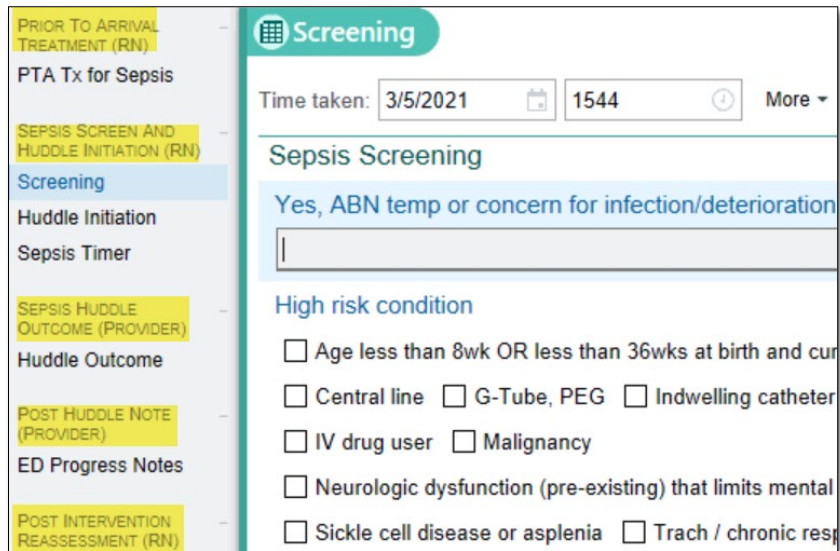
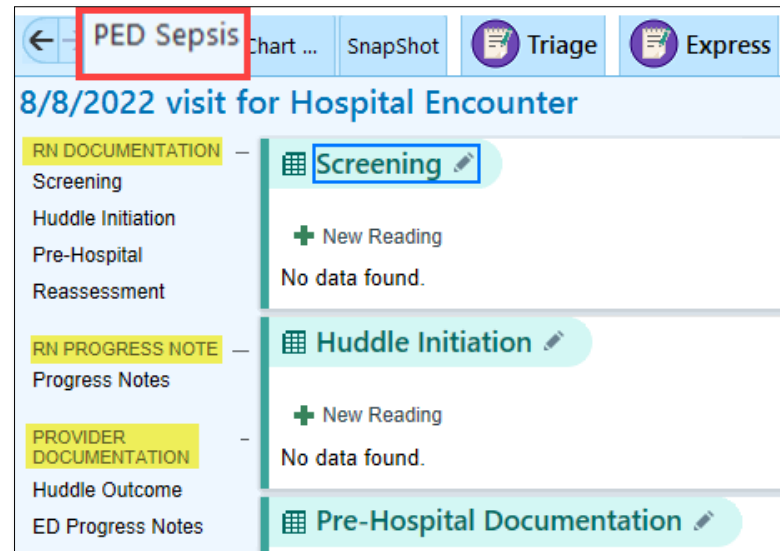


## Sepsis Navigator: Before and After

### Before



### After



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Challenges Faced	Solution
Not clear who was responsible for which pieces of documentation	Reorganized topics to better define responsibility
Nursing was “turning on” timer with documentation of huddle; No clear process for when to turn the timer off Staff had to go back to navigator to turn off timer	Removed the Sepsis Timer (at least for the ED at this time)
When documenting in navigator, staff had to jump out to enter a note	Created a progress note topic for efficiency. Taught nurses how to create note quick buttons for sepsis template

## Assessment options that determine (+) Sepsis Screen

Assessment options that Determine (+) Sepsis Screen or Altered Mental Status

(High HR or Low SBP) AND (+ screen AND Fever) OR +BC OR Hypothermia OR (High risk condition + fever (here or home))

High Risk Condition OR Perfusion OR Cap Refill OR Pulses	
If any one category positive = Positive Sepsis Screen	
Perfusion	
Skin Color	Cyanotic/Cyanosis
	Circumoral cyanosis
	Dusky
	Mottled
	Jaundiced
Skin (circulation)/ Skin Condition	Cool
	Clammy
	Diaphoretic
Skin Abnormality	Petechiae
	Purpura
Pulses	
Pulses	Absent
	Thready
	Weak
	Bounding
Capillary Refill	
Capillary Refill	Abnormal
High Risk Condition	
Age < 8wk IR < 36wks at birth and currently 3m or less	
Bone marrow or solid organ transplant	
Central line	
G-Tube, PEG NOT Stand Alone, Must be with another HRC	
Indwelling catheter (shunt, urinary device)	
Immunodeficiency/immunocompromised	
IV Drug User	
Malignancy	
Pre-existing Neuro dysfunction that limits mental status eval	
Sickle cell disease or asplenia	
Trach/chronic respiratory support	

Altered Mental Status	
LOC	Does not arouse
	Confused
	Lethargic
	Obtunded
	Stuporous
	Comatose
	Unresponsive
	Somnolent
Orientation Level	Periods of confusion
Baseline Neuro	Caregiver/parent reports change in baseline for patient w/neurologic dysfunction that limits mental status eval

Future enhancement: Irritable-inconsolable

## BPA Logic

(Elevated Heart Rate OR Low Systolic BP) AND (+ Sepsis Screen AND Fever)

OR

Return for + Blood Culture

OR

Hypothermia

OR (High Risk Condition AND Fever (here or home))

## Nurse Facing BPA: Initial Phase

### Informational (1)

**i** Your patient has tachycardia, tachypnea or hypotension documented.



ADDITIONAL ASSESSMENTS are **needed** to determine further interventions.

**Filed Sepsis-related Vitals:**

Last BP: **(!)** 66/40 (03/02/21 1508)

Last Pulse: **(!)** 210 (03/02/21 1508)

Last RR: **(!)** 66 (03/02/21 1508)

Is there?

- fever (home or ED  $\geq 38^{\circ}\text{C}$  (100.4F); or
- hypothermia ( $\leq 36^{\circ}\text{C}$  (96.8F); or
- S/S concerning for sepsis or infection?

**NO:** Click No fever, hypothermia or concern for sepsis / infection

**YES:** Click Yes ABN temp or concern for infection / deterioration  
and Click link below to complete **SEPSIS ASSESSMENT**

[Sepsis Screening](#)

**i** Acknowledge Reason


Yes ABN temp or concern for infection/de...

No fever, hypothermia, or concern for se...

Baseline due to chronic condition (comme...


Critical patient, Defer screen

Remind me in 5 minutes

 **Accept**

## Nurse Facing BPA: Relaunched Version

Informational (1)



!!Patient meets risk criteria for Sepsis!!

Possible indications that could have triggered this BPA
 

<b>Last TEMP:</b> (!) 39.1 °C (102.4 °F) (04/03/23 2105) <b>PTA Temp:</b> Has patient had a temp >= 38C (100.4F) at home within 24 hours of arrival?: Yes	<b>Last Pulse:</b> (!) 150 (04/03/23 2105) <b>Last Monitored HR:</b>
Positive Sepsis Screen	

Patient meets criteria for **Sepsis HUDDLE**, Notify Attending & Charge RN

[Click here to document Huddle in Sepsis Navigator](#)

Acknowledge Reason

Attending & Charge to be notified

Toxicology related AMS

✓ Accept

Dismiss

# Sustainability



- Ongoing monthly team meetings
  - Review of specific patients
  - IPSO bundle compliance
  - Meet compliance? If not, why (i.e. workflow issues)
- Communication
  - UMMC is an academic center; all residents rotate through Peds ED
  - Nurse huddles with the Peds ED Attending
  - Resident often manages patient & enter orders
    - Exploring efficient way to notify resident once huddle takes place

# Sustainability



- Enhance the Sepsis Navigator
  - Add Sepsis Comprehensive Report and Sidebar Report
  - Consolidates pertinent information for rapid decision making
  - More meaningful tool for end users
- IPSO Coordinator runs reports for quality & process review
  - BPA report once per week
    - Provide feedback to the ED IPSO team
    - IPSO champions provide direct feedback to staff
  - Order Set Usage report monthly
    - Provides report to IPSO team targeting providers

# Sustainability



- Success of ED work
  - Moving forward with Acute Care and PICU build
  - Speaking same sepsis language
  - Similar tools, modified to unit specific workflows
  - Future sustainability
- COVID/Peds Viral Surge Staffing
  - Relaunch of an improved clinical decision support model (BPA)
  - Created a standardized and streamlined process
  - Promoted compliance despite the large number of travel and new graduate nurses



## Appendix

1. Sepsis Navigator- Sepsis Screen Topic
2. Pediatric ED Sepsis Screen- Paper Version
3. PICU Sepsis Screen- Paper Version
4. Pediatric Acute Care Sepsis Screen- Paper Version
5. Screen shot of Huddle Outcome BPA with link to order set
6. Example of future enhancement- Epic Sidebar Report (screenshot from Epic Foundation Build)

# Sepsis Screen in Sepsis Navigator

**Sepsis Screening**

High risk condition

☐ Age less than 8wk OR less than 36wks at birth and current age 3mon or younger
 ☐ Bone marrow or solid organ transplant
 ☐ Central line
 ☐ G-Tube, PEG

☐ Indwelling catheter (shunt, urinary device, etc.)
 ☐ Immunodeficiency / immunocompromised
 ☐ IV drug user
 ☐ Malignancy

☐ Neurologic dysfunction (pre-existing) that limits mental status eval
 ☐ Sickle cell disease or asplenia
 ☐ Trach / chronic respiratory support

Has patient had a temp  $\geq 38^{\circ}\text{C}$  (100.4F) at home within 24 hours of arrival?

LOC

☐ Alert
 ☐ Arouses to touch
 ☐ Arouses to pain
 ☐ Arouses to voice
 ☐ Does not arouse
 ☐ Confused
 ☐ Irritable

☐ Restless
 ☐ Lethargic
 ☐ Obtunded
 ☐ Stuporous
 ☐ Comatose
 ☐ Medicated/Se...
 ☐ Other (Comm...

Orientation Level

☐ Oriented X4
 ☐ Oriented to person
 ☐ Oriented to place
 ☐ Oriented to time
 ☐ Oriented to situation
 ☐ Disoriented X4

☐ Disoriented to person
 ☐ Disoriented to place
 ☐ Disoriented to time
 ☐ Disoriented to situa...
 ☐ Appropriate for dev...
 ☐ Periods of confusion

☐ Unable to assess
 ☐ Other (Comment)

Affect/Behavior

☐ Appropriate
 ☐ Calm
 ☐ Cooperative
 ☐ Appears d...
 ☐ Combative
 ☐ Crying
 ☐ Fearful
 ☐ Flat
 ☐ Hostile

☐ Inappropriate
 ☐ Restless
 ☐ Uncoopera...
 ☐ Agitated
 ☐ Anxious
 ☐ Other (Co...

Neuro - Other

Color

Integumentary (Skin)

☐ WDL
 ☐ Cool
 ☐ Hot
 ☐ Clammy
 ☐ Diaph...

Within Defined Limits:  
Skin warm, dry and intact

Non-Wound Skin Abnormality

☐ Acne
 ☐ Blister
 ☐ Drying, e...
 ☐ Eczema
 ☐ Ecchymosis
 ☐ Excoriation
 ☐ Flaking
 ☐ Hair loss/...
 ☐ Hematoma
 ☐ Hives

☐ Insect bites
 ☐ Lesion
 ☐ Mass
 ☐ Nail disor...
 ☐ Petechiae
 ☐ Pruritic
 ☐ Purpura
 ☐ Rash
 ☐ Diaper R...
 ☐ Reddened

☐ Red ring
 ☐ Scab
 ☐ Scar
 ☐ Sloughing
 ☐ Weeping
 ☐ Other (Co...

Document only skin abnormalities that are NOT wounds in this row.  
Add all wounds as Wound LDAs and document assessments in the WDA flowsheet or Avatar.

Capillary Refill

L Brachial Pulse

☐ 0=Absent
 ☐ +1=Thready
 ☐ +2=Weak
 ☐ +3=Normal
 ☐ +4=Bounding
 ☐ Doppler
 ☐ Palpable
 ☐ Aline
 ☐ Unable to...

## PED Sepsis Screening Tool

Part 1: Time: \_\_\_\_\_ Date: \_\_\_\_\_

1. **Tachycardic** (age-based): \_\_\_\_\_  
OR  
**Hypotensive**: \_\_\_\_\_

Don't forget to get a **BP** on any high risk or potentially septic child regardless of age!

AND

2. Has **fever** (home or in ED) OR **hypothermia**: \_\_\_\_\_

HYPOTHERMIA or MENTAL STATUS CHANGE is an automatic **POSITIVE** sepsis screen

**\*\*If patient meets both criteria, please move on to Part 2 of Sepsis Screen**

Part 2: (circle answer)

Upper Extremity CRT:

<2 secs (flash)      2-3 secs (normal)      >3 secs (delayed)

If patient gets called back for **POSITIVE** blood cultures, huddle with attending regardless if screen is + or -

Existing High-Risk Condition

<8 weeks or if patient was premature (<36 weeks) and <3 months old now)

Sickle Cell Disease or Asplenia

Bone Marrow or Solid Organ Transplant

Central Line

Indwelling Catheter (Shunt, Urinary Device)

Malignancy

Trach/Ventilator dependent

Immunodeficiency/immunocompromised

Neurologic dysfunction (pre-existing) that limits mental status eval

IV drug user

Does the patient have any of the following?

**Abnormal:**

- ☐ Mental status, behavior or orientation
- ☐ Skin color, temperature or rashes
- ☐ Pulses

**\*\*If you answered Yes to any of these, discuss in Huddle with the Attending.**

**\*\*Patient considered to have a positive sepsis screen if they meet both criteria in Part 1 and have at least 1 positive risk factor ( flash CRT, delayed CRT, high risk condition) from part 2**

**\*\*If sepsis screen is positive please take the following actions**

- Move patient to appropriate room based on ESI Level
- Perform sepsis huddle with ED attending & charge
- Complete screen and huddle under Sepsis Navigator in EPIC

Attending: \_\_\_\_\_ RN: \_\_\_\_\_ Time: \_\_\_\_\_

**Circle attending decision:**      routine care      sepsis watcher      sepsis with organ dysfunction but w/o shock      sepsis shock

**PICU SEPSIS SCREENING TOOL (Resuscitation Algorithms on Reverse Side)**

**Date:** \_\_\_\_\_ **DAY RN:** \_\_\_\_\_ **Night RN:** \_\_\_\_\_

1. Complete in the **1<sup>st</sup> 4 hours of shift and prn** when sepsis or septic shock suspected
2. Place a **mark in column (s) to indicate yes** response
3. Total score >2 triggers a SEPSIS HUDDLE at bedside with Fellow or NP & charge RN when able.
4. **ONLY new abnormal findings for the patient trigger a yes response**

PARAMETERS * (for age)-norms below	Dayshift	PRN	Nightshift	PRN
Time of Score				
Fever or Hypothermia				
Tachycardia*				
Tachypnea*				
Hypotension*				
CRT> 3 secs OR mottled extremities				
Leukopenia or Leukocytosis				
Ill Appearance OR Altered Mental Status				
Total Score of YES questions				
<b>Huddle for Score of 2 or More</b>				
Huddle Time				
Sepsis Suspected? If YES-see below				
Septic Shock Suspected? If YES-see below				
<b>SEPSIS OR SEPTIC SHOCK Suspected</b>	Time	Time	Time	Time
<b>Notify Attending</b>				
Document in EPIC re. + screen for Suspected Sepsis vs. Septic Shock & Treatment Initiated (See Algorithms for suspected sepsis versus septic shock in Bedside Charts)				

Table of ABNORMAL Ref Ranges FOR IPSO SCORING if value > or < parameters listed:

Temp <36 or >38 is scored as abnormal for all ages

Age Group	Birth-30days	31days-<2yrs	2-<6 years	6-<13 yrs	13-<19 yrs	19-<22yrs
HR	>190	>180	>160	>140	>130	>90
RR	>68	>58	>44	>38	>35	>20
SBP	<60	<70	see below	see below	<90	<90
WBC	5-19.5	5-17.5	6-15.5	4.5-13.5	4.5-11	4.5-11
Hypotension for SBP for age (yrs):						
			2 <74	8 <86		
			3 <76	9 <88		
			4 <78	10 <90		
			5 <80	11 <92		
			6 <82	12 <94		
			7 <84			

### PPCU IPSO Sepsis Screening Tool

**Alert 1** If **YES** to any of the following, please advance to **Alert Two**.

	Please record abnormal value	
Hypothermic (<36° C) <b>*IMMEDIATE SEPSIS HUDDLE*</b>		
Hyperthermia (>38° C)		
Tachycardia (20 beats/min > PEWs established parameters)		
Hypotension (by Systolic BP according to PALs parameters)		
Tachypnea (20 breaths/min > PEWs established parameters)		
<b>PLEASE RECORD CURRENT PEWs and CHEWs</b> <i>Call rapid according to PEWs or CHEWs algorithm regardless of sepsis screen</i>	PEWS	CHEWS

**Alert 2** Does the patient have ANY of the following? Circle **Yes** or **NO**

	Please check if applicable
<b>Ill Clinical Appearance</b>	
* Altered mental status; <b>call rapid immediately</b>	
Cap refill > 3 seconds	
* Skin: Cool, cyanotic or mottled; <b>call rapid immediately</b>	
Skin: Petechiae or Purpura	
<b>Central Venous Access</b>	
<b>Existing High Risk Condition</b>	
< 55 days old (using corrected age for premature infants)	
Bone marrow OR solid organ transplant	
Immunodeficiency or Immunocompromised <i>Consider medications including home regimen</i>	
Malignancy	
Neutropenic	
Sickle Cell Disease and/or Asplenia	
Device: (Trach Dependent, GT, urinary catheter)	

If **NO** to all, please continue observations at current frequency.

If **YES** to at least one above, activate **sepsis huddle at bedside within 5 min** and record info below. Contact senior MD and Charge or Resource RN. State *"This is patient xxx; they have a positive sepsis screen related to (symptoms). We need to consider if this patient is septic."* If provider can't respond, escalate up the chain of command to Attending. Remember the Hospitalist Attending is available 24/7.

**CIRCLE ALL THAT APPLY**

Identification: Low Suspicion or Severe Sepsis or Septic Shock

Interventions: labs, bld cultures, bolus, antibiotics, other: \_\_\_\_\_

Notes:

Outcome: Rapid Response or Stay on PPCU or Transfer to PICU

Order set used: Sepsis Watcher, Sepsis Track 1, Sepsis Track 2

**Time of huddle:**

**Senior MD:**

**RN:**

**Charge:**



## Huddle Outcome BPA- Direct Path to Ordering

Huddle Outcome

Time taken: 3/4/2021 1739

More ▾

☐ Show Last Filed Value
 ☐ Show Details
 ☐ Show All Choices

Provider Huddle Outcome

Huddle Outcome

Septic Shock

Severe Sepsis

Sepsis

Sepsis Watcher

Routine Care

IPSO Guidelines:

Septic Shock- sep

Severe Sepsis- se

Sepsis- SIRS + pr

Sepsis Watcher- p

Routine care- no

Create Note

Restore

Emergency

Create Note


No notes of this typ

Post Interv

New Reading

BestPractice Advisory - Nefftest, Postupdate

Informational (1)



SEPSIS HUDDLE Outcome indicates **additional orders may be needed.**

Huddle Outcome: Severe Sepsis

Click to place appropriate orders for this patient using the Sepsis Track 1 order set below.

[Click here to provide feedback on this alert.](#)

Open Order Set

Do Not Open

UMMC PED ED Sepsis Track 1 [Preview](#)

Acknowledge Reason

Appropriate orders already initiated

Other (See Comments)

Accept

compassion | discovery | excellence | diversity | integrity

30


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## Example of a Sepsis Sidebar Report

Sepsis

 **Blood Cultures Not Ordered**

 **Antibiotics Not Ordered**

 **First Antibiotics Not Administered**

 **Fluid Resuscitation Not Ordered**

 **Fluid Resuscitation Not Administered**

 **Fluid Resuscitation Volume Not Documented**

**ED Events**

Date/Time	Event	User	Comments
02/13/18 1117	ED Arrival	ADT, PATIENT ACCESS (HOSPITAL REG STAFF)	
03/02/18 1457	Sepsis risk	RUSSELL, KATE	NURSING SEPSIS PROTOCOL INITIATED - [172367475]
03/02/18 1504	Severe sepsis	LMHS, PHYSICIAN EMO (CPOM)	SEVERE SEPSIS PRESENT OR SUSPECTED. INITIATE SEVERE SEPSIS ALERT - [172367519] - Displays sepsis checklist and header indicator, indicates core measure inclusion, notifies CCO nurse (if ED patient).

**Blood Culture Orders** Expand | Hide  
(72h ago through 72h from now)

Ordered	Start
03/02/18 1457 > CULTURE, URINE STAT	03/02/18 1458
03/02/18 1457 CULTURE, BLOOD PERIPHERAL (1 of 2) (CULTURE, BLOOD PERIPHERAL X 2 PANEL) ONCE	03/02/18 1458
03/02/18 1457 CULTURE, BLOOD PERIPHERAL (2 of 2) (CULTURE, BLOOD PERIPHERAL X 2 PANEL) ONCE	03/02/18 1458

**Recent Abx Admin (24h, sepsis approved)**  
 No antibiotics have been administered in the last 24 hours  
**Orders not given:**  
 ceftRIAXone (ROCEPHIN) 1 gm/50 mL (MINI-BAG PLUS)  
 piperacilin-tazobactam (ZOSYN) 3.375 gm/50 mL (MINI-BAG PLUS)

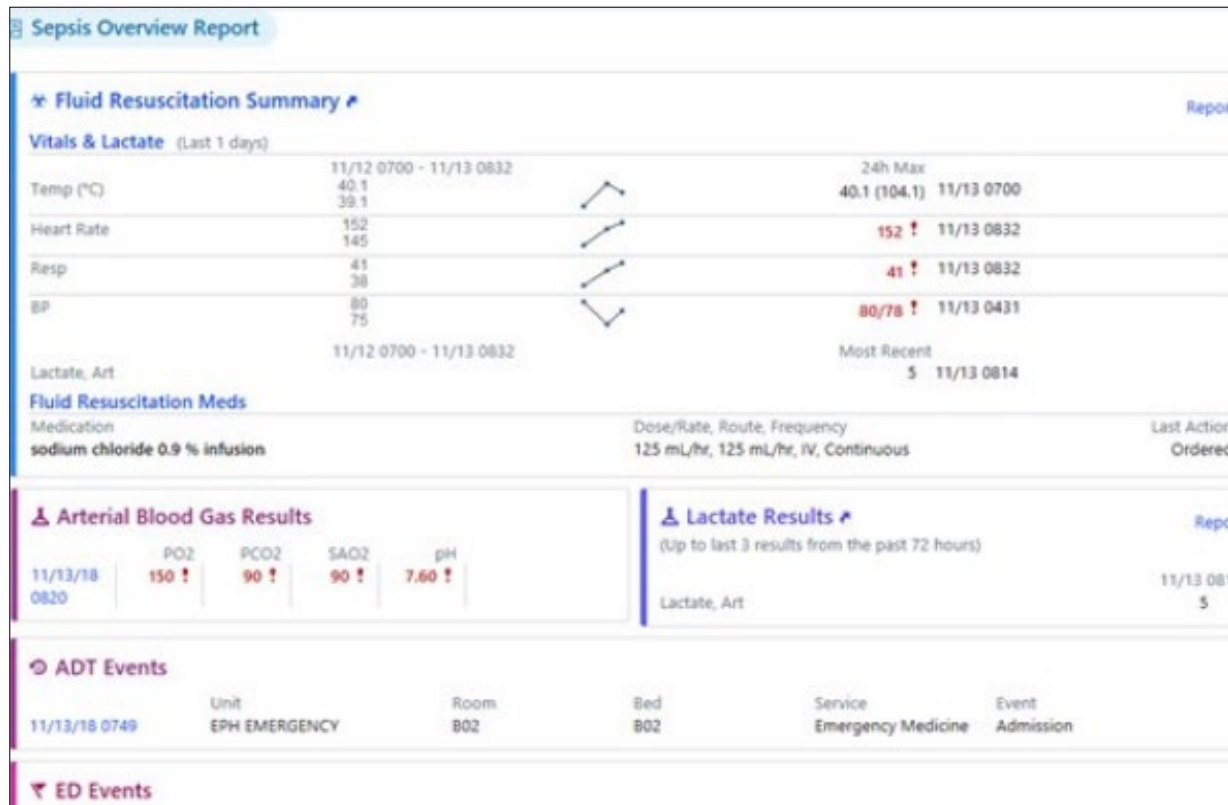
**Blood Pressure from 03/02/18 0904 to 03/02/18 1504**

Date/Time	BP	MAP	Who
03/02/18 1502	† 88/42	† 57 mmHg	KAR
03/02/18 1456	† 92/46	† 61 mmHg	KAR

**Recent Crystalloid Admin (24h)**  
 sodium chloride 0.9 1,000 mL Given 03/02/18 1503  
 % bolus (mL)  
**Orders not given:**  
 No IV crystalloid orders without administrations found

**Intake/Output** Report

## Example of a Sepsis Overview Report



Print groups in this report are customizable; at UMMC, the IPSO team will decide what is displayed