Sepsis Study FY2020

VHA EPRP V

Sharon Miller
VHA EPRP QIC

Study Purpose

- **VHA Office of Reporting, Analytics, Performance, Improvement and Deployment (RAPID) will begin collecting and reporting the SEP-1 measure for CMS.**
- **This will be a Pilot Study.**
- **DACs and Exits will be required for facility information**
- **NO formal Exit conference required**

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

- **Composite measure that includes a bundle of interventions intended to effectively treat severe sepsis and septic shock**
- Focuses on adults 18 years and older with a diagnosis of severe sepsis or septic shock
- Assesses:
  - **measurement of lactate**
  - **obtaining blood cultures**
  - **administering broad spectrum antibiotics**
  - **fluid resuscitation**
  - **vasopressor administration**
  - **reassessment of volume status and tissue perfusion**
  - **repeat lactate measurement**
- First three interventions should occur within 3 hours of presentation of severe sepsis; fourth within 3 hours of septic shock; next two within 6 hours of presentation of septic shock; last intervention within 6 hours of severe sepsis.

SEP-1

Numerator: patients who received ALL of the following: Within three hours of presentation of severe sepsis:

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

AND received within six hours of presentation of severe sepsis, ONLY if the initial lactate is elevated

- Repeat lactate level measurement

SEP-1 (cont.)

AND within three hours of initial hypotension **OR** septic shock

- Resuscitation with 30 mL/kg crystalloid fluids

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

- Vasopressors are administered

AND within six hours of septic shock presentation, if hypotension persists after fluid administration or initial lactate >= 4 mmol/L

- Repeat volume status and tissue perfusion assessment is performed

SEP-1 (cont.)

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

Excluded Populations:

- **Comfort Care or Palliative Care within 6 hours of severe sepsis OR septic shock presentation**
- **Contraindication to care within 6 hours of severe sepsis OR septic shock presentation**
- **LOS > 120 days**
- **Transfer in from another acute care facility**
- **Enrolled in clinical trial for sepsis, severe sepsis, septic shock**
- **Patients with severe sepsis OR septic shock discharged within 6 hours of presentation**
- **Patients receiving antibiotics for >24 hours prior to presentation**

SEP-1 Sub-Measures

- **RAPID** – currently electing to report 5 sub-measures

Sep1a

- **Denominator –** All acute care inpatients with a diagnosis of Severe Sepsis
- **Numerator –** Patients who received ALL the following within three hours of presentation of severe sepsis:
  - Initial lactate level measurement
  - Broad spectrum or other antibiotics administered
  - Blood cultures drawn prior to antibiotics

Quality Insights

Sub-Measures

Sep1b

- **Denominator –** All acute care inpatients with a diagnosis of Severe Sepsis **AND** initial lactate is elevated.
- **Numerator** – Patients who received a repeat lactate level within six hours of presentation of severe sepsis

Quality Insights

Sub-Measures

Sep1c

- **Denominator –** All acute care inpatients with a diagnosis of Severe Sepsis **AND** have hypotension – **OR** have a diagnosis of Septic Shock
- **Numerator** – Patients who received resuscitation with 30 mL/kg crystalloid fluids within three hours of initial hypotension **OR** septic shock

Quality Insights

Sub-Measures

Sep1d

- **Denominator –** All acute care inpatients with septic shock **AND** hypotension that persists after fluid administration.
- **Numerator –** Patients who receive vasopressors within six hours of septic shock presentation

Quality Insights

Sub-Measures

Sep1e

- **Denominator –** All acute care inpatients with septic shock **AND** hypotension that persists after fluid administration – **OR** initial lactate >= 4mmol/L
- **Numerator** – Patients who have a repeat volume status **AND** tissue perfusion assessment performed within six hours of septic shock presentation

Quality Insights

Data Collection Questions

- **Instrument has 54 questions**
- **Most of first 11 should be familiar**

Q1 arrvdate – Enter earliest date arrived in acute care

Q2 admdt – auto-filled, can be modified

Q3 trnsfr – Was patient received as transfer from inpatient, outpatient, or ED/Observation dept. of an OUTSIDE hospital or ambulatory surgery center

- lists of other specific types of transfers in D/D Rules acceptable for "Yes" or "No" answers
- Read carefully Acute Rehab and Psych "Unit" vs "Hospital" and INSIDE vs OUTSIDE your hospital
- "Yes" answer excludes the case

Quality Insights

Data Collection Questions (cont.)

Q4 dcdt - autofilled; cannot be modified
Q5 dctm - autofilled; cannot be modified
Q6 princode – autofilled with ability to change
Q7 othrcode1-24 – autofilled; cannot be modified
Q8 prinpx/prinpxdt – principal procedure code/date
Q9 othrpx/othrpxdt1-5 – other procedure codes/dates
Q10 dcdispo
Q11 clntrial – if "Yes" case is excluded

Order of Abstraction

- **Once the Admin Data is complete, you will need to complete Diagnosis module FIRST**
- **All other modules depend on dates/times entered in Diagnosis module**

Severe Sepsis Presentation

- **May be identified based upon physician/APN/PA documentation of severe sepsis or clinical criteria**
- **In this Pilot Study, will be looking for both**
- **Will first look for documentation of severe sepsis**
  - **Must say "severe sepsis"**

Q12 seppres

Did a physician/APN/PA document presence of severe sepsis?
- **If no physician/APN/PA documentation of severe sepsis, but there is documentation of septic shock, select Value "1" (Yes).**

Other Documentation Acceptable to Select Value "1"
- Documentation of severe sepsis ***within an*** order set, etc. **IF**: recorded date and time is present and is earliest date and time recorded
- May use pre-hospital records (EMS, SNF) if found in CPRS/CAPRI/JLV
- If more than one presentation of severe sepsis, use only first

Q12 seppres

Documentation to Select Value "2" (No).
- Title or heading of order set, protocol, checklist, etc.
- Severe sepsis documented as due to viral, fungal, or parasitic infection
- Severe sepsis documented in discharge note, DC summary, or note after time of discharge
- if within 6 hours after severe sepsis documentation, physician/APN/PA notes indicate patient:
  - **is not septic**
  - **does not have sepsis or severe sepsis**
  - **does not have septic shock and severe sepsis was met by physician/APN/PA documentation septic shock was present**

Q12 seppres (cont.)

Severe sepsis documented using a qualifier
Qualifiers Table in D/D rules
- Positive = Yes (e.g., Possible severe sepsis)
- Negative **OR** Negative and Positive = No (e.g., Doubt severe sepsis; Questionable, but likely severe sepsis)

Exclude: Bacteremia, Septicemia

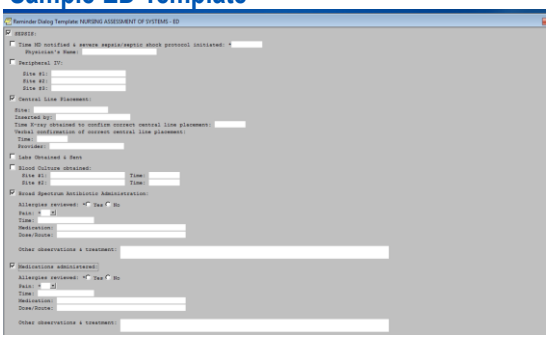
Data Sources: ONLY Physician/APN/PA documentation

Documentation Examples

- Some facilities may have Templates
  - ED
  - ICU
- ICUs may have own software vendors for documentation
- May need to use JLV for scanned ICU notes

Quality Insights

Sample ED Template



Quality Insights

Quality Insights

Q13 sepdt / septm

Use <u>earliest</u> date/time physician/APN/PA documented <u>severe sepsis</u>

- If documented in note w/o specific date/time or using POA, the following apply:
  - **If it is only documentation, use date/time note started**
  - **If documented multiple times in note, use earliest**
- Use earliest arrival date/time for ED patient with:
  - **Physician/APN/PA documentation in pre-hospital note**
  - **Physician/APN/PA documentation severe sepsis present on arrival**

Quality Insights

Q13 sepdt / septm

ED Clinician Note 3/30/2019 0250

```
Severe sepsis - WBC 19->17; in setting of the above, as well as shortness of
breath with cough. Suspect CAP. Possible component of shock. Unlikely to be
peritoneal infection given minimal abd tenderness aside
from RUQ, and no ascites. Note that he has been on Humira for many years.
-Vanc/pip-tazo given in ED; given Humira use, will continue this for now and can
narrow if clinically improving, if MRSA nares negative and if RUQ imaging
unconcerning; Continue vanc zosyn for now
-BCx, UCx pending
-Not currently producing sputum; unable to obtain sputum cx
-Se abdominal CT results above.
-Recommend thoracentesis when appropriate (INR current at 3.0 and rising) with
fluid studies
-Continue to trend lactic acid
```

Quality Insights

Q13 sepdt / Q14 septm (cont.)

- Use earliest arrival date/time on floor/unit for direct admits and there is:
  - **Physician/APN/PA documentation of severe sepsis in pre-hospital note and patient is direct admit**
  - **Physician/APN/PA documentation severe sepsis present on admission**
- If only documentation of severe sepsis POA, use earliest date/time of:
  - **Physician/APN/PA note**
  - **Admit order**
  - **Disposition to inpatient**
  - **Arrival to floor/unit**

Quality Insights

Q13 sepdt / Q14 septm (cont.)

- If no documentation of severe sepsis, but there is physician/APN/PA documentation of septic shock, enter earliest date/time septic shock documented

Severe Sepsis Clinical Criteria

- **Intent of next set of questions is to determine if/when clinical criteria for severe sepsis were met.**
- **In order to establish the presence of severe sepsis by clinical criteria, all three clinical criteria**
  - **documentation of infection,**
  - **two or more manifestations of systemic infection, and**
  - **organ dysfunction**

  must be met within 6 hours of each other. The three clinical criteria do not need to be documented in any particular order.

Clinical Criteria – (1)Documentation of Infection

Q15 sepinf – Is there documentation of infection in the medical record?

- **Table of conditions commonly associated with severe sepsis – NOT all inclusive**

Acceptable Documentation of Infection

- **Physician/APN/PA or nursing documentation referencing presence of infection**
- Antibiotic is ordered for inflammatory condition or sign/symptom of infection - may be considered documentation of infection (e.g., ceftriaxone ordered for colitis, Zosyn 3.375 g IV q6hr for cough).

Q15 sepinf

Exclusions: Documentation NOT acceptable for an infection:

- If within 6 hours following initial documentation, there is additional physician/APN/PA documentation indicating infection is not present, disregard the initial documentation.

  Example: ED physician/APN/PA documents rule out UTI and pneumonia at 0500. At 1000 hospitalist documents no infection present. Disregard ED physician/APN/PA documentation of rule out UTI and pneumonia

Q15 sepinf (cont.)

Exclusions (cont.):

- Colonization, positive screens, or positive cultures (e.g., MRSA, VRE) without physician/APN/PA documentation referencing infection
- Fungal, parasitic or viral infections
- History of infection, recent infection or recurrent infection not documented as current or active infection
- Orders for tests, results of tests, signs/symptoms of infection without supportive documentation of infection

Q15 sepinf (cont.)

Documentation of Infection using Qualifiers

- Same table of Positive/Negative Qualifiers as in severe sepsis
  - **Positive qualifier should be used to meet criteria**
  - **Negative qualifier or both negative/positive qualifiers should NOT be used**

Q16 infdt and inftm

Use earliest date/time physician/APN/PA or nursing documentation of presence of infection

- **ED Patients:** Use earliest documented arrival date/time for patients who enter ED with documentation of infection in pre-hospital records or present on arrival (POA).
- **Direct Admit Patients**: Use earliest documented date/time patient arrives to the floor or unit with documentation of infection in pre-hospital records or POA.
- If the only documentation of infection being present is in a physician/APN/PA or nursing note that infection was present on admission (POA), use the earliest date/time the following note type was started or opened:
  - **Physician/APN/PA or nursing note**
  - **Admit order**
  - **Disposition to inpatient**
  - **Arrival to floor or unit**

Clinical Criteria (2) Q17 sepsirs

Is there documentation in the medical record of two (2) or more of the following manifestations(indications) of systemic infection:

Indicate all that apply:

1. Temperature >38.3 C or <36.0 C (>100.9 F or < 96.8 F)
2. Heart rate (pulse) >90
3. Respiration >20 per minute
4. White blood cell count >12,000 or <4,000 or >10% bands

99. None of the above documented

Q17 sepsirs

Is there documentation in the medical record of two (2) or more of the following manifestations (indications) of systemic infection (SEPSIRS):

For each manifestation found, enter the earliest date and time of documentation.

Indicate all that apply:	1-Yes / 2-No		
Temperature >38.3 C or <36.0 C (>100.9 F or <96.8 F)	1	05/20/2020	10:10
Heart rate (pulse) >90	2	__/__/____	__:__
Respiration >20 per minute	1	05/20/2020	13:00
White blood cell count >12,000 or <4,000 or >10% bands	2	__/__/____	__:__

Sample Documentation

```
ENTRY DATE: MAR 29, 2019@12:02:30

Vital Signs *
  Temperature
    98.4 F (36.9 C)
  Pulse
    113
  Respirations
    24
  Blood Pressure
    121/81
  Pain scale recorded:
    10
  Pulse Oximetry 96 Room Air

Does patient meet SIRS Criteria?
(2 of the following, or 1 of the following for high risk patients (age
greater than 70, immunocompromised, indwelling line, history of diabetes,
ESRD, or Cirrhosis)

      - Temperature greater than 100.3 or less than 96.8
      - Tachycardia greater than 90 BPM
      - Respiratory rate greater than 20 per minute
      - WBC greater than 12K, less than 4K or Bandemia greater than or
        equal to 10%

Yes
If yes - does patient have suspected infection such as pneumonia, UTI,
soft tissue infection, abdominal pain, meningitis etc.?
  Yes
```

Clinical Criteria (3) Q18 seporg

Is there documentation of organ dysfunction in the medical record?

Indicate all that apply:

1. Systolic blood pressure (SBP) < 90 mmHg or mean arterial pressure < 65 mmHg
2. Systolic blood pressure (SBP) decrease of more than 40 mmHg (see definitions/decision (D/D) rules)
3. Acute respiratory failure as evidenced by a new need for invasive or non-invasive mechanical ventilation (see D/D rules)
4. Creatinine > 2.0 (see D/D rules)
5. Urine output < 0.5mL//kg/hour for 2 consecutive hours (see D/D rules)
6. Total bilirubin > 2 mg/dL (34.2 mmol/L)
7. Platelet count < 100,000
8. INR > 1.5 or aPTT > 60 seconds (see D/D rules)
9. Lactate > 18.0 mg/dL (>2 mmol/L)

Sample Documentation

```
DATA:-
K  3.1
Mg 1.0
Cr 1.79
AST 316
ALT 151

Lactate  5.0
WBC      19.1

ECG   :sinus tachy 111

CXR   :
There is elevation of right hemidiaphragm from eventration. There
      is also pleural effusion on the right  which usually is
      associated with atelectatic change. Superimposed pneumonia cannot
      be ruled out. Please correlate clinically The left lung is clear.
      The heart is not enlarged.

Impression :
1. Atypical chest pain
2. Hypovolemia
3. Sepsis, ? pneumonia
```

Q18 seporg

Organ dysfunction, evidenced by any one of question options

- **Hypotension** – SBP < 90 mmHg or MAP < 65 mmHg
- **SBP ↓** > 40 mmHg – physician/APN/PA documentation the ↓ is related to infection, severe sepsis, septic shock NOT other causes
- **Acute respiratory failure**
  - - intubated/tracheostomy on ventilator
  - BiPAP/CPAP
  - New need for invasive/non-invasive mechanical ventilation

Q18 seporg

- **Creatinine > 2.0 –** physician/APN/PA documentation of ESRD and dialysis prior to or within 24 hours following presentation of severe sepsis – disregard reported creatinine levels as signs of organ dysfunction
- **Urine output <0.5 mL/hr (for 2 hours) –** clear documentation urine is being monitored hourly
- **INR > 1.5 or aPTT > 60 sec –** if given anticoagulant in Appendix C Table 5.3, do NOT use elevated levels; Heparin flushes do not count.

Q18 seporgdt/seporgtm

- **For each of those options found, enter the earliest date/time of documentation**
- **In software, question will look like sepsirs on a previous slide**

Q19 sepsisdt and sepsistm

Question will be auto-filled based on responses to severe sepsis clinical criteria questions, dates and times.

- If all 3 clinical criteria are met within 6 hours of each other, will be autofilled with most recent date/time from infdt/tm, sepsirsdt/tm and seporgdt/tm

Q19 sepsisdt and sepsistm (cont.)

- If there is documentation of severe sepsis and not all clinical criteria are met within 6 hours of each other, will be auto-filled with 99's and will go to cntrasevsep.
- If **NO** documentation of severe sepsis or severe sepsis not met by all three clinical criteria within 6 hours of each other, abstraction will stop here.

Q20 sepresdt and Q21 seprestm

- **This date and time will be auto-filled with the earliest valid date/time entered for documentation of severe sepsis (sepdt/septm) or the most recent date/time from documentation of when the final clinical criterion for severe sepsis was met (sepsisdt/sepsistm).**

Q22 cntrasevsep

- During the timeframe from 6 hours before severe sepsis presentation date and time to 6 hours after severe sepsis presentation date and time is there physician/APN/PA or nursing documentation that the patient or authorized patient advocate refused either a blood draw, IV fluid administration, or IV antibiotic administration?

ACCEPTABLE:

- Specific documentation patient/authorized advocate refused blood draws, IV/IO fluids, IV/IO antibiotics
- General documentation of refusal of care/ noncompliance
- Left AMA in timeframe (signed form not required)
  - **Do not consider any AMA documentation as "contradictory"**

Q22 contrasevsep

NOT ACCEPTABLE:

- Refusal of specific blood draws not impacting requirements of measure (e.g. HIV, ABG)
- Documentation patient left before DC instructions could be given does not count as leaving AMA

Inclusions: Declined; Does not want; Refused; Requests not to be given

A "yes" answer will exclude case.

Q23 cmopall

During the timeframe from 6 hours before severe sepsis presentation date and time to 6 hours after severe sepsis presentation date and time is there physician/APN/PA documentation of comfort measures only or palliative care?

- **Only accept terms identified in the list of inclusions. No other terminology will be accepted**
- Other guidelines essentially same as COMFORT in other instruments (See D/D rules)

A "yes" answer AND other conditions will exclude case.

Q24 antibio

- During the timeframe from (24 hours prior or 3 hours after severe sepsis presentation date/time) was a broad spectrum or other antibiotic administered intravenously (IV)?
- **Only IV antibiotics administered in 24 hours prior to or 3 hours after severe sepsis presentation are acceptable.**
- **For informational purposes antibiotics administered up to 6 hours after Severe Sepsis Presentation Date/Time are being collected.**

EXCEPTION: If documentation indicates IV access could not be established, antibiotics via intramuscular (IM) or intraosseous (IO) started in timeframe are acceptable

Q24 antibio

ONLY ACCEPT:

- **Documentation demonstrating actual administration (**antibiotic name, route, date, time**)**
- Pre-hospital records may be used

NOT ACCEPTABLE:

- Order without marked as "started" with date/time
- Test doses
- Documentation in sources that do not represent actual administration
- Documentation in narrative note unless no other documentation
- Documentation without all components (name, route, date, time)

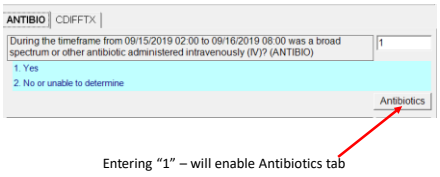
Q25 bioname / biodate / biotime

Beginning with first antibiotic administered, enter name, date and time of administration for each antibiotic given intravenously (IV).

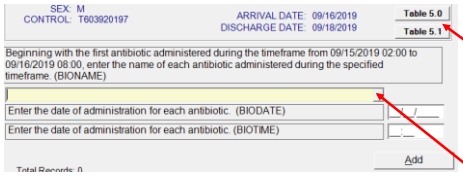
- For informational purposes dates/times up to 6 hours after severe sepsis date/time are being collected
- Only IV antibiotic(s) administered 24 hours prior to or 3 hours after severe sepsis presentation are acceptable.

  EXCEPTION: If documentation indicates IV access could not be established, antibiotics via intramuscular (IM) or intraosseous (IO) in timeframe are acceptable.
- Other guidelines same as antibio

Q24 antibio

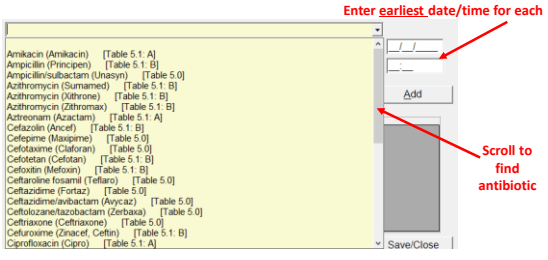


Q25 bioname / biodate / biotime



Timeframe – 24 hours before severe sepsis date/time to 3 hours after

Q25 bioname / biodate / biotime



Sample Documentation

Q26 antisel

- Intent is to determine if antibiotic (bioname) given is consistent with antibiotic selection guidelines and given within 3 hours after severe sepsis date and time.
- Guidelines based on "Monotherapy" (Table 5.0)or "Combination Therapy" (Table 5.1) Tables
- Will be auto-filled as "1" if one antibiotic is on Table 5.0 and given in timeframe **OR**
- If no antibiotic on Table 5.0, but one from Table 5.1, Column A **AND** one from Column B given in timeframe
- Otherwise it will be auto-filled as "2"

TJC Appendix C Table 5.0

Generic	Brand
Moxifloxacin	Avelox
Ceftazidime/avibactam	Avycaz
Ceftriaxone	Ceftriaxone
Cefotaxime	Claforan
Doripenem	Doribax
Ceftazidime	Fortaz
Ertapenem	Invanz
Levofloxacin	Levaquin
Cefepime	Maxipime
Meropenem	Merrem
Imipenem/Cilastatin	Primaxin
Ceftaroline fosamil	Teflaro
Ampicillin/sulbactam	Unasyn
Ceftolozane/tazobactam	Zerbaxa
Piperacillin/tazobactam	Zosyn

TJC Appendix C Table 5.1

Table 5.1: Antibiotic Generic/Trade Name Crosswalk, Sepsis Antibiotic Selection Options

COLUMN A		COLUMN B	
Generic Name	Trade Name	Generic Name	Trade Name
Aminoglycosides		**Cephalosporins (1st and 2nd Generation)**	
Amikacin	Amikacin	Cefazolin	Ancef
Gentamicin	Gentak	Cefotetan	Cefotan
Kanamycin	Kanamycin	Cefuroxime	Zinacef, Ceftin
Tobramycin	Nebcin	Cefoxitin	Mefoxin
Aztreonam		**Clindamycin IV**	
Aztreonam	Azactam	Clindamycin	Cleocin
Ciprofloxacin		**Daptomycin**	
Ciprofloxacin	Cipro	Daptomycin	Cubicin
		Glycopeptides	
		Teicoplanin	Targocid
		Vancomycin	Vancocin
		Telavancin	Vibativ
		Linezolid	
		Linezolid	Zyvox
		Macrolides	
		Erythromycin	Erythrocin
		Azithromycin	Zithromax
		Azithromycin	Xithrone
		Azithromycin	Sumamed
		Penicillins	
		Ampicillin	Principen
		Nafcillin	Nafcil, Nallpen
		Oxacillin	Bactocill
		Penicillin G	Penicillin G

Quality Insights

Q26 antisel

Example:

- Severe Sepsis Presentation Time 1200
- Ciprofloxacin initiated at 1230
- Vancomycin initiated at 1330
- **Combination Antibiotic Therapy Table:**
- Ciprofloxacin is in column A
- Vancomycin is in column B
- Both antibiotics were initiated within 3 hours of severe sepsis presentation time, therefore value "1" would be auto-filled.

If appropriate antibiotics not given in timeframe OR no antibiotics in timeframe value "2" will be auto-filled and go to selcult

Quality Insights

Q27 selcult

Is there Physician/APN/PA documentation referencing the results of a culture within 5 days prior to earliest antibiotic date/time?

- If IV antibiotic(s) from Table 5.0 or appropriate combination of IV antibiotics from Table 5.1 are not started within 3 hours following presentation of severe sepsis, and the following conditions are met, choose value "1."
  - **There is Physician/APN/PA documentation referencing the results of a culture from within 5 days prior to the antibiotic start time. The documentation must:**
    - **Identify the date of the culture results (must be within 5 days prior to the antibiotic start date/time).**
    - **Identify the suspected causative organism from the culture result and its antibiotic susceptibility.**

Quality Insights

Q27 selcult

- **The IV antibiotic(s) identified as appropriate per the physician/APN/PA documentation is started within 3 hours following the presentation of severe sepsis.**
  Example: Acceptable physician/APN/PA documentation: "Urine culture results from 9/10/19 show enterococcus, sensitive to vancomycin." The patient has severe sepsis with criteria met on 9/15/19 at 15:00 and the only antibiotic started is IV vancomycin at 15:30.

If these two conditions are NOT met, select value "2" and go to cdiff

Quality Insights

Q28 cdiff

During the timeframe within 24 hours prior to earliest date/time of antibiotic administration is there physician/APN/PA documentation identifying the presence of C. difficile?

- If the patient has C. difficile, and IV antibiotic(s) from Table 5.0 or an appropriate combination of IV antibiotics from Table 5.1 are not started within the 3 hours following presentation of severe sepsis, and the following conditions are met, choose value "1."
  - There is physician/APN/PA documentation within 24 hours prior to the antibiotic start time identifying the presence of C. difficile. Documentation that C. difficile is suspected or likely is acceptable.
- **If "yes", go to cdifftx**

Quality Insights

Q29 cdifftx

During the timeframe 3 hours after severe sepsis presentation date/time is there documentation of any one of the following treatments.

- Oral vancomycin with or without oral or IV metronidazole (Flagyl)
- Rectal vancomycin with or without IV metronidazole (Flagyl)
- IV metronidazole (Flagyl) monotherapy

Quality Insights

Q30 bloodcul

Two timeframes to consider for when blood culture drawn – intent is to determine if blood culture drawn before antibiotic given

- If patient **receives** IV or IO antibiotic within 24 hours before presentation of severe sepsis, timeframe is:
  - **24 hours prior to antibiotic date/time through 3 hours after *severe sepsis presentation date/time***
- If patient **does not** receive IV or IO antibiotic within 24 hours before presentation of severe sepsis, timeframe is:
  - **24 hours prior to *severe sepsis presentation date/time* through 3 hours after *severe sepsis presentation date/time***

Quality Insights

Q30 bloodcul

Include:

- Documentation blood cultures (BC), actually drawn/collected
- BC ordered and attempted to collect, but attempt fails or specimen contaminated
- Supportive documentation blood culture was collected in appropriate timeframe

Exclude:

- Blood sent to lab, lab here, labs drawn
- Only documentation of physician orders

Quality Insights

Sample Documentation

1229 Presents with SOB and upper right-sided pain x 2-3 days. Placed on Cardiac and O2 monitors. Vitals/orthostatic taken and documented. PT appears to have labored breathing, >90 O2. EKG done at 1203 in triage. No noted/voiced distress. Will continue to monitor.

1234 EDMD at bedside for initial assessment.

1264 20G PIV placed on Right forearm.

1295 Blood cultures taken with steripath from Right Forearm. Blood drawn and sent to lab as per EDMD order.

Quality Insights

Q31 bldculdt and bldcultm

During specified time frame enter date/time blood culture drawn/collected.

- Guidelines same as for Q30 bloodcul
- If multiple blood cultures drawn or attempted, use earliest date/time.

Include: Blood culture drawn, blood culture to lab, blood culture received

Exclude: Blood sent to lab, lab here, labs drawn

Quality Insights

Q32 bldculdel

Is there documentation supporting an acceptable delay in collecting a blood culture?

- **Only situations that demonstrate acceptable delay where blood culture was drawn after the *Broad Spectrum or Other Antibiotic Administration Date* and *Time*.**
  - **Surgical patients who receive pre or post-op prophylactic antibiotic within 24 hours before severe sepsis identified**
  - **Antibiotics started in hospital for infection within 24 hours before severe sepsis identified.**
  - **Antibiotics started prior to hospital arrival within 24 hours before severe sepsis was identified**
  - **A physician/APN/PA documented reason for delay, which makes it clear that waiting to start the antibiotic would be detrimental to the patient.**
  - **OB patients given prophylactic antibiotics for ruptured membranes, group B strep, or prior to caesarean section.**

Quality Insights

Q33 lactate

During the timeframe from 6 hours prior to 6 hours after severe sepsis presentation, was an initial lactate level drawn (or collected)?

- Timeframe for scoring is 6 hours prior to 3 hours after – collecting data up to 6 hours after for information
  - If multiple lactate levels drawn within time frame, use the HIGHEST lactate level drawn PRIOR to *Severe Sepsis Presentation Time*.
  - If multiple lactate levels drawn ONLY in the 3 hours after *Severe Sepsis Presentation Time*, use the Highest lactate level drawn
- If no documentation lactate was drawn or collected, but there is supportive documentation, use earliest supportive documentation (e.g., lactate sent to lab, lactate received, lactate result).

Quality Insights

Q33 lactate (cont.)

- If within 24 hours of *Severe Sepsis Presentation Time* there is physician/APN/PA or nursing documentation lactate value is invalid, erroneous or questionable, disregard that value.
- If lactate level drawn but no results in the record, choose Value "1."

Include: lactate level collected, lactate level drawn, lactic acid drawn

Exclude: labs drawn

Q34 lactdt and lactm

Enter the date/time the initial lactate level was drawn.

- Guidelines same as Q33 lactate
- If more than one date/time of documentation for the *Initial Lactate Level Collection,* use the following order to determine which date/time to abstract.
  1. Laboratory documentation indicating date/time lactate was drawn.
  2. Non-narrative location indicating lactate was drawn with an associated date/time (e.g., sepsis flowsheet, checklist, screening).
  3. Narrative note indicating lactate is drawn with an associated date/time.

Q35 lacval

What initial lactate level result was documented in the record?

1. <= 2 mmol/L (less than or equal to 2 mmol/L)
2. > 2 and < 4.0 mmol/L (greater than 2 mmol/L and less than 4 mmol/L)
3. >= 4 mmol/L (4 mmol/L or greater)

99. Initial lactate result was not documented or unable to determine result

- May be reported as mmol/L or mg/dL
- Equivalents in D/D rules
- If POC and lab results from the same sample, use the results recorded first.
- If physician/APN/PA documents prior to or within 24 hours after initial lactate result indicating initial lactate value is due to a condition that is not an infection, or is due to a medication, select Value "1" (<= 2mmol/L).

Q35 lacval - Sample Documentation

03/30/2019 0250 ED Clinician note "Severe sepsis, WBC 19 → 17…"
(6 hrs before = 3/29/2019 2050 to 6 hrs after = 3/30/2019 0850)

```
DATA:-
K  3.1
Mg 1.0
Cr 1.79
AST 316
ALT 161

Lactate  5.0
WBC      19.1
```

Collection DT	Spec	LACTATE	LACTATE
04/03/2019 07:45	PLASM	1.5	1.5
03/31/2019 04:20	PLASM	2.0	2.0
03/30/2019 18:00	PLASM	3.2 H	3.2 H
03/30/2019 04:55	PLASM	5.0 H	5.0 H
03/29/2019 20:30	PLASM	4.1 H	4.1 H
03/29/2019 12:55	PLASM	5.0 H	5.0 H

Q36 replact

During the timeframe from (computer display lacdt/lactm to sepresdt/seprestm +1 day) was a repeat lactate level drawn?

- Next level drawn after initial if elevated (>2.0 mmol/L)
- Must be in specified timeframe – if not select Value "2"
- Other guidelines same as Q33 lactate

Include: lactate level collected, lactate level drawn, lactic acid drawn

Exclude: labs drawn

Q37 replactdt and replactm

During the specified timeframe, enter the earliest date/time the repeat lactate level was drawn (or collected).

- Guidelines same as Q36 replact

Q38 hypotns

During the time frame from 6 hours prior to 6 hours after severe sepsis presentation is there documentation initial hypotension was present?

Criteria for determining Initial Hypotension:

- Two hypotensive blood pressure readings at different times within the specified time frame.
  - systolic blood pressures <90, or
  - mean arterial pressures (MAP) <65, or
  - a decrease in systolic blood pressure by >40 mm/Hg.

  Physician/APN/PA documentation must be present indicating a >40 mmHg decrease in SBP has occurred and is related to infection or severe sepsis and not other causes.

Q38 hypotns (cont.)

- Definition of MAP in D/D rules. There are methods to calculate, but **ONLY** accept actual documentation of MAP <65.

Acceptable Hypotensive BPs (Examples in D/D rules)

- Pre-hospital records considered part of medical record
- Due to:
  - Acute condition
  - Acute on chronic condition
  - Infection
- Term documented instead of abnormal value
- Conflicting documentation – hypotension normal AND possibly due to severe sepsis

Q39 hypotns

Not Acceptable Hypotensive BPs:

- Obtained in the OR, interventional radiology, during active delivery, or procedural/conscious sedation
- Documented from an orthostatic BP evaluation (tilt test).
- Documented as normal for patient
- Documented as due to non-infectious source/process

```
In the ED, found to be orthostatic hypotensive with good response to 3L NS IVF.

OBJECTIVE:
BP 80-90 systolic --> 3L IVF --> 110 systolic
```

Q40 hypotnsdt and hypotnstm

Enter the date/time on which initial hypotension was present during the time frame from 6 hours prior to 6 hours after severe sepsis presentation.

- Use earliest date/time of the second hypotensive BP documented in time period
- If more than two hypotensive BPs in time period use the date/time of the second hypotensive BP
- Use date/time documented for when hypotensive BP was taken or obtained if available. If not available, use recorded or documented date/time.

Q40 sepshk

Did a physician/APN/PA document presence of septic shock?

- **Include:** Septic Shock, Severe Sepsis with Shock
- **Exclude:** Bacteremia, Septicemia, Shock (not referenced as related to Severe Sepsis or Septic Shock)
- Presence of Septic Shock may be identified based upon physician/APN/PA documentation **OR** clinical criteria.
- **Look first for physician/APN/PA documentation of Septic Shock and choose Value "1" if found.**

Q40 sepshk

- In order to establish the presence of Septic Shock by clinical criteria, one of the following two criteria (1 or 2) must be met:

  1. Severe Sepsis Present **AND**
  Persistent Hypotension evidenced by:
  - In the hour after the conclusion of the target ordered volume of *Crystalloid Fluid Administration*, two consecutive documented hypotensive blood pressure readings.

  2. Severe Sepsis Present **AND**
  Tissue hypoperfusion evidenced by
  - *Initial Lactate Level Result* is >=4 mmol/L

Q40 sepshk

- If Septic Shock presentation is more than six hours after Severe Sepsis Presentation Time, select Value "2".
- Do **NOT** use title or heading of order set, protocol, checklist, etc.
- Documentation of septic shock ***within an*** order set, etc. may be used **IF**: recorded date and time is present and is earliest date and time recorded
- Use pre-hospital records (EMS, SNF) if considered part of medical record

Q40 sepshk

- Choose Value "2" if within 6 hours after septic shock documentation, physician/APN/PA notes indicate patient:
  - **is not septic**
  - **does not have Sepsis, Severe Sepsis, Septic Shock**
  - **Septic Shock is due to a viral, fungal or parasitic infection**
- **Qualifiers – Table in D/D rules**
  - **Positive = Yes**
  - **Negative/both = No**

Q41 sepshkdt and sepshktm

Enter the earliest date/time a physician/APN/PA documented presence of septic shock OR the earliest date/time on which the final criterion for septic shock was met

- First determine if documentation of septic shock
- Septic Shock identified by severe sepsis present and persistent hypotension (*Septic Shock Present* criteria 1):
  - **Use the later date/time of either severe sepsis presentation or persistent hypotension.**
  - **For persistent hypotension, use the date/time of the last consecutive blood pressure reading that identifies the presence of persistent hypotension.**

Q41 sepshkdt and sepshktm

- Septic Shock identified by severe sepsis present and initial lactate >=4 (Septic Shock Present criteria 2)
  - **Use the later date/time of either severe sepsis presentation or the initial lactate level result.**
  - **To determine the date/time of the Initial Lactate Level result for Septic Shock Present criteria, use the following sources in priority order.**
    1. Primary source: Lactate result date from lab

Q41 sepshkdt and sepshktm

- **Supporting sources in priority order if primary source not available:**
  1. Date/time within a narrative note that is directly associated with the lactate result
  2. Date/time the lactate result is documented in a non-narrative location (e.g., sepsis flowsheet)
  3. Initial Lactate Level Collection Date/Time
  4. Physician/APN/PA or nursing narrative note open date/time

Q41 sepshkdt and sepshktm

- Use earliest arrival date/time for ED patient OR earliest arrival date/time on floor/unit for direct admits with:
  - **Septic shock clinical criteria met in pre-hospital records**
  - **Physician/APN/PA documentation of septic shock in pre-hospital records**
  - **Physician/APN/PA documentation septic shock present on arrival**
- If only documentation of septic shock is POA, use earliest date/time of:
  - **Physician/APN/PA note**
  - **Admit order**
  - **Disposition to inpatient**
  - **Arrival to floor/unit**

Q41 sepshkdt and sepshktm

- If septic shock is in a physician/APN/PA note without a specific date/time documented within the note or documented using the acronym POA, the following apply:
  - **If it is the only documentation of Septic Shock in the note, use the date/time the note was started or opened.**
  - **If Septic Shock is documented multiple times within the same note, use the earliest specified date/time.**

Q42 cntrasepshk

- During the timeframe from 6 hours before septic shock time to 6 hours after septic shock date/time, is there physician/APN/PA or nursing documentation that the patient or authorized patient advocate refused either a blood draw, IV fluid administration, or vasopressor administration?
- Guidelines same as Q22 cntrasevsep

Q43 cmopall2

- During the timeframe from 6 hours before to 6 hours after septic shock time, is there physician/APN/PA documentation of comfort measures only or palliative care?
- Guidelines same as Q23 cmopall

Q44 crystl

During the timeframe from […] were crystalloid fluids initiated?

- Specified time frame is within 6 hours prior through 3 hours after either of the following trigger events. If both present the specified time frame is determined by the earliest trigger.
  - **Initial Hypotension Date and Time**
  - **Septic Shock Presentation Date and Time**

Include: Crystalloid fluids such as: 0.9% saline solution, 0.9% Sodium Chloride (0.9%NaCl) Solution, Isolyte, Lactated Ringers (LR or RL) solution, normal saline (NS), Normosol, PlasmaLyte

Exclude: Crystalloid solutions that are given to flush other medications or IV lines

Q44 crystl

- **Documentation of fluid initiation:**
  - Medical record documentation must be clear that crystalloid fluids were actually initiated/started (i.e., date/time of administration is noted).
  - Do not use physician/APN/PA orders as equivalent to actual initiation of fluids as they are not specific to initiation.
- **Crystalloid fluid orders:**
  - Physician/APN/PA orders are required
  - Must include type, volume, and rate or time over which fluids are to be given.
  - Terms bolus, wide-open, or open are acceptable for a rate of infusion duration.
  - If type, volume, rate or infusion duration is missing, do not use the order toward the target ordered volume.
  - The target ordered volume may be single order or series of multiple orders.
  - If crystalloid fluids are initiated via multiple physician/APN/PA orders, only abstract crystalloid fluids initiated within the specified time frame.

Q44 crystl

- **Exception for Prior to Arrival:** Documentation of fluids administered prior to arrival (e.g., ambulance, nursing home) are acceptable if documentation contains type, volume, start time, and either a rate, duration, or end time of the fluid infusion. A physician/APN/PA order for fluids administered prior to arrival is not required.
- **Exception for Operating Room (OR):** Crystalloid fluids administered in the OR by a physician/APN/PA are acceptable without an order if a fluid type, infusion start time, and infusion rate or infusion end time is documented.
- Documentation patient/authorized patient advocate has refused IV fluid administration prior to or within 6 hours following presentation of septic shock - select Value "98"

Q45 crystldt and crystltm

Enter the earliest date/time on which crystalloid fluids were initiated.

- Timeframe same as in Q44 crystl
- If single order written for target ordered volume, use date/time the solution was started as an IV infusion.
- If single order written for target ordered volume and infusion given over multiple infusions, use start date/time of the first fluid infusion.
- If multiple orders written that total the target ordered volume, use start date/time of the crystalloid fluid infusion that completes the target ordered volume.
- If a crystalloid infusion is running at a maintenance rate (125 mL/hour or less) and the rate is increased to administer the target ordered volume, use the date/time the infusion rate is increased.
- Do not abstract order date/time or date/time of IV access.

Q46 weight

Enter the patient's weight in kilograms (kg).

- If weight documented in pounds, divide the value by 2.2, round to the nearest whole number and enter the weight as kilograms
- To calculate the appropriate target ordered volume use the actual or estimated weight in the following priority order.
  1. Weight documented in the crystalloid fluid order
  2. Weight documented closest and prior to the order for crystalloid fluids
  3. Weight documented closest and after the order for crystalloid fluids

Q47 crystlvol

Computer will calculate the target volume based on weight entered and enter in milliliters (mL)

Q48 targvol

During the timeframe from […] was the target ordered volume of crystalloid fluids (computer display crystlvol) completely infused?

- Timeframe based on multiple factors
- The target ordered volume must be **ordered and initiated** within the specified time frame if Initial Hypotension or Septic Shock is present. To choose Value "1," the target ordered volume must be documented as completely infused.

(Go to D/D Rules in Word document)

Sample Documentation

```
03/29/19
19:57
    Ht:  67.00 in (170.18 cm)
    Wt:  192.00 lb (87.09 kg)
    Body Mass Index: 30*
```

- 87 x 30 = 2610 mL **Target Volume**

Sample Documentation

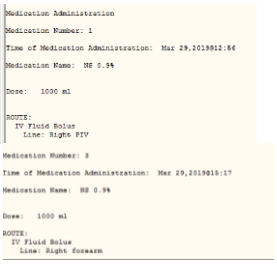
```
03/29/19 dc   SODIUM CHLORIDE 0.9% INJ BAG 1000ML          "      03/29/19  03/29
  12:44       INJ,SOLN  1000 ml IV INFUSE OVER 60          "        12:45  19:57
              Minutes NOW STAT
              <AUTO DC>
 AAO      Nrs:KVM   Chrt:KVM   Typ:ELECTRONICALLY ENT  Sgn:ELECTRONIC

03/29/19 dc   SODIUM CHLORIDE 0.9% INJ BAG 1000ML          "      03/29/19  03/29
  14:24       INJ,SOLN  1000 ml IV INFUSE OVER 120         "        14:26  19:57
              Minutes NOW STAT
              Total Volume 2L
              <AUTO DC>
 AAO      Nrs:KVM   Chrt:KVM   Typ:ELECTRONICALLY ENT  Sgn:ELECTRONIC
```

Q48 targvol

- Crystalloid fluid volumes ordered that are equivalent to 30 mL/kg or within 10% less than 30 mL/kg are considered the target ordered volume.

  Example in D/D rules.
- If the total volume of crystalloid fluids ordered is less than the target ordered volume, select Value "2."
- If there is documentation the infusion was stopped prior to reaching the target ordered volume, select Value "2."

Sample Documentation



```
Medication Administration

Medication Number: 1

Time of Medication Administration:  Mar 29,2019@12:56

Medication Name:  NS 0.9%


Dose:   1000 ml


ROUTE:
  IV Fluid Bolus
    Line: Right PIV
```

```
Medication Number: 3

Time of Medication Administration:  Mar 29,2019@16:17

Medication Name:  NS 0.9%


Dose:   1000 ml

ROUTE:
  IV Fluid Bolus
    Line: Right forearm
```


Q49 crystlend

Enter the earliest documented time the target ordered volume of crystalloid fluids was completed.

- **Review all data sources to determine the time the target ordered volume of crystalloid fluids was completed. Enter the exact time.**

Q49 crystlend (following guidelines from pershypo)

- If the completion time of the target ordered volume is NOT documented in the medical record use the following criteria to determine the conclusion time
  - **If the order includes a time frame over which to infuse the crystalloid fluid, identify the time the fluids are started and add to that the duration identified in the order. This will represent the conclusion of crystalloid fluids.**
    Example: An order for 1500 mL over 1 hour and the infusion is started at 10:00. Add 1 hour to the start time to determine infusion end time of 11:00.

Q49 crystlend (Example)

```
03/29/19 dc  SODIUM CHLORIDE 0.9% INJ BAG 1000ML          "      03/29/19  03/29
  14:24      INJ,SOLN  1000 ml IV INFUSE OVER 120         "        14:25  19:57
             Minutes NOW STAT
             Total Volume 2L
             <AUTO DC>
AAO      Nrs:EVM   Chrt:EVM   Typ:ELECTRONICALLY ENT  Sgn:ELECTRONIC
```

- Start time 14:26 – infuse over 2 hours
- End time 16:26

Q49 crystlend (Example)

- **If the order includes a rate at which to infuse the crystalloid fluids, the end time can be calculated based on the volume, the rate and the start time. Example: An order for 1500 mL at 1000 mL/hour and the infusion is started at 10:00. The time over which 1500 mL is infused is the volume divided by the rate. 1500 mL divided by 1000 mL/hour is 1.5 hours. Add 1.5 hours to the start time to determine infusion conclusion time of 11:30.**

Q50 pershypo

During the time frame from time fluids are completed to 1 hour after fluids completed is there physician/APN/PA documentation that persistent hypotension or new onset of hypotension was present?

1. Yes
2. No
3. No, the patient was not assessed for persistent hypotension or new onset of hypotension within one hour after the conclusion of crystalloid fluid administration at the target ordered volume, or unable to determine
4. Not applicable - Crystalloid fluids were administered but at a volume less than the target ordered volume

Q50 pershypo

- The criteria for determining persistent hypotension or new onset of hypotension are (same as for Q38 hypotns except different timeframe):
  - **In the one hour following conclusion of administration of the target ordered volume of crystalloid fluids, two consecutive documented blood pressure readings of either:**
    - systolic blood pressure <90, or
    - mean arterial pressure (MAP) <65 or
    - a decrease in systolic blood pressure by >40mm/Hg

    Physician/APN/PA documentation must be present in the medical record indicating a >40 mmHg decrease in SBP has occurred and is related to infection, severe sepsis or septic shock and not other causes.

Quality Insights

Q50 pershypo

Hypotensive BPs within the hour acceptable to use
(Examples in D/D rules)

- Due to:
  - **Acute condition**
  - **Acute on chronic condition**
  - **Infection**
- Term documented instead of abnormal value
- Conflicting documentation – hypotension normal or chronic **AND** possibly due to severe sepsis/septic shock
- Persistent hypotension is unable to be determined but a vasopressor was administered

Quality Insights

Q50 pershypo

Hypotensive BPs within the hour NOT acceptable to use

- Obtained within OR, interventional radiology, during active delivery, or procedural/conscious sedation
- Documented from an orthostatic BP evaluation (tilt test)
- Documented as normal for patient due to chronic condition
- Documented as due to non-infectious source/process
- Persistent more that six hours after septic shock time

Quality Insights

Q51 vasoprs

During the timeframe from septic shock time to 6 hours after, is there documentation an intravenous (IV) or intraosseous (IO) vasopressor was administered?

- **Only Acceptable Vasopressors given via the IV or IO route: (**Table in D/D Rules**)**
- Only abstract from documentation that demonstrates actual administration of the vasopressor.

(Go to Instrument)

Quality Insights

Q52 vasoprsdt and vasoprstm

During the timeframe from septic shock time to 6 hours after, enter the date/time on which an IV or IO vasopressor was administered.

- Guidelines follow Q51 vasoprs guidelines
- If a vasopressor was infusing at the date/time of presentation of septic shock, and multiple doses were subsequently given, abstract the date/time the vasopressor that was infusing at the time of presentation of septic shock was initiated.

  (See Example in D/D rules)

Quality Insights

Q54 rptvolst

During the timeframe from initial time of fluid administration to 6 hours after septic shock presentation time, is there documentation of a repeat volume status and tissue perfusion assessment?

- A repeat volume status and tissue perfusion assessment may consist of any one of the following three:

  1. Physician/APN/PA documentation indicating or attesting to performing or completing a physical examination, perfusion (re-perfusion) assessment, sepsis (severe sepsis or septic shock) focused exam, or systems review. (Examples in D/D rules)

Quality Insights

Q54 rptvolst

2. Physician/APN/PA documentation indicating or attesting to performing or completing a review of at least five of the following eight parameters

1) Arterial O_2 saturation
2) Capillary Refill
3) Cardiopulmonary assessment (See D/D rules)
4) Peripheral pulses
5) Shock Index (SI)
6) Skin Color or Condition
7) Urine Output
8) Vital Signs

Q54 rptvolst

3. Documentation demonstrating one of the following was measured or performed.

1) CVP
2) $ScvO_2$
3) Echocardiogram
4) Fluid Challenge or Passive Leg Raise

- **If No documentation found of repeat volume status and tissue perfusion assessments, choose Value "2" for Q54 rptvolst**

Q55 rptvolstdt and rptvolsttm

During the timeframe from initial time of fluid administration to 6 hours after septic shock presentation time, enter the date/time on which a repeat volume status and tissue perfusion assessment was documented by a physician/APN/PA.

- Physician/APN/PA documentation must occur or reflect the assessment was performed between Crystalloid Fluid Administration Date/Time and six hours after Septic Shock Presentation Date/Time.
- If multiple repeat volume status and tissue perfusion assessments performed, abstract the date/time of the earliest assessment documented within the appropriate time window.

QUESTIONS??

- **Abstraction to be completed by 7/29/20**
- **Email** shmiller@qualityinsights.org
  asites@qualityinsights.org