vasopressor Administration Time	SEP-1
Vital Signs Review Date	SEP-1
Vital Signs Review Performed	SEP-1
Vital Signs Review Time	SEP-1

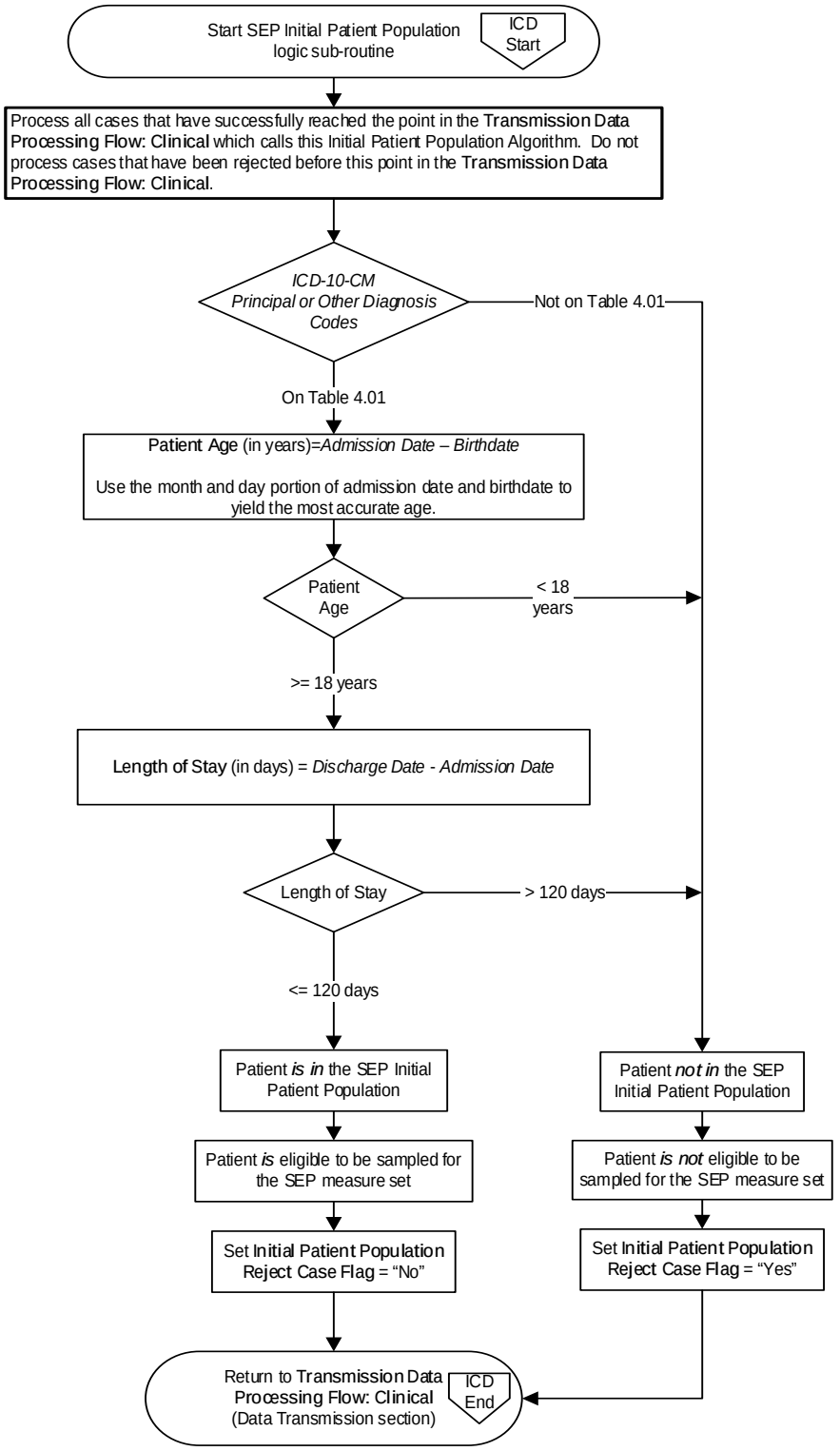
Sepsis (SEP) Initial Patient Population

The population of the SEP measure set is identified using 5 data elements:

- *ICD-10-CM Principal Diagnosis Code*
- *ICD-10-CM Other Diagnosis Codes*
- *Admission Date*
- *Birthdate*
- *Discharge Date*

Patients admitted to the hospital for inpatient acute care with an *ICD-10-CM Principal or Other Diagnosis Code* for SEP as defined in Appendix A, Table 4.01, a Patient Age (*Admission Date* minus *Birthdate*) greater than or equal to 18 years, and a Length of Stay (*Discharge Date* minus *Admission Date*) less than or equal to 120 days are included in the SEP Initial Patient Population and are eligible to be sampled.

Sepsis Initial Patient Population Algorithm



Variable Key:
Patient Age
Initial Patient Population Reject Case Flag
Length of Stay

Algorithm Narrative
Sepsis (SEP) Initial Patient Population

Variable Key: Patient Age, Initial Patient Population Reject Case Flag, and Length of Stay

1. Start SEP Initial Patient Population logic sub-routine. Process all cases that have successfully reached the point in the Transmission Data Processing Flow: Clinical which calls this Initial Patient Population Algorithm. Do not process cases that have been rejected before this point in the Transmission Data Processing Flow: Clinical.
2. Check ICD-10-CM Principal or Other Diagnosis Codes
    a. If the ICD-10-CM Principal or Other Diagnosis Codes is not on Table 4.01, the patient is not in the SEP Initial Patient Population and is not eligible to be sampled for the SEP measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
    b. If the ICD-10-CM Principal or Other Diagnosis Codes is on Table 4.01, continue processing and proceed to the patient age calculation.
3. Calculate Patient Age. Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age.
4. Check Patient Age
    a. If the Patient Age is less than 18 years, the patient is not in the SEP Initial Patient Population and is not eligible to be sampled for the SEP measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
    b. If the Patient Age is greater than or equal to 18 years, continue processing and proceed to Length of Stay Calculation.
5. Calculate the Length of Stay. Length of Stay, in days, is equal to the Discharge Date minus the Admission Date.
6. Check Length of Stay
    a. If the Length of Stay is greater than 120 days, the patient is not in the SEP Initial Patient Population and is not eligible to be sampled for the SEP measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
    b. If the Length of Stay is less than or equal to 120 days, the patient is in the SEP Initial Patient Population and is eligible to be sampled for the SEP measure set. Set Initial Patient Population Reject Case Flag to equal No. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

Sepsis Sample Size Requirements

Hospitals that choose to sample have the option of sampling quarterly or sampling monthly. A hospital may choose to use a larger sample size than is required. Hospitals whose Initial Patient Population size is less than the minimum number of cases per quarter/month cannot sample. Hospitals that have five or fewer sepsis discharges for the entire measure set (both Medicare and non-Medicare combined) in a quarter are not required, but are encouraged to submit sepsis patient level data to the CMS Clinical Warehouse.

Regardless of the option used, hospital samples must be monitored to ensure that sampling procedures consistently produce statistically valid and useful data. Due to exclusions, hospitals selecting sample cases MUST submit AT LEAST the minimum required sample size.

The following sample size tables for each option automatically build in the number of cases needed to obtain the required sample sizes. For information concerning how to perform sampling, refer to the Population and Sampling Specifications section in this manual.

Quarterly Sampling

Hospitals selecting sample cases for the sepsis measure must ensure that the population and quarterly sample size meets the following conditions:

Quarterly Sample Size
Based on Hospital's Initial Patient Population Size for the Sepsis Measure

Average Quarterly Initial Patient Population Size *"N"*	Minimum Required Sample Size *"n"*
≥ 301	60
151 - 300	20% of Initial Patient Population size
30 - 150	30
6 - 29	No sampling; 100% Initial Patient Population required
0 - 5	Submission of patient level data is encouraged but not required. If submission occurs, 1 – 5 cases of the Initial Patient Population may be submitted

Monthly Sampling

Hospitals selecting sample cases for the sepsis measure must ensure that the population and monthly sample size meets the following conditions:

Monthly Sample Size
Based on Hospital's Initial Patient Population Size for the Sepsis Measure

Average Monthly Initial Patient Population Size *"N"*	Minimum Required Sample Size *"n"*
≥ 101	20
51 - 100	20% of Initial Patient Population size
10 - 50	10
< 10	No sampling; 100% Initial Patient Population required

Sample Size Examples

Note:

All of the sepsis measure's specific exclusion criteria are used to filter out cases that do not belong in the measure denominator.

- *Quarterly Sampling*:

  When applicable, larger hospitals must also abide by the required quarterly sample sizes with a minimum of 30 required sample cases when the Initial Patient Population size is 30 or greater.

  - The sepsis Initial Patient Population size for a hospital is 405 patients for the quarter. Since the total Initial Patient Population is greater than 5, the hospital must submit patient level data. The required quarterly sample size would be 60 cases.
  - The sepsis Initial Patient Population size for a hospital is 5 patients for the quarter. Since the total Initial Patient Population is 5, the hospital may choose to not submit patient level data. If the hospital chooses to submit patient level data, the quarterly sample size for each would be 1 - 5 cases.

- *Monthly Sampling*:

  When applicable, larger hospitals must also abide by the required monthly sample sizes with a minimum of 10 required sample cases when the Initial Patient Population size is 10 or greater.

  - The sepsis Initial Patient Population sizes for a hospital are 6, 49, and 75 patients respectively for July, August, and September. The required monthly sample sizes would be 6, 10, and 15 respectively for July, August, and September.

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.

A principle of sepsis care is that clinicians must rapidly treat patients with an unknown causative organism and unknown antibiotic susceptibility. Since patients with severe sepsis have little margin for error regarding antimicrobial therapy, initial treatment should be broad spectrum to cover all likely pathogens. As soon as the causative organism is identified, based on subsequent culture and susceptibility testing, de-escalation is encouraged by selecting the most appropriate antimicrobial therapy to cover the identified pathogen, safely and cost effectively (Dellinger, 2012).

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 and Rhodes, 2015). 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 >= 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:
None

Data Elements:

- *Bedside Cardiovascular Ultrasound Date*
- *Bedside Cardiovascular Ultrasound Performed*
- *Bedside Cardiovascular Ultrasound Time*
- *Blood Culture Collection*
- *Blood Culture Collection Acceptable Delay*

- *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*
- *Documentation of Septic Shock*
- *Fluid Challenge Date*
- *Fluid Challenge Performed*
- *Fluid Challenge Time*
- *Initial Hypotension*
- *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 or Palliative Care within 3 hours of presentation of severe sepsis
- Directive for Comfort Care or Palliative Care within 6 hours of presentation of septic shock
- Administrative contraindication to care within 6 hours of presentation of severe sepsis
- Administrative contraindication to care within 6 hours of presentation of septic shock
- Length of Stay >120 days
- Transfer in from another acute care facility
- Patients with severe sepsis who are discharged within 6 hours of presentation
- Patients with septic shock who are discharged within 6 hours of presentation
- Patients receiving IV antibiotics for more than 24 hours prior to presentation of severe sepsis.

Data Elements:

- *Administrative Contraindication to Care, Septic Shock*
- *Administrative Contraindication to Care, Severe Sepsis*
- *Admission Date*
- *Birthdate*
- *Directive for Comfort Care or Palliative Care, Septic Shock*
- *Directive for Comfort Care or Palliative 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:

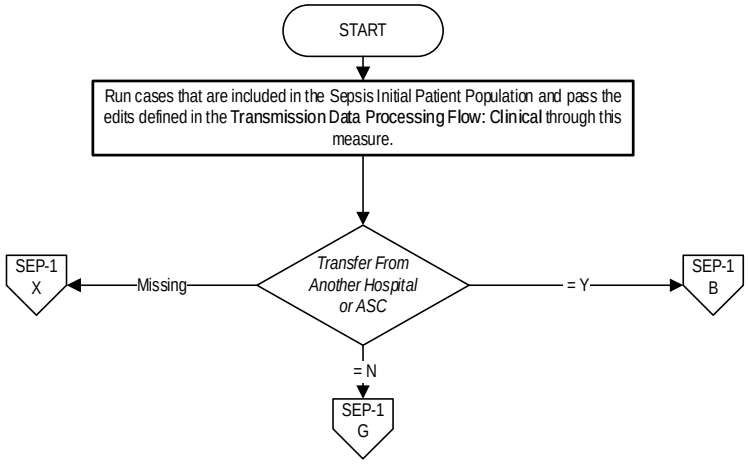
- Vasopressors

AND ONLY if hypotension persists after fluid administration or initial lactate >= 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

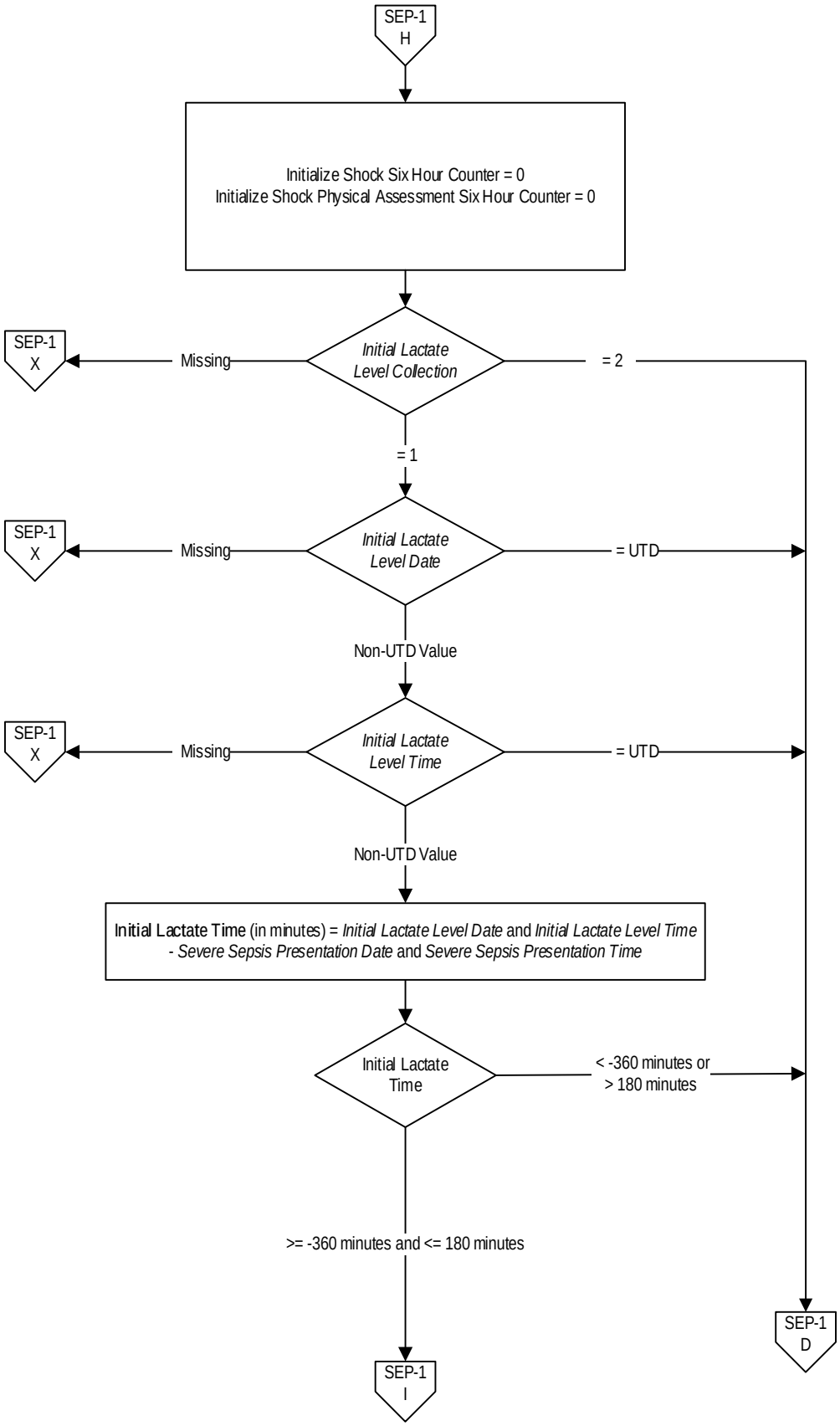
      OR
  - Any two of the following four:
    - Central venous pressure measurement
    - Central venous oxygen measurement
    - Bedside cardiovascular ultrasound
    - Passive leg raise or fluid challenge

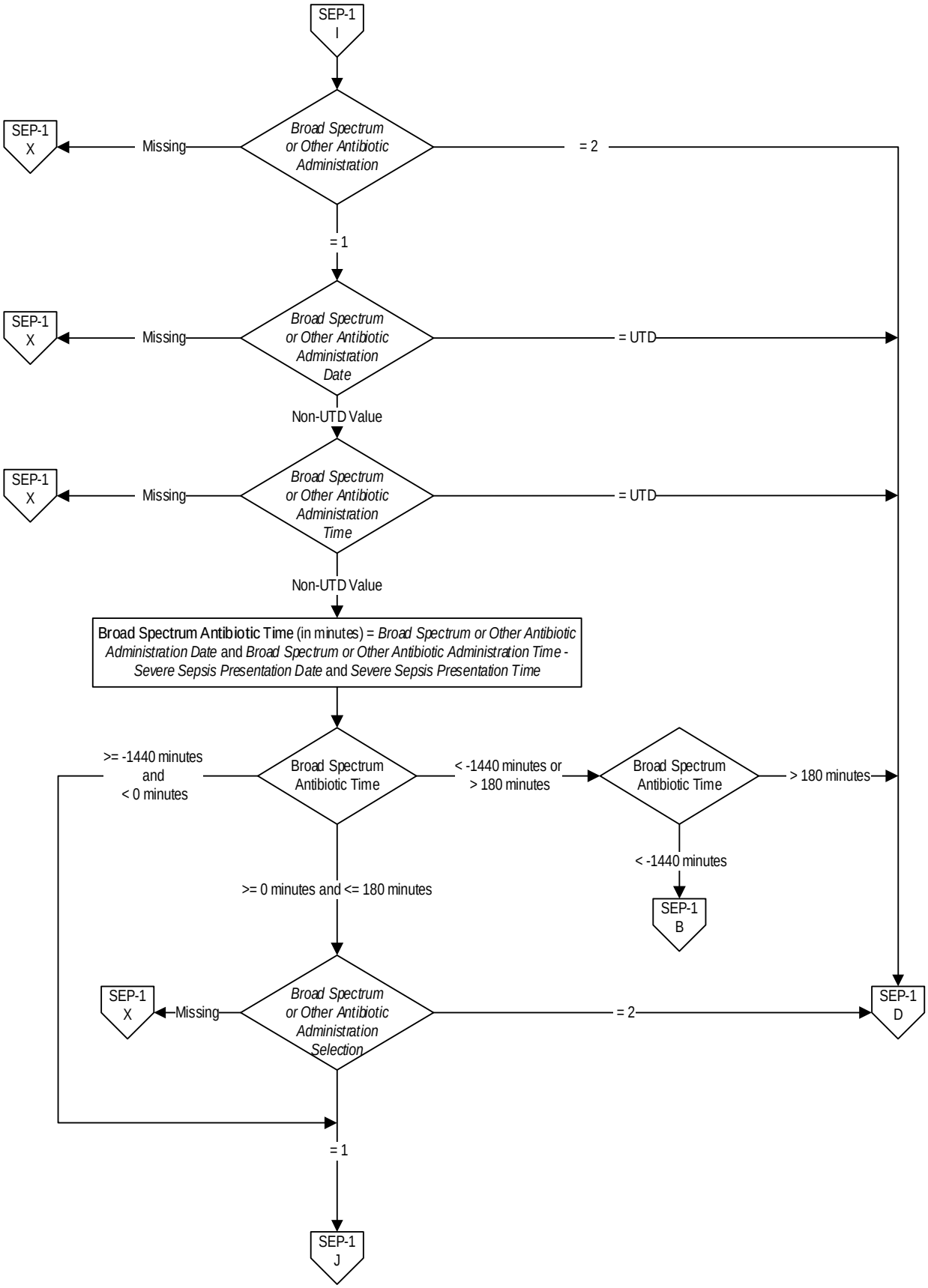
Denominator: Inpatients age 18 and over with an ICD-10-CM Principal or Other Diagnosis Code of Sepsis, Severe Sepsis or Septic Shock as defined in Appendix A, Table 4.01

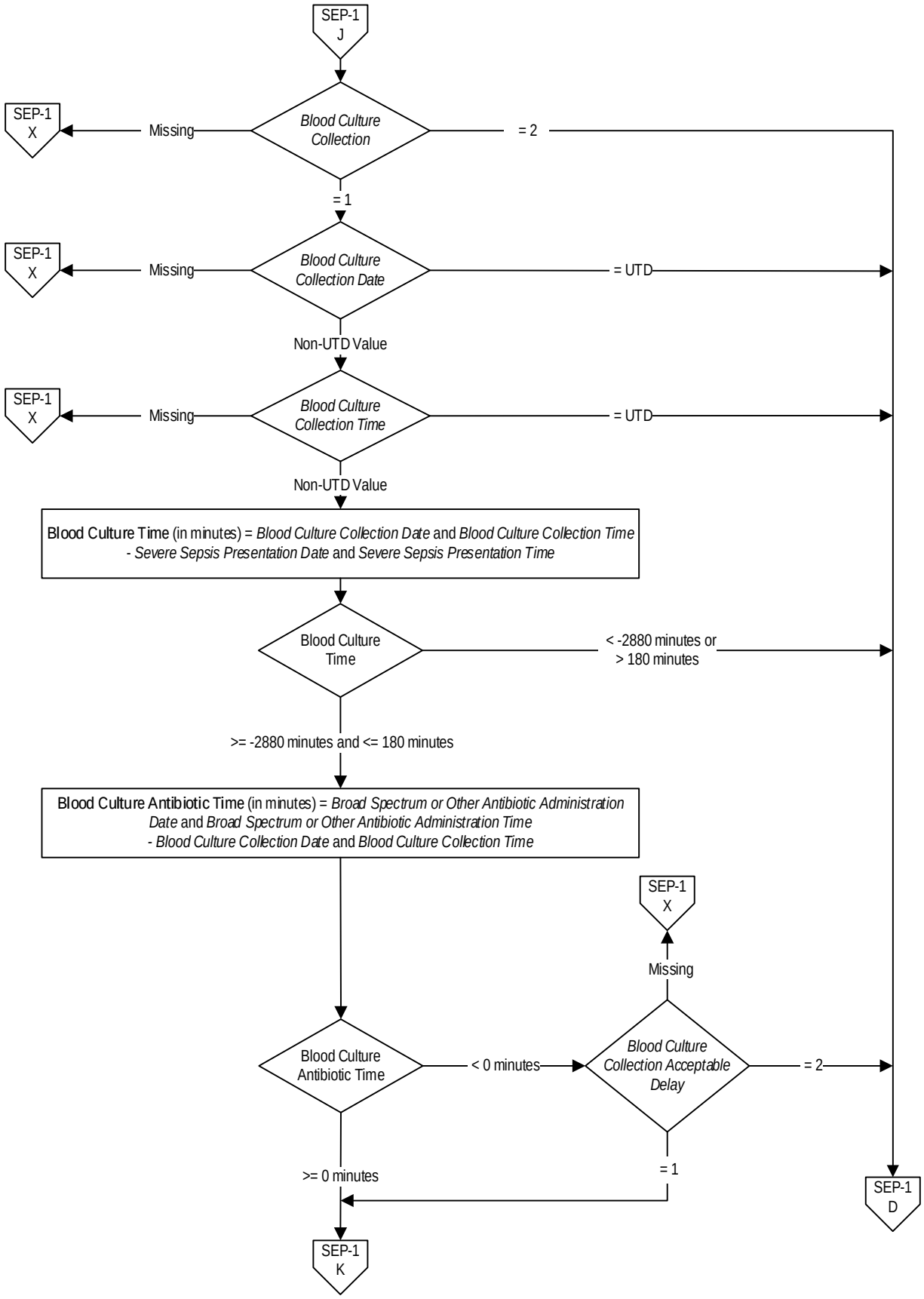


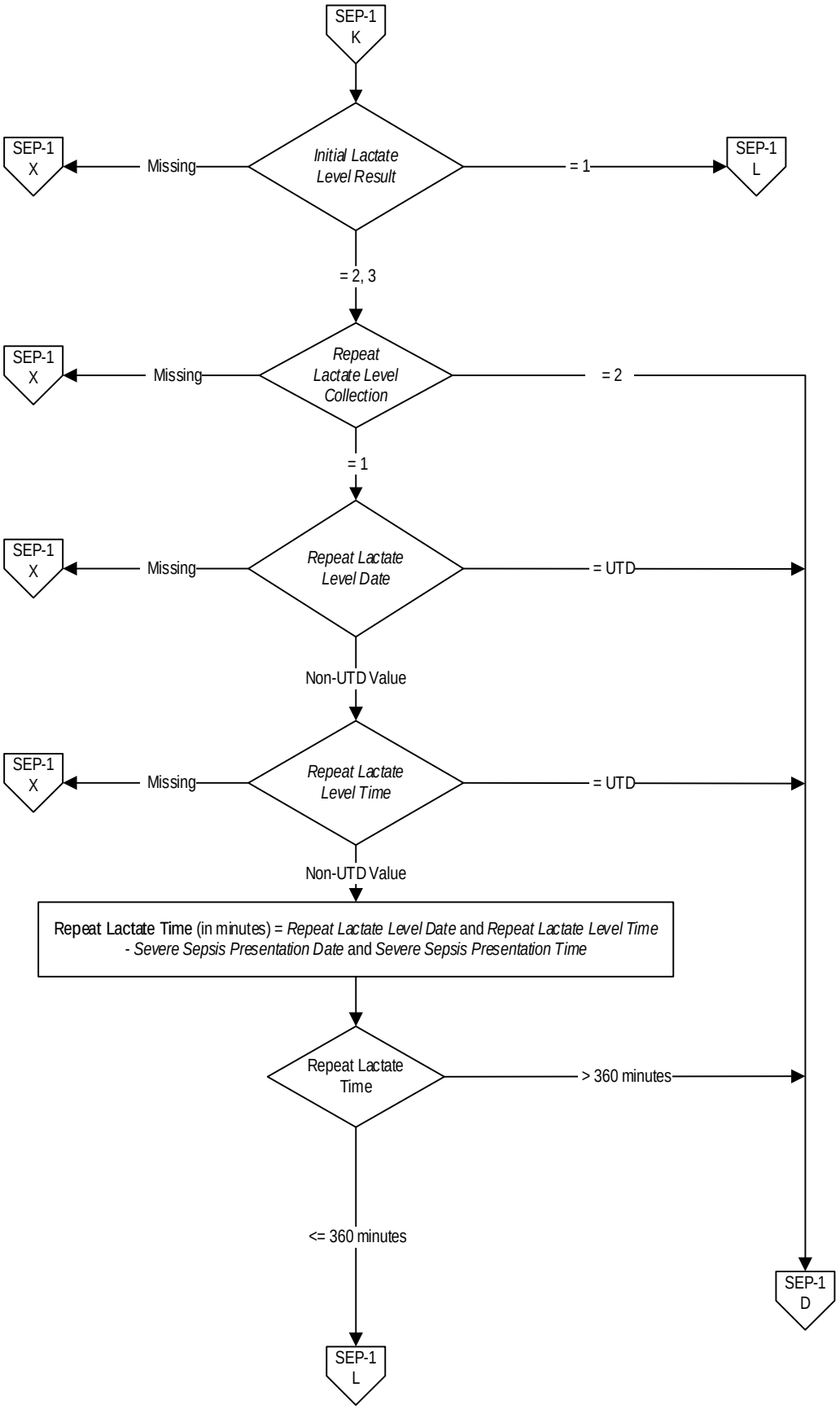
Variable Key:
Sepsis Discharge Time
Shock Discharge Time
Shock Six Hour Counter
Shock Physical Assessment Six Hour Counter
Initial Lactate Time
Broad Spectrum Antibiotic Time
Blood Culture Time
Blood Culture Antibiotic Time
Repeat Lactate Time
Shock Presentation Time
Crystalloid Fluid Admin Time
Vasopressor 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

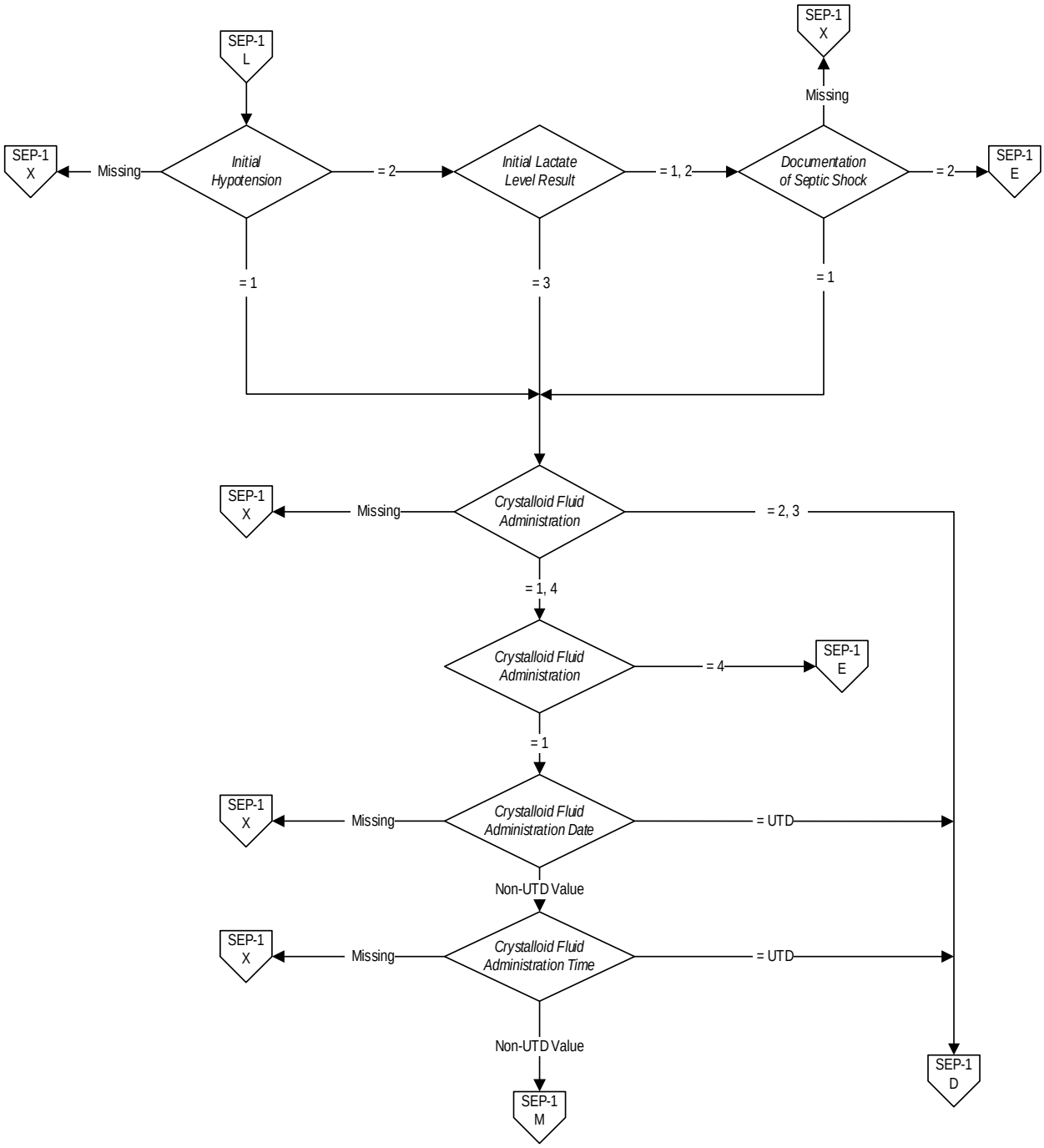

SEP-1 G
Severe Sepsis Present
Missing
SEP-1 X
= 2
SEP-1 B
= 1
Severe Sepsis Presentation Date
Missing
SEP-1 X
= UTD
SEP-1 D
Non-UTD Value
Severe Sepsis Presentation Time
Missing
SEP-1 X
= UTD
SEP-1 D
Non-UTD Value
Administrative Contraindication to Care, Severe Sepsis
Missing
SEP-1 X
= 1
SEP-1 B
= 2
Directive for Comfort Care or Palliative Care, Severe Sepsis
Missing
SEP-1 X
=1
SEP-1 B
= 2
Discharge Disposition
Missing
SEP-1 X
= 1, 2, 3, 4, 5, 6, 7
Discharge Time
Missing
SEP-1 X
= UTD
SEP-1 D
Non-UTD Value
Sepsis Discharge Time (in minutes) = Discharge Date and Discharge Time - Severe Sepsis Presentation Date and Severe Sepsis Presentation Time
Sepsis Discharge Time
< 0 minutes
SEP-1 X
>= 0 minutes and <= 360 minutes
SEP-1 B
= 8
> 360 minutes
SEP-1 H

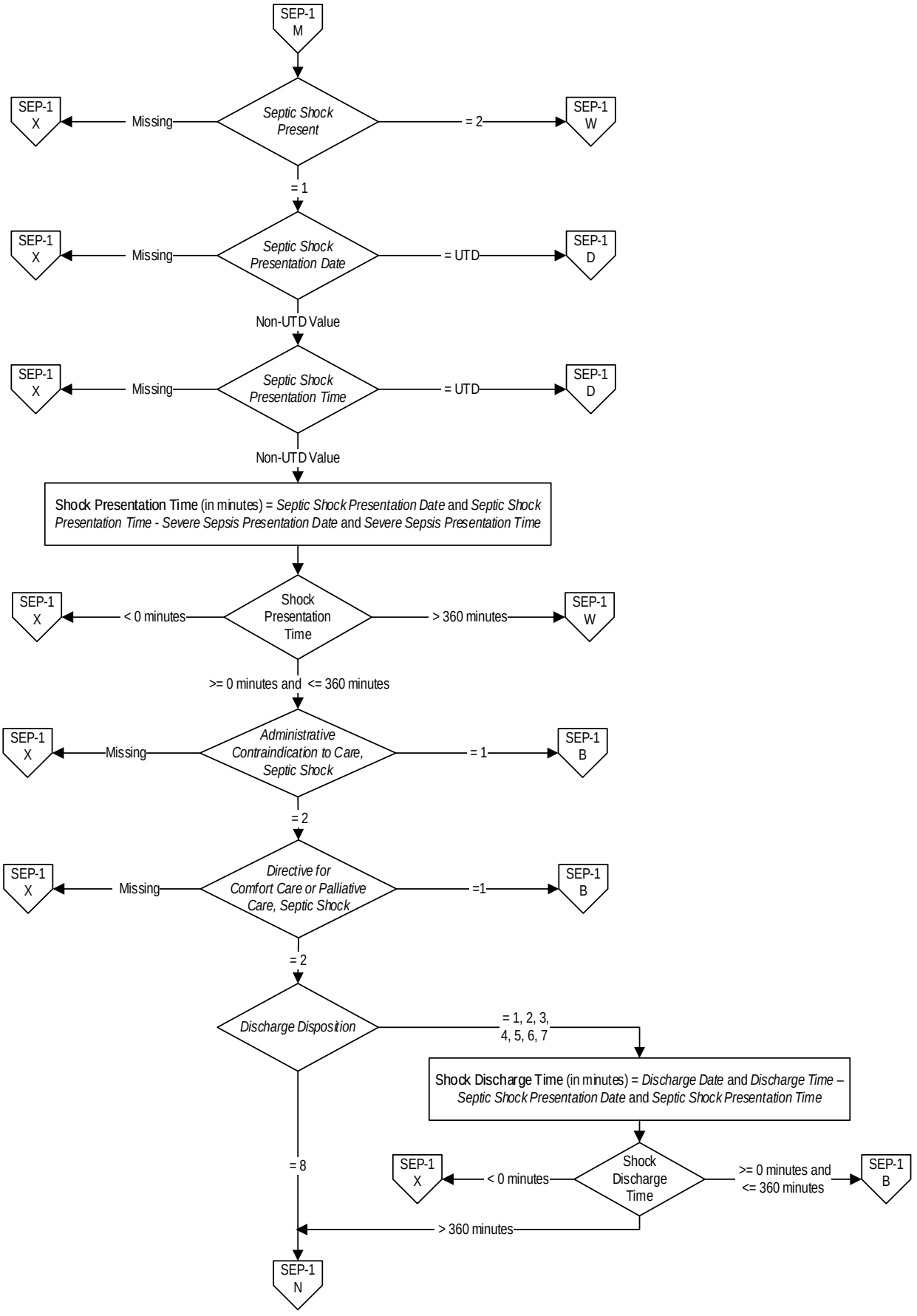

SEP-1 H
Initialize Shock Six Hour Counter = 0
Initialize Shock Physical Assessment Six Hour Counter = 0
Initial Lactate Level Collection
Missing
SEP-1 X
= 2
= 1
Initial Lactate Level Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Initial Lactate Level Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Initial Lactate Time (in minutes) = Initial Lactate Level Date and Initial Lactate Level Time - Severe Sepsis Presentation Date and Severe Sepsis Presentation Time
Initial Lactate Time
< -360 minutes or > 180 minutes
>= -360 minutes and <= 180 minutes
SEP-1 D
SEP-1 I

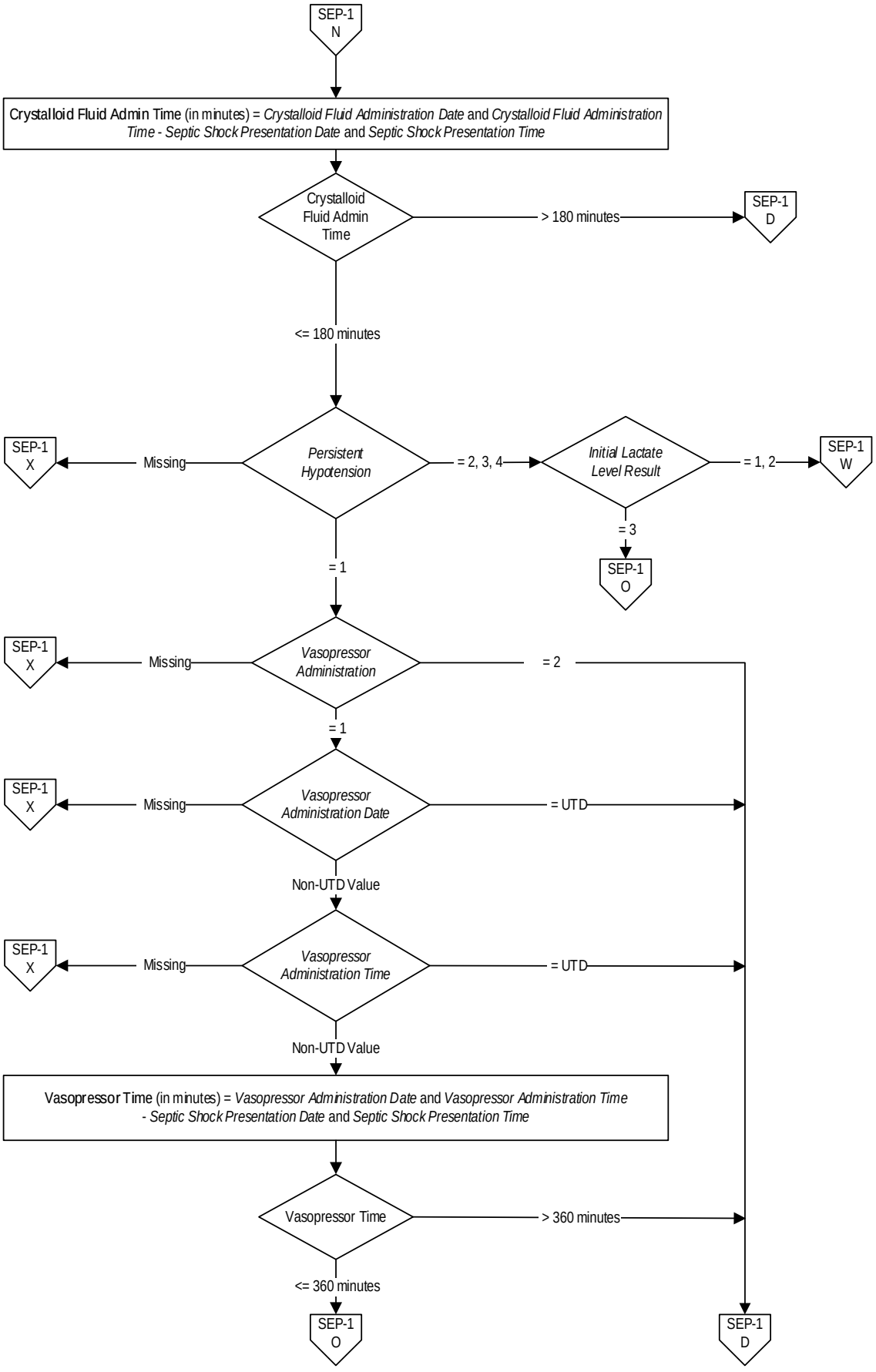

SEP-1 I
Broad Spectrum or Other Antibiotic Administration
Missing
SEP-1 X
= 2
= 1
Broad Spectrum or Other Antibiotic Administration Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Broad Spectrum or Other Antibiotic Administration Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Broad Spectrum Antibiotic Time (in minutes) = Broad Spectrum or Other Antibiotic Administration Date and Broad Spectrum or Other Antibiotic Administration Time - Severe Sepsis Presentation Date and Severe Sepsis Presentation Time
Broad Spectrum Antibiotic Time
>= -1440 minutes and < 0 minutes
< -1440 minutes or > 180 minutes
Broad Spectrum Antibiotic Time
> 180 minutes
< -1440 minutes
SEP-1 B
>= 0 minutes and <= 180 minutes
Broad Spectrum or Other Antibiotic Administration Selection
Missing
SEP-1 X
= 2
SEP-1 D
= 1
SEP-1 J

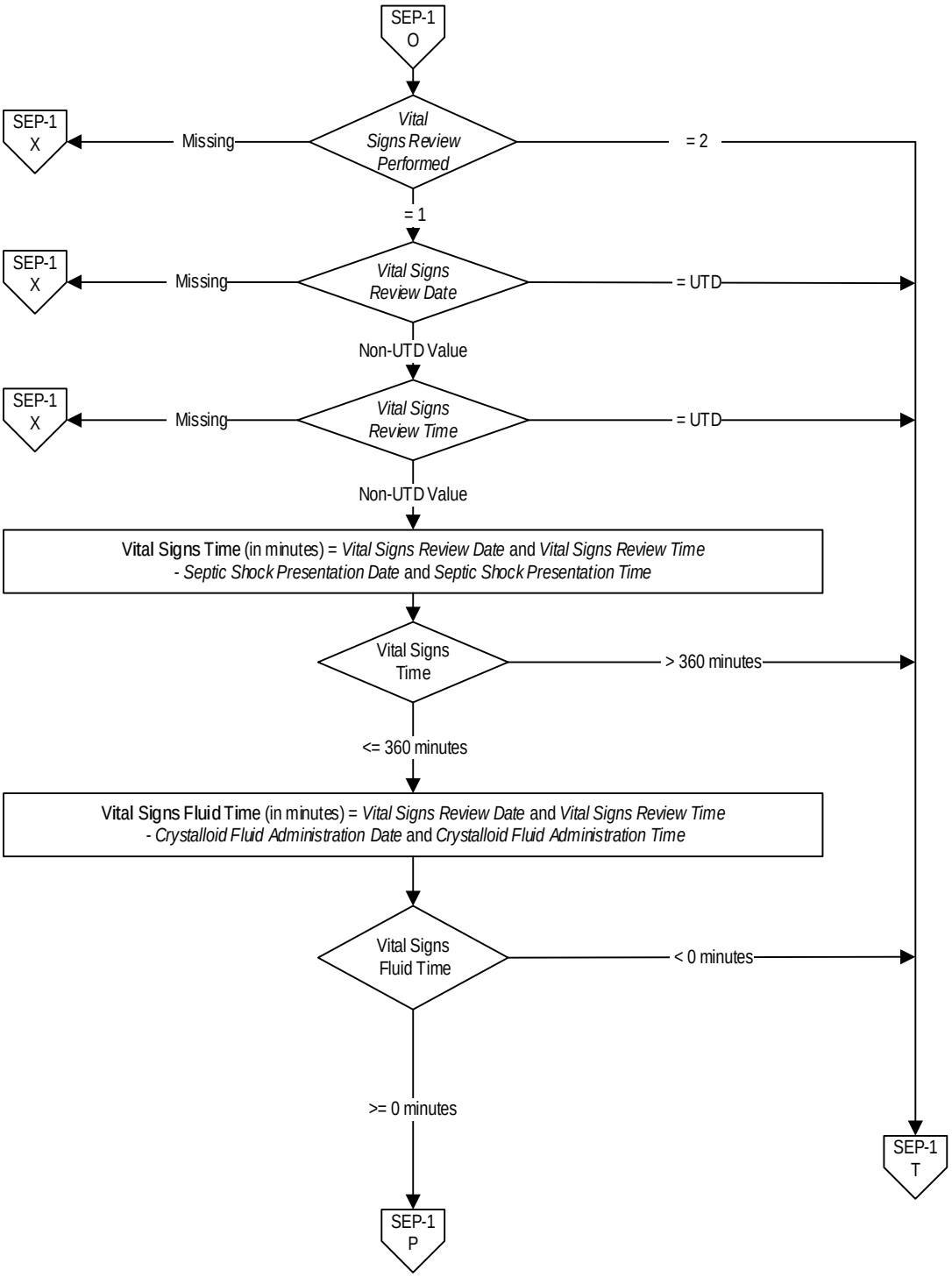

SEP-1 J
Blood Culture Collection
Missing
SEP-1 X
= 2
= 1
Blood Culture Collection Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Blood Culture Collection Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Blood Culture Time (in minutes) = Blood Culture Collection Date and Blood Culture Collection Time - Severe Sepsis Presentation Date and Severe Sepsis Presentation Time
Blood Culture Time
< -2880 minutes or > 180 minutes
>= -2880 minutes and <= 180 minutes
Blood Culture Antibiotic Time (in minutes) = Broad Spectrum or Other Antibiotic Administration Date and Broad Spectrum or Other Antibiotic Administration Time - Blood Culture Collection Date and Blood Culture Collection Time
SEP-1 X
Missing
Blood Culture Antibiotic Time
< 0 minutes
Blood Culture Collection Acceptable Delay
= 2
= 1
>= 0 minutes
SEP-1 D
SEP-1 K

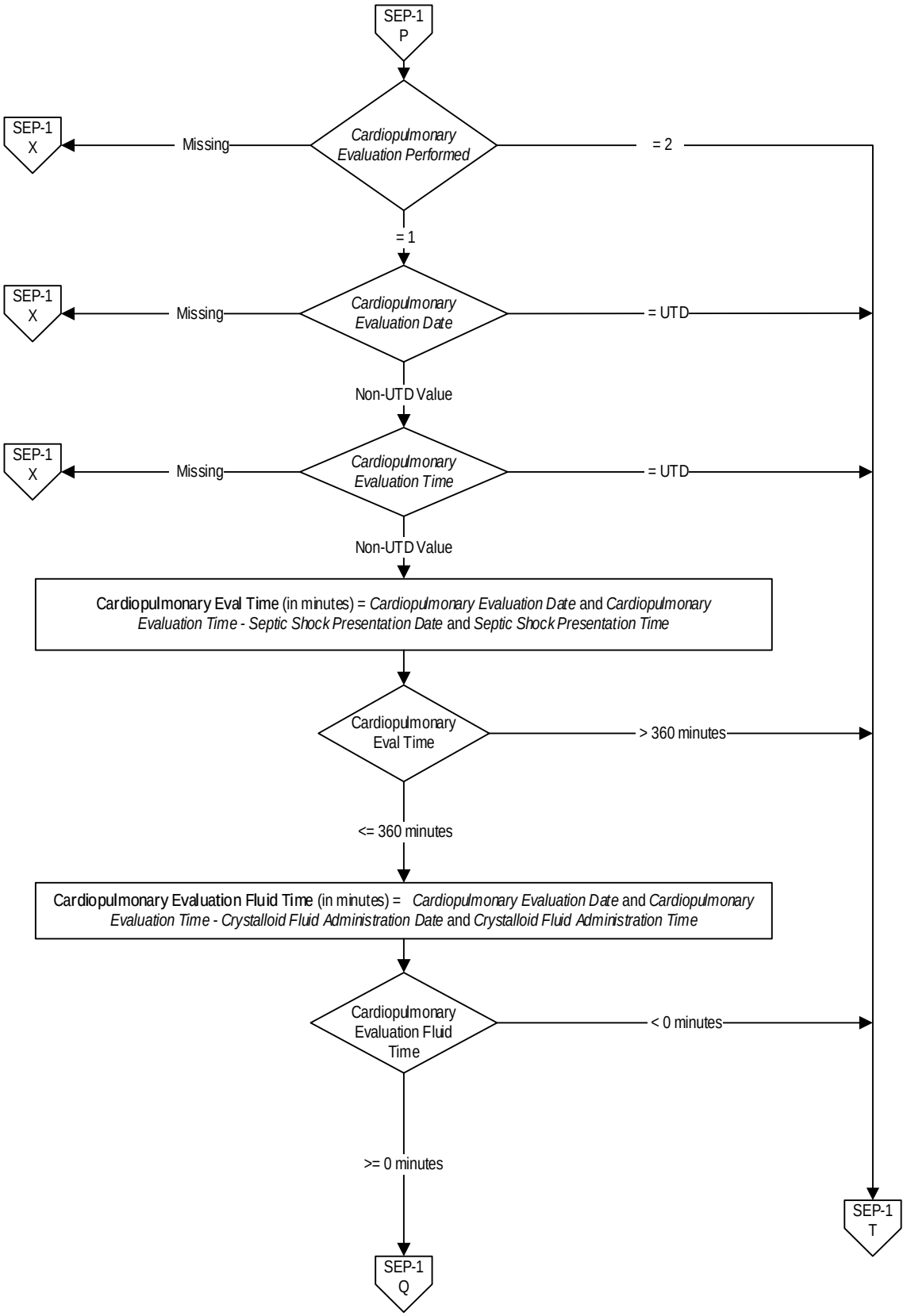

SEP-1 K
Initial Lactate Level Result
Missing
SEP-1 X
= 1
SEP-1 L
= 2, 3
Repeat Lactate Level Collection
Missing
SEP-1 X
= 2
= 1
Repeat Lactate Level Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Repeat Lactate Level Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Repeat Lactate Time (in minutes) = Repeat Lactate Level Date and Repeat Lactate Level Time - Severe Sepsis Presentation Date and Severe Sepsis Presentation Time
Repeat Lactate Time
> 360 minutes
<= 360 minutes
SEP-1 D
SEP-1 L

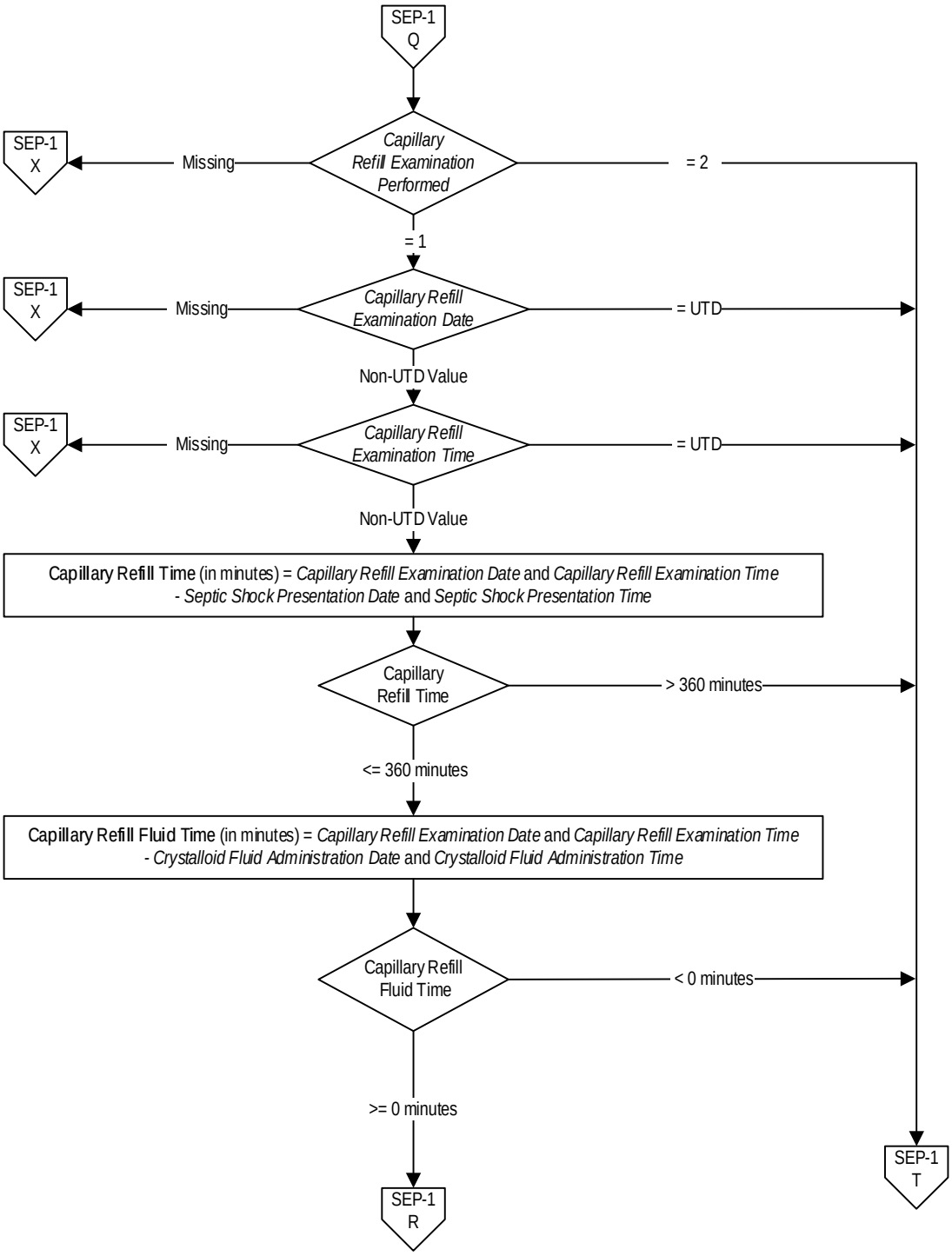

SEP-1 L
SEP-1 X
Missing
Initial Hypotension
= 2
Initial Lactate Level Result
= 1, 2
Documentation of Septic Shock
= 2
SEP-1 E
= 1
= 3
= 1
Crystalloid Fluid Administration
= 2, 3
= 1, 4
= 4
= 1
Crystalloid Fluid Administration Date
= UTD
Non-UTD Value
Crystalloid Fluid Administration Time
SEP-1 D
SEP-1 M

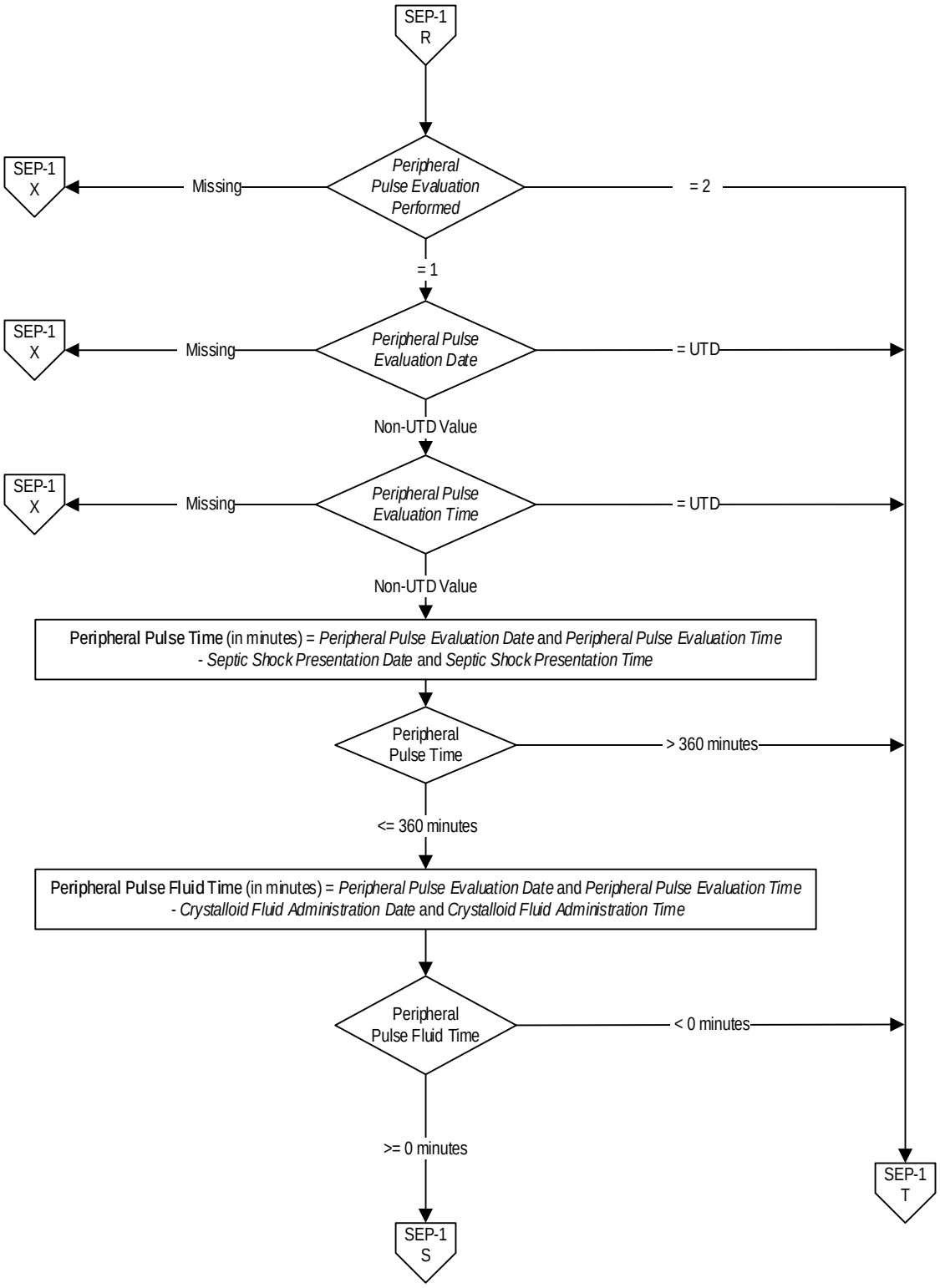

SEP-1 M
Septic Shock Present
Missing
SEP-1 X
= 2
SEP-1 W
= 1
Septic Shock Presentation Date
Missing
SEP-1 X
= UTD
SEP-1 D
Non-UTD Value
Septic Shock Presentation Time
Missing
SEP-1 X
= UTD
SEP-1 D
Non-UTD Value
Shock Presentation Time (in minutes) = Septic Shock Presentation Date and Septic Shock Presentation Time - Severe Sepsis Presentation Date and Severe Sepsis Presentation Time
Shock Presentation Time
< 0 minutes
SEP-1 X
> 360 minutes
SEP-1 W
>= 0 minutes and <= 360 minutes
Administrative Contraindication to Care, Septic Shock
Missing
SEP-1 X
= 1
SEP-1 B
= 2
Directive for Comfort Care or Palliative Care, Septic Shock
Missing
SEP-1 X
=1
SEP-1 B
= 2
Discharge Disposition
= 1, 2, 3, 4, 5, 6, 7
Shock Discharge Time (in minutes) = Discharge Date and Discharge Time – Septic Shock Presentation Date and Septic Shock Presentation Time
Shock Discharge Time
< 0 minutes
SEP-1 X
>= 0 minutes and <= 360 minutes
SEP-1 B
> 360 minutes
= 8
SEP-1 N

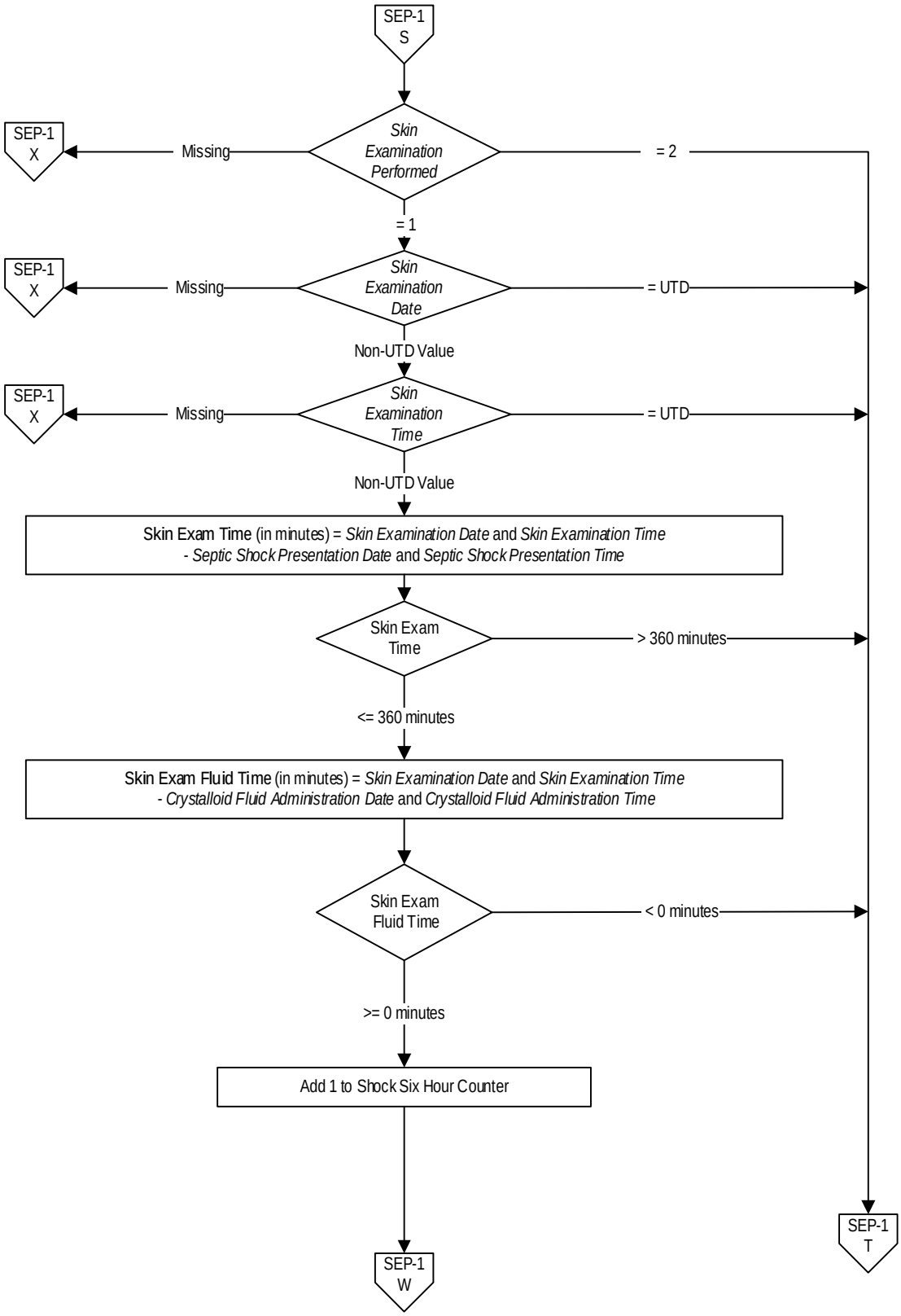

SEP-1 N
Crystalloid Fluid Admin Time (in minutes) = Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Crystalloid Fluid Admin Time
> 180 minutes
SEP-1 D
<= 180 minutes
SEP-1 X
Missing
Persistent Hypotension
= 2, 3, 4
Initial Lactate Level Result
= 1, 2
SEP-1 W
= 3
SEP-1 O
= 1
SEP-1 X
Missing
Vasopressor Administration
= 2
= 1
SEP-1 X
Missing
Vasopressor Administration Date
= UTD
Non-UTD Value
SEP-1 X
Missing
Vasopressor Administration Time
= UTD
Non-UTD Value
Vasopressor Time (in minutes) = Vasopressor Administration Date and Vasopressor Administration Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Vasopressor Time
> 360 minutes
<= 360 minutes
SEP-1 O
SEP-1 D

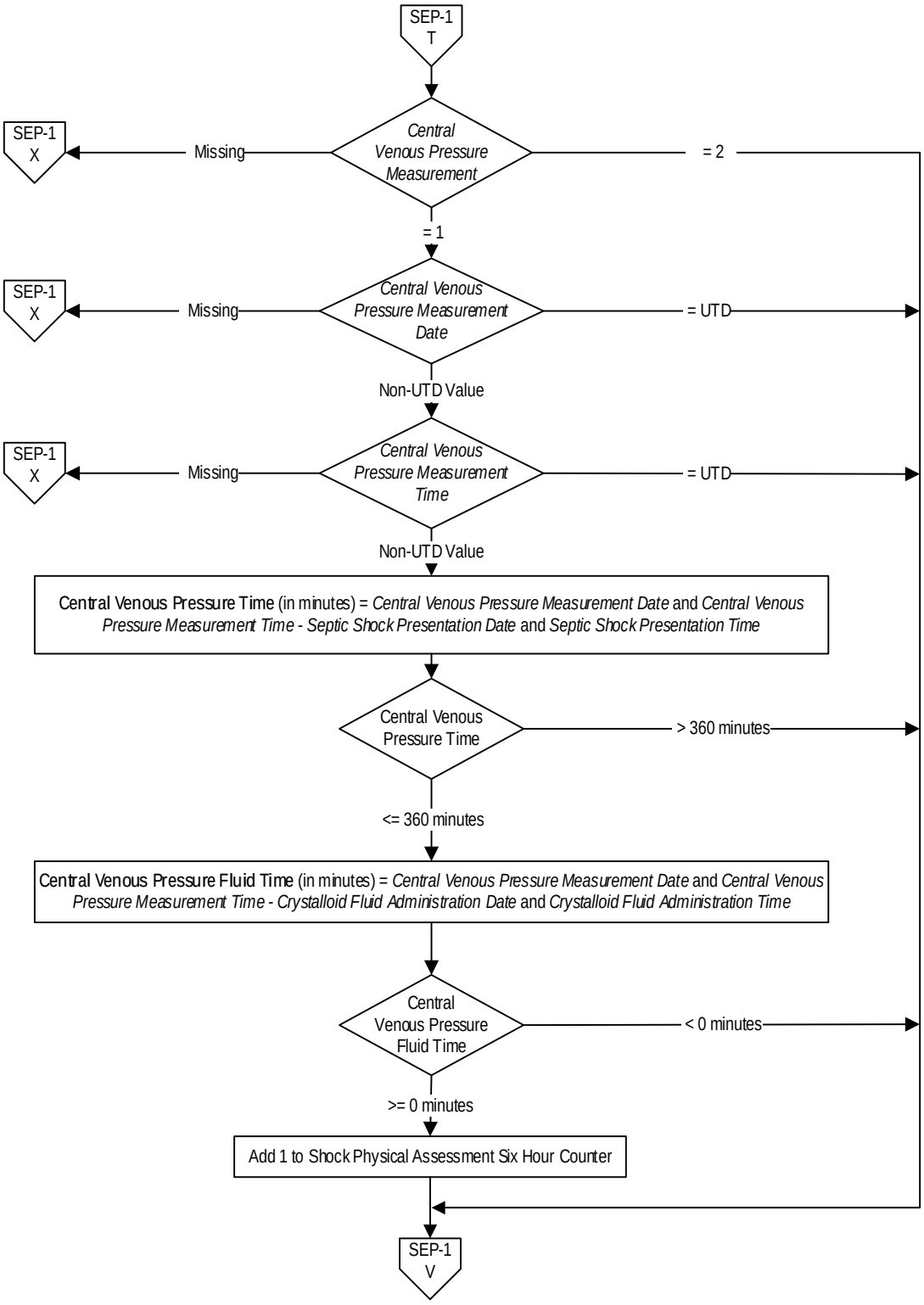

SEP-1 O
Vital Signs Review Performed
Missing
SEP-1 X
= 2
= 1
Vital Signs Review Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Vital Signs Review Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Vital Signs Time (in minutes) = Vital Signs Review Date and Vital Signs Review Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Vital Signs Time
> 360 minutes
<= 360 minutes
Vital Signs Fluid Time (in minutes) = Vital Signs Review Date and Vital Signs Review Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Vital Signs Fluid Time
< 0 minutes
>= 0 minutes
SEP-1 P
SEP-1 T

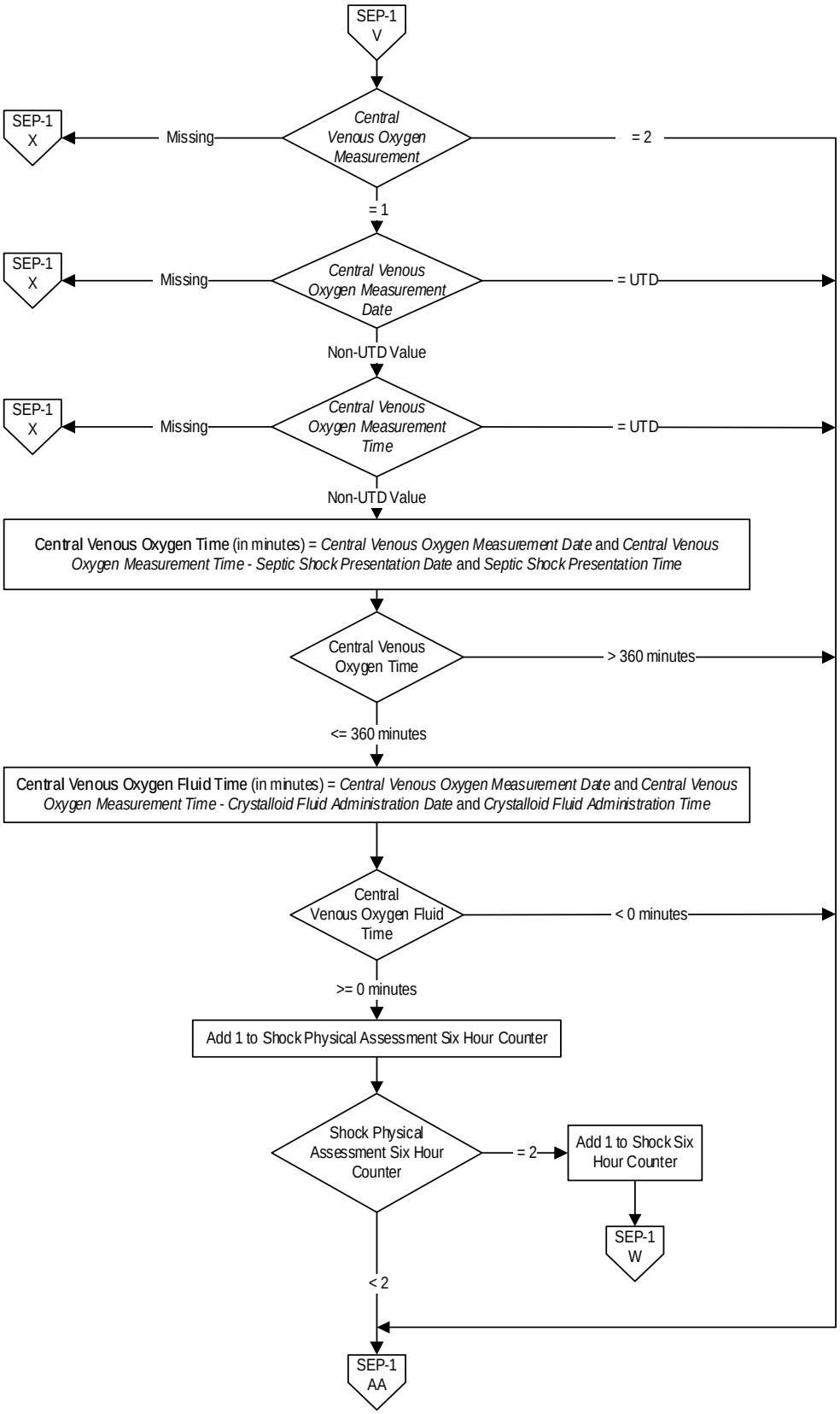

SEP-1 P
Cardiopulmonary Evaluation Performed
Missing
SEP-1 X
= 2
= 1
Cardiopulmonary Evaluation Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Cardiopulmonary Evaluation Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Cardiopulmonary Eval Time (in minutes) = Cardiopulmonary Evaluation Date and Cardiopulmonary Evaluation Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Cardiopulmonary Eval Time
> 360 minutes
<= 360 minutes
Cardiopulmonary Evaluation Fluid Time (in minutes) = Cardiopulmonary Evaluation Date and Cardiopulmonary Evaluation Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Cardiopulmonary Evaluation Fluid Time
< 0 minutes
>= 0 minutes
SEP-1 Q
SEP-1 T

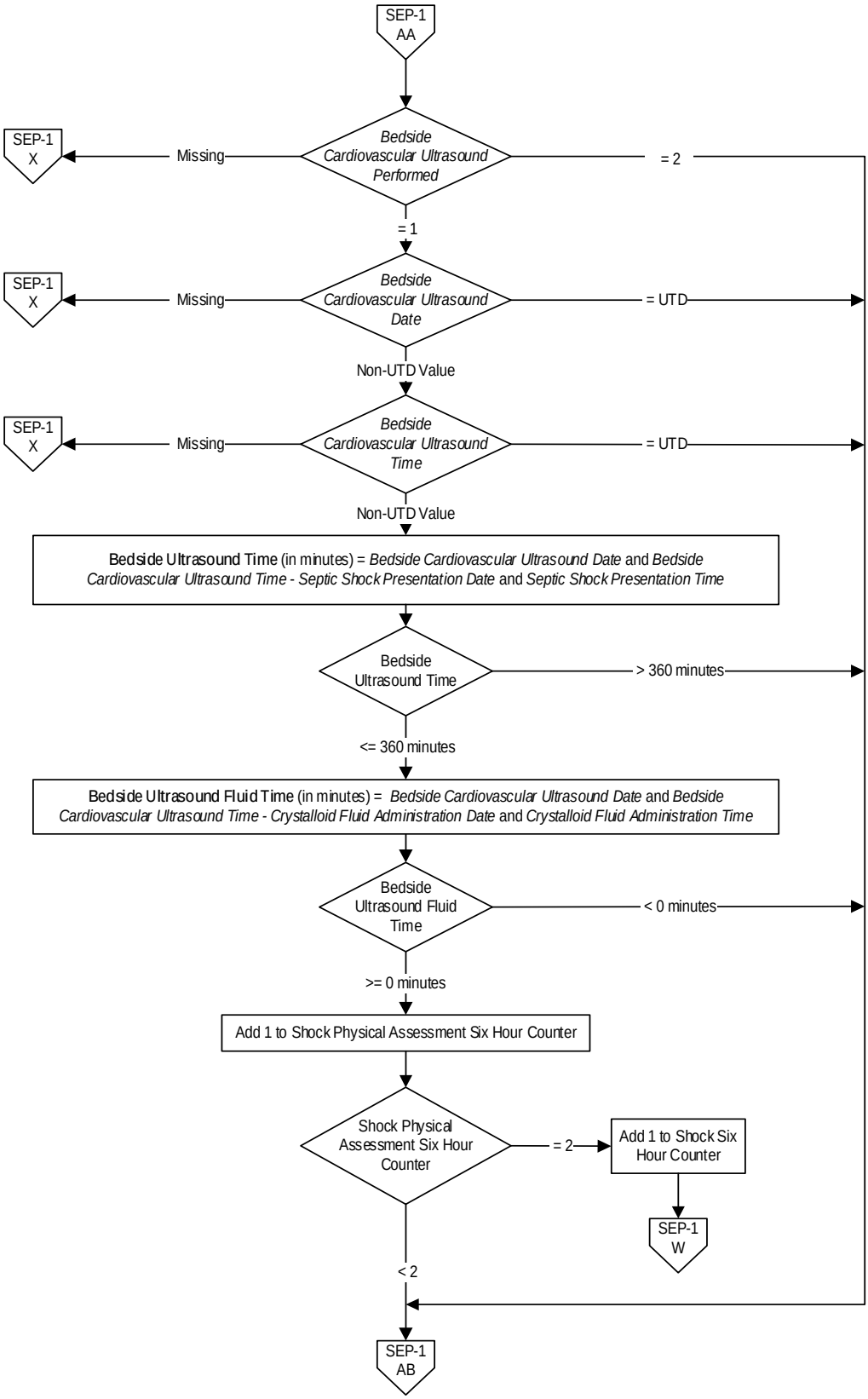

SEP-1 Q
Capillary Refill Examination Performed
Missing
SEP-1 X
= 2
= 1
Capillary Refill Examination Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Capillary Refill Examination Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Capillary Refill Time (in minutes) = Capillary Refill Examination Date and Capillary Refill Examination Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Capillary Refill Time
> 360 minutes
<= 360 minutes
Capillary Refill Fluid Time (in minutes) = Capillary Refill Examination Date and Capillary Refill Examination Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Capillary Refill Fluid Time
< 0 minutes
>= 0 minutes
SEP-1 R
SEP-1 T

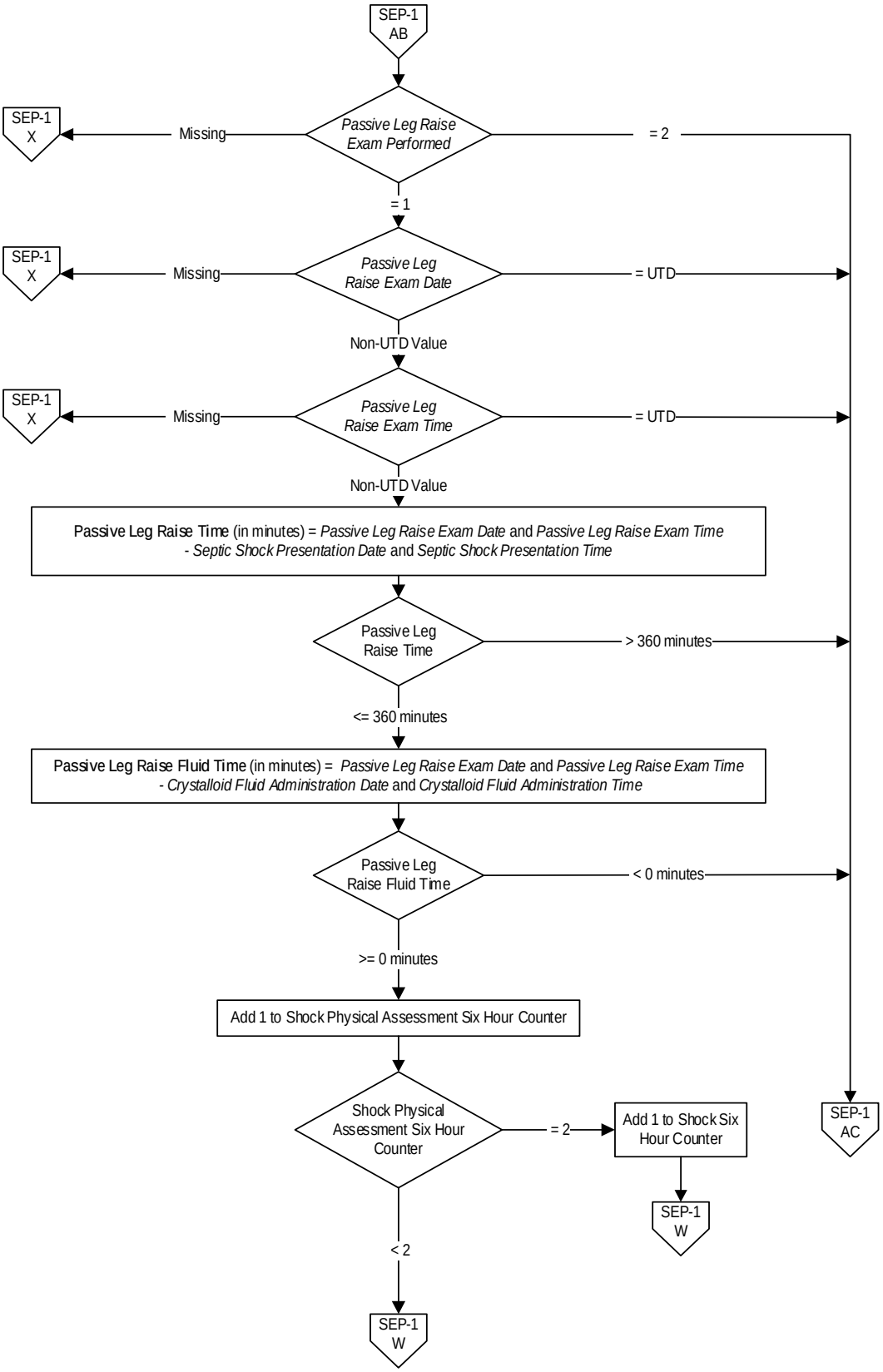

SEP-1 R
Peripheral Pulse Evaluation Performed
Missing
SEP-1 X
= 2
= 1
Peripheral Pulse Evaluation Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Peripheral Pulse Evaluation Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Peripheral Pulse Time (in minutes) = Peripheral Pulse Evaluation Date and Peripheral Pulse Evaluation Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Peripheral Pulse Time
> 360 minutes
<= 360 minutes
Peripheral Pulse Fluid Time (in minutes) = Peripheral Pulse Evaluation Date and Peripheral Pulse Evaluation Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Peripheral Pulse Fluid Time
< 0 minutes
>= 0 minutes
SEP-1 S
SEP-1 T

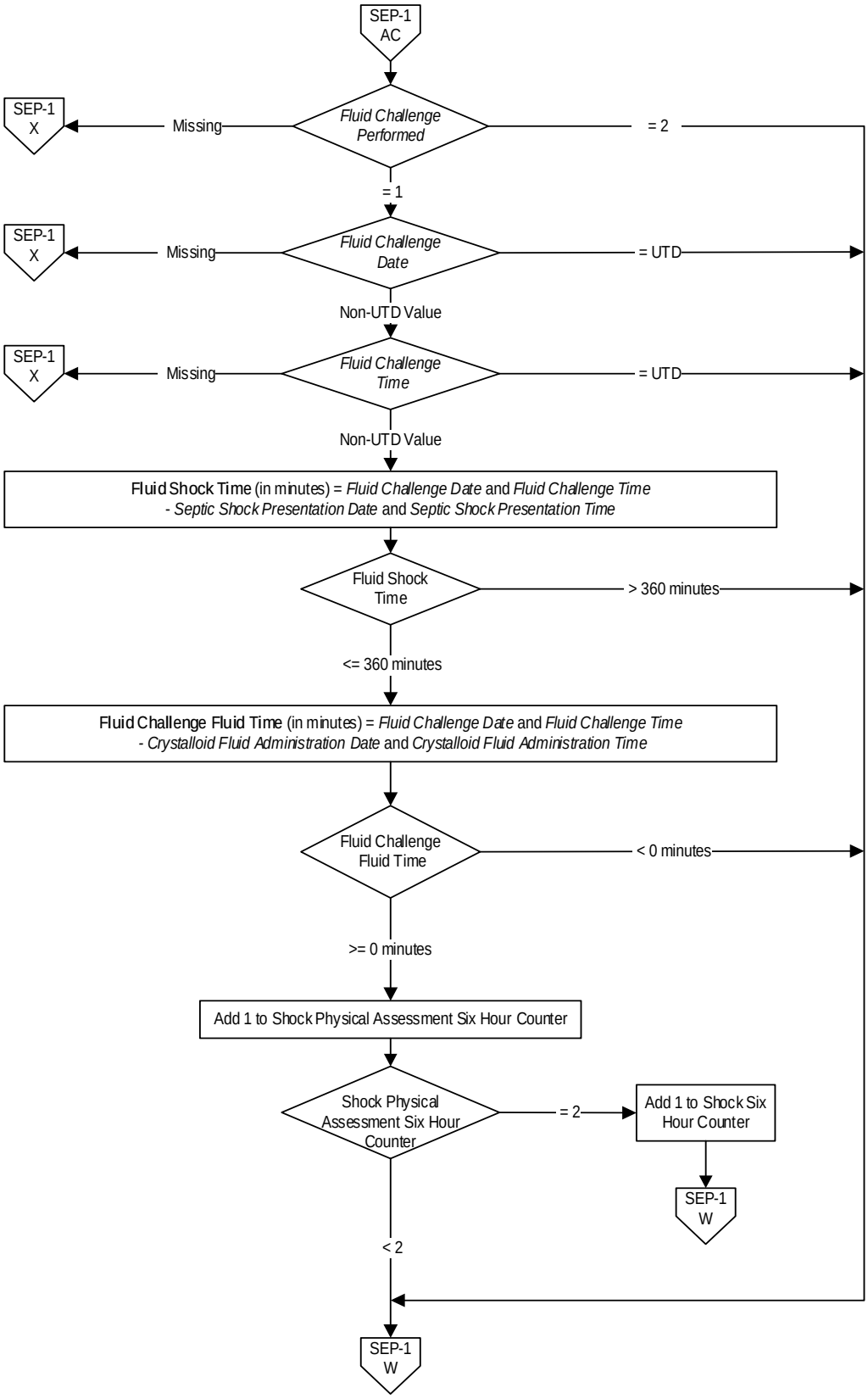

SEP-1 S
Skin Examination Performed
Missing
SEP-1 X
= 2
= 1
Skin Examination Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Skin Examination Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Skin Exam Time (in minutes) = Skin Examination Date and Skin Examination Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Skin Exam Time
> 360 minutes
<= 360 minutes
Skin Exam Fluid Time (in minutes) = Skin Examination Date and Skin Examination Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Skin Exam Fluid Time
< 0 minutes
>= 0 minutes
Add 1 to Shock Six Hour Counter
SEP-1 W
SEP-1 T

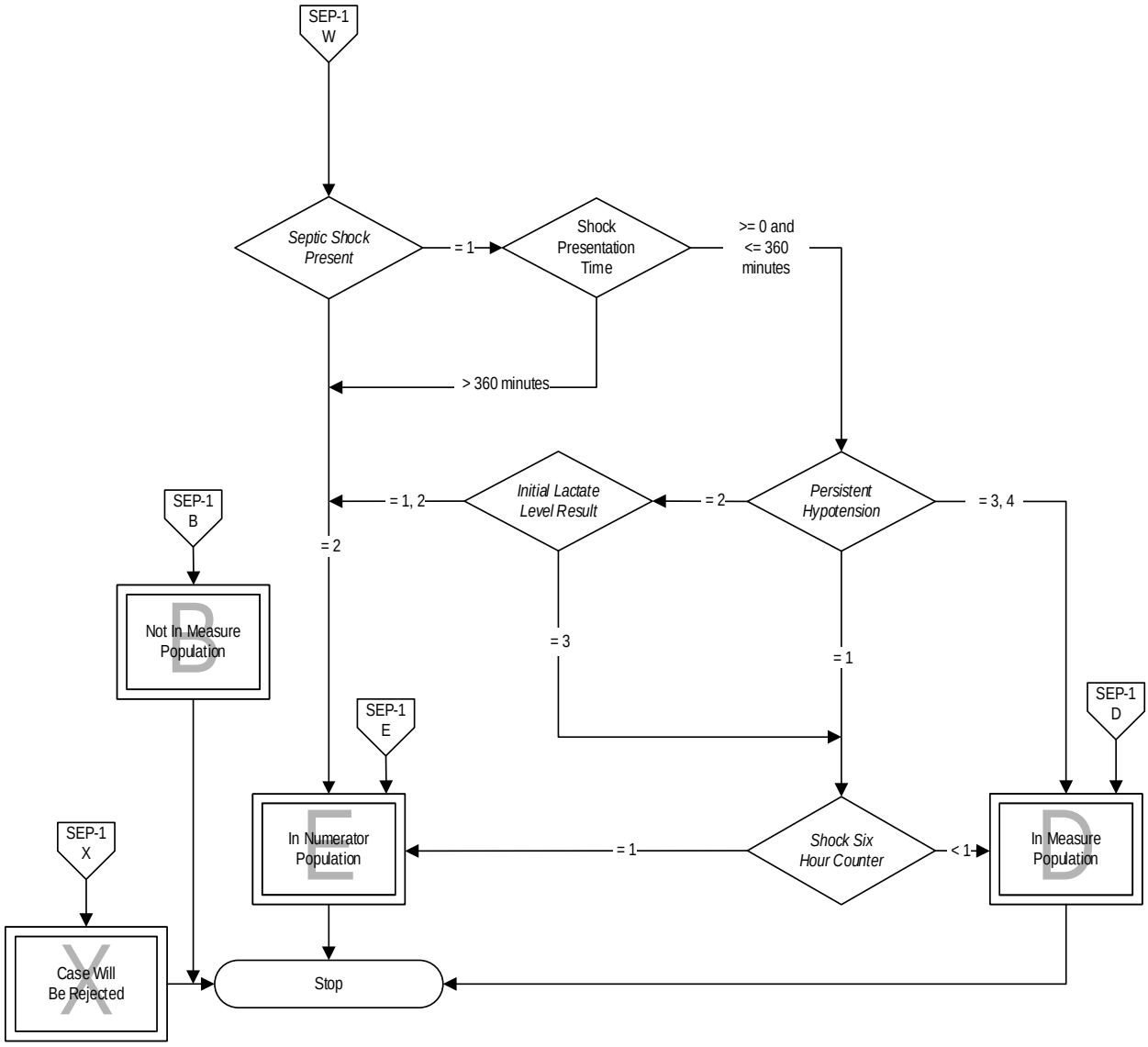

SEP-1 T
Central Venous Pressure Measurement
Missing
SEP-1 X
= 2
= 1
Central Venous Pressure Measurement Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Central Venous Pressure Measurement Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Central Venous Pressure Time (in minutes) = Central Venous Pressure Measurement Date and Central Venous Pressure Measurement Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Central Venous Pressure Time
> 360 minutes
<= 360 minutes
Central Venous Pressure Fluid Time (in minutes) = Central Venous Pressure Measurement Date and Central Venous Pressure Measurement Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Central Venous Pressure Fluid Time
< 0 minutes
>= 0 minutes
Add 1 to Shock Physical Assessment Six Hour Counter
SEP-1 V


SEP-1 V
Central Venous Oxygen Measurement
Missing
SEP-1 X
= 2
= 1
Central Venous Oxygen Measurement Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Central Venous Oxygen Measurement Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Central Venous Oxygen Time (in minutes) = Central Venous Oxygen Measurement Date and Central Venous Oxygen Measurement Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Central Venous Oxygen Time
> 360 minutes
<= 360 minutes
Central Venous Oxygen Fluid Time (in minutes) = Central Venous Oxygen Measurement Date and Central Venous Oxygen Measurement Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Central Venous Oxygen Fluid Time
< 0 minutes
>= 0 minutes
Add 1 to Shock Physical Assessment Six Hour Counter
Shock Physical Assessment Six Hour Counter
= 2
Add 1 to Shock Six Hour Counter
SEP-1 W
< 2
SEP-1 AA


SEP-1 AA
Bedside Cardiovascular Ultrasound Performed
Missing
SEP-1 X
= 2
= 1
Bedside Cardiovascular Ultrasound Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Bedside Cardiovascular Ultrasound Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Bedside Ultrasound Time (in minutes) = Bedside Cardiovascular Ultrasound Date and Bedside Cardiovascular Ultrasound Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Bedside Ultrasound Time
> 360 minutes
<= 360 minutes
Bedside Ultrasound Fluid Time (in minutes) = Bedside Cardiovascular Ultrasound Date and Bedside Cardiovascular Ultrasound Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Bedside Ultrasound Fluid Time
< 0 minutes
>= 0 minutes
Add 1 to Shock Physical Assessment Six Hour Counter
Shock Physical Assessment Six Hour Counter
= 2
Add 1 to Shock Six Hour Counter
SEP-1 W
< 2
SEP-1 AB


SEP-1 AB
Passive Leg Raise Exam Performed
Missing
SEP-1 X
= 2
= 1
Passive Leg Raise Exam Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Passive Leg Raise Exam Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Passive Leg Raise Time (in minutes) = Passive Leg Raise Exam Date and Passive Leg Raise Exam Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Passive Leg Raise Time
> 360 minutes
<= 360 minutes
Passive Leg Raise Fluid Time (in minutes) = Passive Leg Raise Exam Date and Passive Leg Raise Exam Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Passive Leg Raise Fluid Time
< 0 minutes
>= 0 minutes
Add 1 to Shock Physical Assessment Six Hour Counter
Shock Physical Assessment Six Hour Counter
= 2
Add 1 to Shock Six Hour Counter
SEP-1 W
SEP-1 AC
< 2
SEP-1 W


SEP-1 AC
Fluid Challenge Performed
Missing
SEP-1 X
= 2
= 1
Fluid Challenge Date
Missing
SEP-1 X
= UTD
Non-UTD Value
Fluid Challenge Time
Missing
SEP-1 X
= UTD
Non-UTD Value
Fluid Shock Time (in minutes) = Fluid Challenge Date and Fluid Challenge Time - Septic Shock Presentation Date and Septic Shock Presentation Time
Fluid Shock Time
> 360 minutes
<= 360 minutes
Fluid Challenge Fluid Time (in minutes) = Fluid Challenge Date and Fluid Challenge Time - Crystalloid Fluid Administration Date and Crystalloid Fluid Administration Time
Fluid Challenge Fluid Time
< 0 minutes
>= 0 minutes
Add 1 to Shock Physical Assessment Six Hour Counter
Shock Physical Assessment Six Hour Counter
= 2
Add 1 to Shock Six Hour Counter
SEP-1 W
< 2
SEP-1 W


SEP-1 W
Septic Shock Present
= 1
Shock Presentation Time
>= 0 and <= 360 minutes
> 360 minutes
SEP-1 B
= 1, 2
Initial Lactate Level Result
= 2
Persistent Hypotension
= 3, 4
= 2
= 3
= 1
Not In Measure Population
D
SEP-1 E
SEP-1 D
SEP-1 X
In Numerator Population
E
= 1
Shock Six Hour Counter
< 1
In Measure Population
D
Case Will Be Rejected
X
Stop

Algorithm Narrative
Sepsis (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 >= 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 Discharge Time, Shock Discharge Time, 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 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.

3. 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.

4. 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.

5. 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 Administrative Contraindication to Care, Severe Sepsis.

6. Check Administrative Contraindication to Care, Severe Sepsis

a. If Administrative Contraindication to Care, Severe Sepsis 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, 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 Administrative Contraindication to Care, Severe Sepsis equals 2, continue processing and proceed to Directive for Comfort Care or Palliative Care, Severe Sepsis.

7. Check Directive for Comfort Care or Palliative Care, Severe Sepsis

a. If Directive for Comfort Care or Palliative 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 or Palliative 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 or Palliative 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 8 continue processing and proceed to Step 12.
c. If Discharge Disposition equals 1, 2, 3, 4, 5, 6 or 7, 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 Discharge Time calculation.

10. Calculate Sepsis Discharge Time. Sepsis Discharge 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 Discharge Time

    a. If Sepsis Discharge 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 Discharge 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. Stop processing.
    c. If Sepsis Discharge Time is greater than 360 minutes, continue processing and proceed to Initialization step.

12. Initialize the following variables: 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    b. If Initial Lactate Time is greater than or equal to -360 minutes and less than or equal to 180 minutes, 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    c. If Broad Spectrum Antibiotic Time is greater than or equal to -1440 minutes and less than 0 minutes, 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    c. If Broad Spectrum or Other Antibiotic Administration Selection equals 1, 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
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 greater than or equal to 0 minutes, continue processing and proceed to Step 32.
b. If Blood Culture Antibiotic Time is less than 0 minutes, continue processing and proceed to Blood Culture Collection Acceptable Delay.

31. Check Blood Culture Collection Acceptable Delay

a. If Blood Culture Collection Acceptable Delay is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
b. If Blood Culture Collection Acceptable Delay equals 2, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
c. If Blood Culture Collection Acceptable Delay equals 1, continue processing and proceed to Initial Lactate Level Result.

32. 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 38.
c. If Initial Lactate Level Result equals 2 or 3, continue processing and proceed to Repeat Lactate Level Collection.

33. 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    c. If Repeat Lactate Level Collection equals 1, continue processing and proceed to Repeat Lactate Level Date.

34. 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    c. If Repeat Lactate Level Date equals a Non Unable to Determine Value, continue processing and proceed to Repeat Lactate Level Time.

35. 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    c. If Repeat Lactate Level Time equals a Non Unable to Determine Value, continue processing and proceed to Repeat Lactate Time calculation.

36. 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.

37. Check Repeat Lactate Time

    a. If Repeat Lactate Time is greater than 360 minutes, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    b. If Repeat Lactate Time is less than or equal to 360 minutes, continue processing and proceed to Initial Hypotension.

38. Check Initial Hypotension

    a. If Initial Hypotension is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
    b. If Initial Hypotension equals 1, continue processing and proceed to Step 40.
    c. If Initial Hypotension equals 2, continue processing and proceed to Initial Lactate Level Result.

39. Check Initial Lactate Level Result

    a. If Initial Lactate Level Result equals 3, continue processing and proceed to Step 40.
    b. If Initial Lactate Level Result equals 1 or 2, continue processing and proceed to Documentation of Septic Shock.

40. Check Documentation of Septic Shock

    a. If Documentation of Septic Shock is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
    b. If Documentation of Septic Shock equals 2, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.
    c. If Documentation of Septic Shock equals 1, continue processing and proceed to Crystalloid Fluid Administration.

41. 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 4, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.
    d. If Crystalloid Fluid Administration equals 1, continue processing and proceed to Crystalloid Fluid Administration Date.

42. 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.

43. 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 Septic Shock Present.

44. 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 137.
c. If Septic Shock Present equals 1, continue processing and proceed to Septic Shock Presentation Date.

45. 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.

46. 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.

47. 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.

48. Check Shock Presentation Time

a. If Shock Presentation Time is greater than 360 minutes, continue processing and proceed to Step 137.
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 Administrative Contraindication to Care, Septic Shock.

49. Check Administrative Contraindication to Care, Septic Shock

    a. If Administrative Contraindication to Care, Septic Shock 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, 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 Administrative Contraindication to Care, Septic Shock equals 2, continue processing and proceed to Directive for Comfort Care or Palliative Care, Septic Shock.

50. Check Directive for Comfort Care or Palliative Care, Septic Shock

    a. If Directive for Comfort Care or Palliative 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 or Palliative 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 or Palliative Care, Septic Shock equals 2, continue processing and proceed to Discharge Disposition.

51. Check Discharge Disposition

    a. If Discharge Disposition equals 8 continue processing and proceed to Step 53.
    b. If Discharge Disposition equals 1, 2, 3, 4, 5, 6 or 7, continue processing and proceed to Shock Expired Time calculation.

52. Calculate Shock Discharge Time. Shock Discharge Time, in minutes, is equal to the Discharge Date and Discharge Time minus the Septic Shock Presentation Date and Septic Shock Presentation Time.

53. Check Shock Discharge Time

    a. If Shock Discharge 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 Discharge 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 Discharge Time is greater than 360 minutes, continue processing and proceed to the Crystalloid Fluid Admin Time calculation.

54. 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.

55. 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, continue processing and proceed to Persistent Hypotension.

56. 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 57.
    c. If Persistent Hypotension equals 2, 3 or 4, continue processing and proceed to Initial Lactate Level Result.

57. Check Initial Lactate Level Result

    a. If Initial Lactate Level Result equals 1 or 2, continue processing and proceed to Step 137.
    b. If Initial Lactate Level Result equals 3, continue processing and proceed to Step 63.

58. 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    c. If Vasopressor Administration equals 1, continue processing and proceed to Vasopressor Administration Date.

59. 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
    c. If Vasopressor Administration Date equals a Non Unable to Determine Value, continue processing and proceed to Vasopressor Administration Time.

60. 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, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
c. If Vasopressor Administration Time equals a Non Unable to Determine Value, continue processing and proceed to Vasopressor Time calculation.

61. 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.

62. Check Vasopressor Time

a. If Vasopressor Time is greater than 360 minutes, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
b. If Vasopressor Time is less than or equal to 360 minutes, continue processing and proceed to Vital Signs Review Performed.

63. 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 98.
c. If Vital Signs Review Performed equals 1, continue processing and proceed to Vital Signs Review Date.

64. 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 98.
c. If Vital Signs Review Date equals a Non Unable to Determine Value, continue processing and proceed to Vital Signs Review Time.

65. 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 98.
c. If Vital Signs Review Time equals a Non Unable to Determine Value, continue processing and proceed to Vital Signs Time calculation.

66. 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.

67. Check Vital Signs Time

    a. If Vital Signs Time is greater than 360 minutes, continue processing and proceed to Step 98.
    b. If Vital Signs Time is less than or equal to 360 minutes, continue processing and proceed to Vital Signs Fluid Time calculation.

68. 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.

69. Check Vital Signs Fluid Time

    a. If Vital Signs Fluid Time is less than 0 minutes, continue processing and proceed to Step 98.
    b. If Vital Signs Fluid Time is greater than or equal to 0 minutes, continue processing and proceed to Cardiopulmonary Evaluation Performed.

70. 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 98.
    c. If Cardiopulmonary Evaluation Performed equals 1, continue processing and proceed to Cardiopulmonary Evaluation Date.

71. 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 98.
    c. If Cardiopulmonary Evaluation Date equals a Non Unable to Determine Value, continue processing and proceed to Cardiopulmonary Evaluation Time.

72. 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 98.
    c. If Cardiopulmonary Evaluation Time equals a Non Unable to Determine Value, continue processing and proceed to Cardiopulmonary Eval Time calculation.

73. 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.

74. Check Cardiopulmonary Eval Time

    a. If Cardiopulmonary Eval Time is greater than 360 minutes, continue processing and proceed to Step 98.
    b. If Cardiopulmonary Eval Time is less than or equal to 360 minutes, continue processing and proceed to Cardiopulmonary Evaluation Fluid Time calculation.

75. 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.

76. Check Cardiopulmonary Evaluation Fluid Time

    a. If Cardiopulmonary Evaluation Fluid Time is less than 0 minutes, continue processing and proceed to Step 98.
    b. If Cardiopulmonary Evaluation Fluid Time is greater than or equal to 0 minutes, continue processing and proceed to Capillary Refill Examination Performed.

77. 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 98.
    c. If Capillary Refill Examination Performed equals 1, continue processing and proceed to Capillary Refill Examination Date.

78. 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 98.
    c. If Capillary Refill Examination Date equals a Non Unable to Determine Value, continue processing and proceed to Capillary Refill Examination Time.

79. 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 98.
c. If Capillary Refill Examination Time equals a Non Unable to Determine Value, continue processing and proceed to Capillary Refill Time calculation.

80. 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.

81. Check Capillary Refill Time

a. If Capillary Refill Time is greater than 360 minutes, continue processing and proceed to Step 98.
b. If Capillary Refill Time is less than or equal to 360 minutes, continue processing and proceed to Capillary Refill Fluid Time calculation.

82. 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.

83. Check Capillary Refill Fluid Time

a. If Capillary Refill Fluid Time is less than 0 minutes, continue processing and proceed to Step 98.
b. If Capillary Refill Fluid Time is greater than or equal to 0 minutes, continue processing and proceed to Peripheral Pulse Evaluation Performed.

84. 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 98.
c. If Peripheral Pulse Evaluation Performed equals 1, continue processing and proceed to Peripheral Pulse Evaluation Date.

85. 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 98.
c. If Peripheral Pulse Evaluation Date equals a Non Unable to Determine Value, continue processing and proceed to Peripheral Pulse Evaluation Time.

86. 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 98.
    c. If Peripheral Pulse Evaluation Time equals a Non Unable to Determine Value, continue processing and proceed to Peripheral Pulse Time calculation.

87. 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.

88. Check Peripheral Pulse Time

    a. If Peripheral Pulse Time is greater than 360 minutes, continue processing and proceed to Step 98.
    b. If Peripheral Pulse Time is less than or equal to 360 minutes, continue processing and proceed to Peripheral Pulse Fluid Time calculation.

89. 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.

90. Check Peripheral Pulse Fluid Time

    a. If Peripheral Pulse Fluid Time is less than 0 minutes, continue processing and proceed to Step 98.
    b. If Peripheral Pulse Fluid Time is greater than or equal to 0 minutes, continue processing and proceed to Skin Examination Performed.

91. 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 98.
    c. If Skin Examination Performed equals 1, continue processing and proceed to Skin Examination Date.

92. 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 98.
    c. If Skin Examination Date equals a Non Unable to Determine Value, continue processing and proceed to Skin Examination Time.

93. 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 98.
    c. If Skin Examination Time equals a Non Unable to Determine Value, continue processing and proceed to Skin Exam Time calculation.

94. 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.

95. Check Skin Exam Time

    a. If Skin Exam Time is greater than 360 minutes, continue processing and proceed to Step 98.
    b. If Skin Exam Time is less than or equal to 360 minutes, continue processing and proceed to Skin Exam Fluid Time calculation.

96. 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.

97. Check Skin Exam Fluid Time

    a. If Skin Exam Fluid Time is less than 0 minutes, continue processing and proceed to Step 98.
    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 137.

98. 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 105.
    c. If Central Venous Pressure Measurement equals 1, continue processing and proceed to Central Venous Pressure Measurement Date.

99. 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 105.

c. If Central Venous Pressure Measurement Date equals a Non Unable to Determine Value, continue processing and proceed to Central Venous Pressure Measurement Time.

100. 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 105.
c. If Central Venous Pressure Measurement Time equals a Non Unable to Determine Value, continue processing and proceed to Central Venous Pressure Time calculation.

101. 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.

102. Check Central Venous Pressure Time

a. If Central Venous Pressure Time is greater than 360 minutes, continue processing and proceed to Step 105.
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.

103. 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.

104. Check Central Venous Pressure Fluid Time

a. If Central Venous Pressure Fluid Time is less than 0 minutes, continue processing and proceed to Step 105.
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.

105. 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 113.

c. If Central Venous Oxygen Measurement equals 1, continue processing and proceed to Central Venous Oxygen Measurement Date.

106. 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 113.
c. If Central Venous Oxygen Measurement Date equals a Non Unable to Determine Value, continue processing and proceed to Central Venous Oxygen Measurement Time.

107. 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 113.
c. If Central Venous Oxygen Measurement Time equals a Non Unable to Determine Value, continue processing and proceed to Central Venous Oxygen Time calculation.

108. 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.

109. Check Central Venous Oxygen Time

a. If Central Venous Oxygen Time is greater than 360 minutes, continue processing and proceed to Step 113.
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.

110. 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.

111. Check Central Venous Oxygen Fluid Time

a. If Central Venous Oxygen Fluid Time is less than 0 minutes, continue processing and proceed to Step 113.
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.

112. 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 137.
    b. If Shock Physical Assessment Six Hour Counter is less than 2, continue processing and proceed to Bedside Cardiovascular Ultrasound Performed.

113. 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 121.
    c. If Bedside Cardiovascular Ultrasound Performed equals 1, continue processing and proceed to Bedside Cardiovascular Ultrasound Date.

114. 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 121.
    c. If Bedside Cardiovascular Ultrasound Date equals a Non Unable to Determine Value, continue processing and proceed to Bedside Cardiovascular Ultrasound Time.

115. 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 121.
    c. If Bedside Cardiovascular Ultrasound Time equals a Non Unable to Determine Value, continue processing and proceed to Bedside Ultrasound Time calculation.

116. 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.

117. Check Bedside Ultrasound Time

    a. If Bedside Ultrasound Time is greater than 360 minutes, continue processing and proceed to Step 121.
    b. If Bedside Ultrasound Time is less than or equal to 360 minutes, continue processing and proceed to Bedside Ultrasound Fluid Time calculation.

118. 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.

119. Check Bedside Ultrasound Fluid Time

    a. If Bedside Ultrasound Fluid Time is less than 0 minutes, continue processing and proceed to Step 121.
    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.

120. 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 137.
    b. If Shock Physical Assessment Six Hour Counter is less than 2, continue processing and proceed to Passive Leg Raise Exam Performed.

121. 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 129.
    c. If Passive Leg Raise Exam Performed equals 1, continue processing and proceed to Passive Leg Raise Exam Date.

122. 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 129.
    c. If Passive Leg Raise Exam Date equals a Non Unable to Determine Value, continue processing and proceed to Passive Leg Raise Exam Time.

123. 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 129.
    c. If Passive Leg Raise Exam Time equals a Non Unable to Determine Value, continue processing and proceed to Passive Leg Raise Time calculation.

124. 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.

125. Check Passive Leg Raise Time

    a. If Passive Leg Raise Time is greater than 360 minutes, continue processing and proceed to Step 129.
    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.

126. 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.

127. Check Passive Leg Raise Fluid Time

    a. If Passive Leg Raise Fluid Time is less than 0 minutes, continue processing and proceed to Step 129.
    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.

128. 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 137.
    b. If Shock Physical Assessment Six Hour Counter is less than 2, continue processing and proceed to Step 137.

129. 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 137.
    c. If Fluid Challenge Performed equals 1, continue processing and proceed to Fluid Challenge Date.

130. 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 137.
    c. If Fluid Challenge Date equals a Non Unable to Determine Value, continue processing and proceed to Fluid Challenge Time.

131. 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 137.
    c. If Fluid Challenge Time equals a Non Unable to Determine Value, continue processing and proceed to Fluid Shock Time calculation.

132. 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.

133. Check Fluid Shock Time

    a. If Fluid Shock Time is greater than 360 minutes, continue processing and proceed to Step 137.
    b. If Fluid Shock Time is less than or equal to 360 minutes, continue processing and proceed to Fluid Challenge Fluid Time calculation.

134. 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.

135. Check Fluid Challenge Fluid Time

    a. If Fluid Challenge Fluid Time is less than 0 minutes, continue processing and proceed to Step 137.
    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.

136. 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 137.
    b. If Shock Physical Assessment Six Hour Counter is less than 2, continue processing and proceed to Septic Shock Present.

137. 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 Presentation Time.

138. Check Shock Presentation Time

    a. If Shock Presentation Time is greater than 360 minutes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.

b. 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 Persistent Hypotension.

139. 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 141.
c. If Persistent Hypotension equals 2, continue processing and proceed to Initial Lactate Level Result.

140. 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 Shock Six Hour Counter.

141. 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.