

## **APPENDIX**

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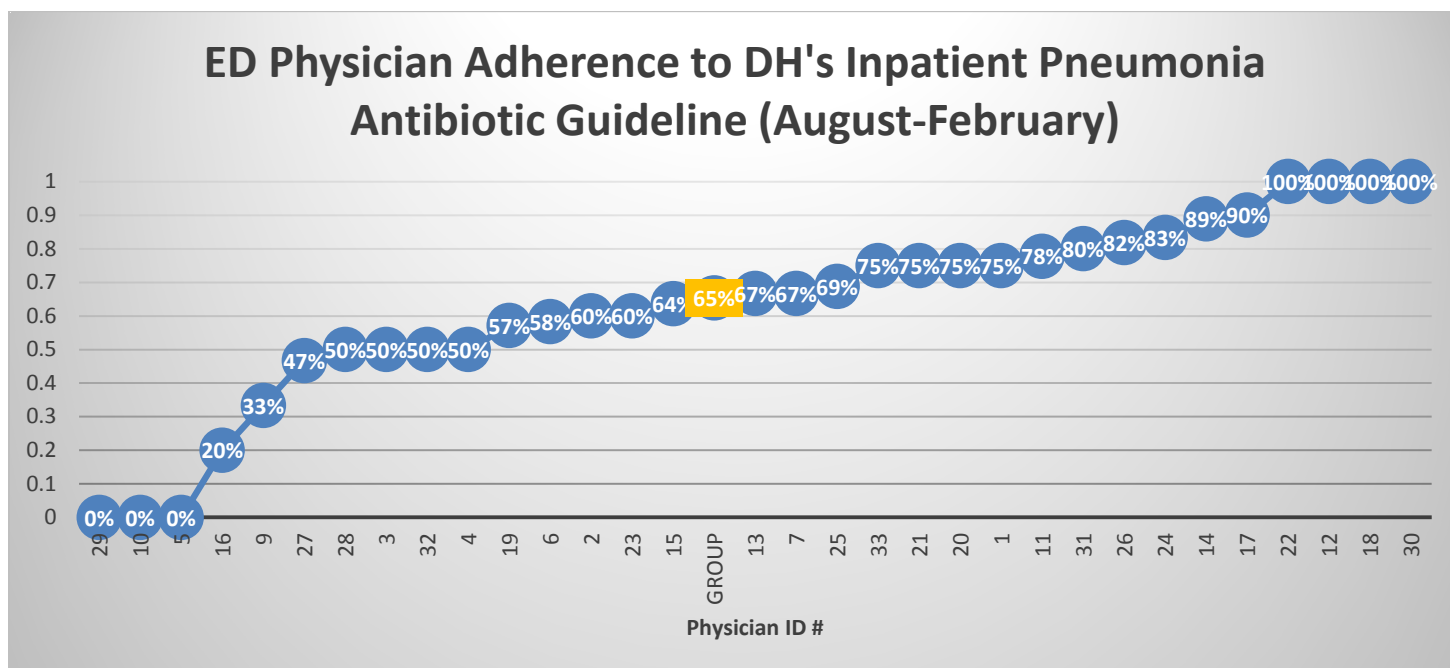
## EXAMPLE FEEDBACK: Pneumonia

Dear Provider:

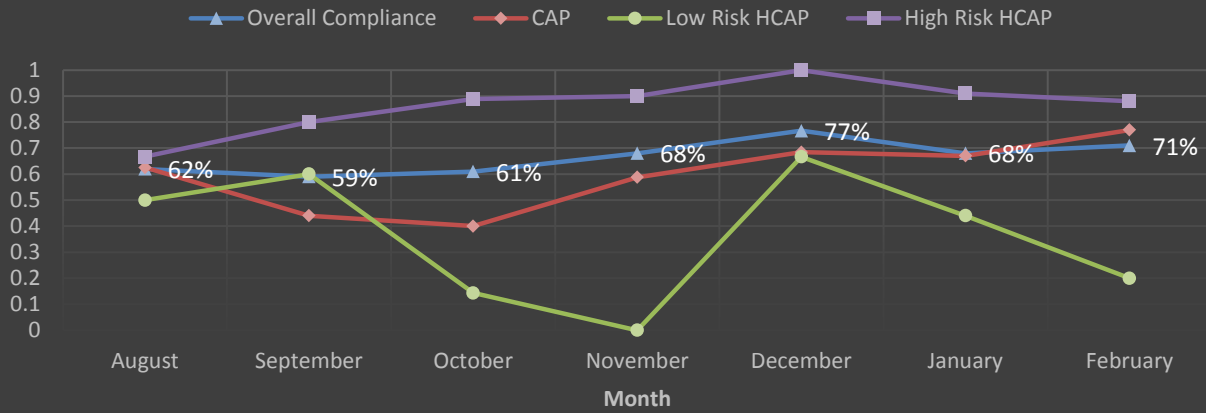
Below is a table detailing your compliance with Denver Health's antibiotic guideline for inpatient pneumonia. Overall, your compliance is excellent (82%) as compared to your peers (65%). In the figures below, you are provider # 26. Additionally, please see the attached reference outlining Denver Health' guideline for inpatient antibiotics for pneumonia.

### Guideline Compliance for Adult Inpatient Pneumonia Treatment

MR	Date Encounter	Type of Pneumonia	Admitting Floor	Antibiotics	Compliance
		High Risk HCAP	Floor	Cefepime / Vancomycin	Yes
		CAP	Floor	Ceftriaxone / Azithromycin	Yes
		High Risk HCAP	ICU	Aztreonam/Vancomycin/Clindamycin	Yes
		CAP	ICU	Cefepime/Vanc	No
		High Risk HCAP	ICU	Cefepime	Yes
		CAP	Floor	Ceftriaxone/Azithro	Yes
		High Risk HCAP	Floor	Cefepime/Vanc	Yes
		High Risk HCAP	Floor	Cefepime/Vanc	Yes
		High Risk HCAP	Floor	Cefepime/Vanc	Yes
		CAP	Floor	Ceftriaxone/Azithromycin	Yes
		Low Risk HCAP	ICU	Cefepime/Vanc	No
					82%



Group Data  
**Compliance with Guideline Antibiotic Therapy  
for Inpatient Pneumonia**



## EXAMPLE FEEDBACK: Severe Sepsis

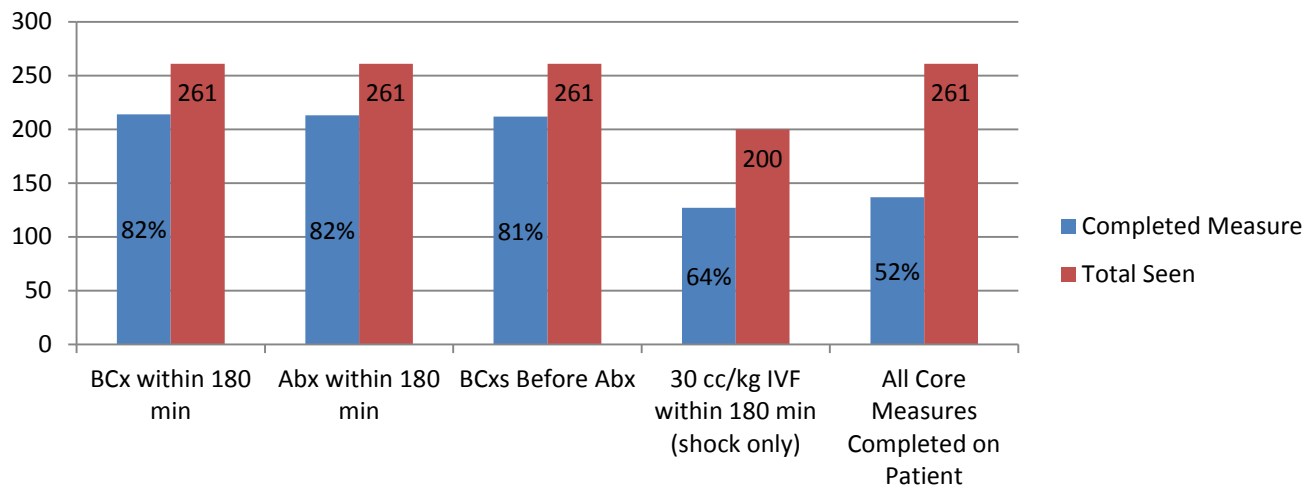
Dear Provider:

Below is a table detailing your compliance with CMS' Sepsis Core Measure (3 hours). While your compliance with the composite core measure is only 47%, your compliance with the each component ranges from 67% to 87%. Your compliance is below average (47%) as compared to your peers (52%) (see figure below). Additionally, please see the attached reference outlining the CMS Sepsis Core Measure.

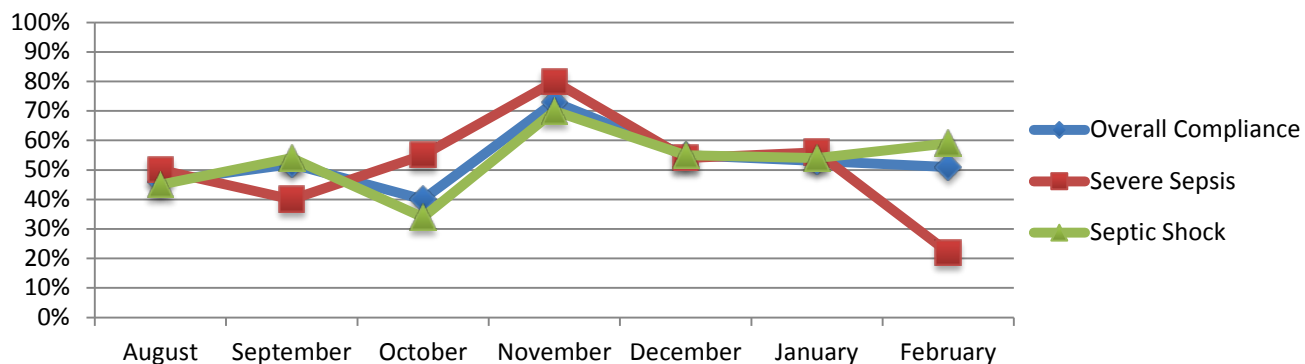
### **SEVERE SEPSIS / SHOCK CORE MEASURES**

MR	Date Encounter	BCx < 180 min	Abx < 180min	BCx Before Abx	30mL/kg in 180 min	Notes/Comments
		Yes	Yes	Yes	Yes	
		No	No	Yes	Yes	ABx and BCx > 4 hrs
		Yes	Yes	Yes	Yes	
		Yes	Yes	No	No	ABx given 40 minutes before BCx; only 1L
		Yes	Yes	Yes	Yes	
		Yes	Yes	No	.	ABx given 40 minutes before BCx
		No	Yes	No	.	no blood cultures drawn
		Yes	Yes	Yes	Yes	
		Yes	Yes	No	No	ABx given immediately on arrival. 3L NS ordered but only 2L given
		Yes	Yes	Yes	Yes	
		Yes	No	Yes	.	ABx given 4.5 hours into ED stay
		Yes	Yes	Yes	No	2500cc in total ordered. 2L ordered w/in 2 hours of ED stay but took 3 hours to complete 2L (5 hours from triage)
		Yes	Yes	Yes	Yes	
		Yes	Yes	No	.	ABx given 5 minutes before BCx
		Yes	Yes	Yes	Yes	
		87%	87%	67%	73%	Component Compliance
					47%	Overall Compliance

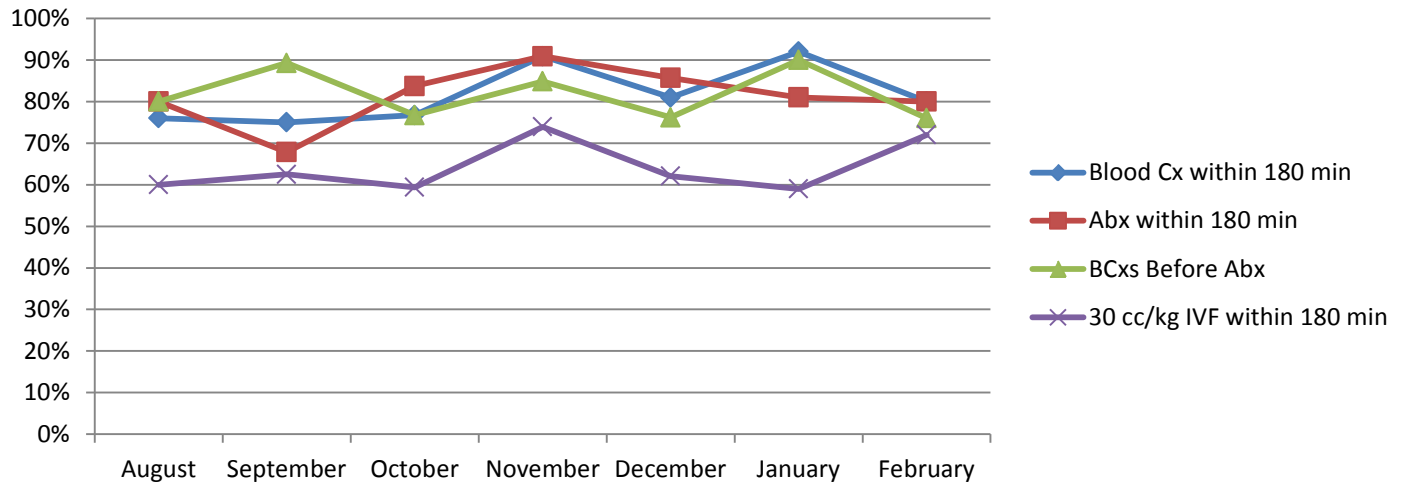
## Overall ED Compliance with the 3 Hour CMS Sepsis Core Measure (August - February)



## Group Data Complete Compliance w/ 3 Hr Sepsis Core Measures



**Group Data**  
**Compliance with Components  
of 3 Hour Sepsis Core Measures**



# Audit and Feedback of Adherence to Clinical Practice Guidelines for Community Acquired Pneumonia in the ED

Data Collection Instrument

PI: Stacy Trent, MD MPH

## Patient Identifiers

MR #:

Encounter #:

Date of Admission:

D/C:

## Provider Identifiers

ED Attending:

### Step 1: Does the patient meet criteria for inclusion?

#### Inclusion Criteria:

(1) Age  $\geq 18$

☐ YES ☐ NO

(2) Hospital discharge diagnosis of **pneumonia**

☐ YES ☐ NO

(3) ED diagnosis or initiated treatment for the above diagnoses

☐ YES ☐ NO

(4) Admission to the hospital from the ED

☐ YES ☐ NO

#### Exclusion Criteria:

(1) Transfer from another facility

☐ YES ☐ NO

### Step 2: Review the medical record and answer the question below.

What was the date / time of ED arrival? \_\_\_\_\_

How did the patient arrive to the ED? \_\_\_\_\_

Patient's age \_\_\_\_\_ Gender \_\_\_\_\_ Race \_\_\_\_\_ Language \_\_\_\_\_ Insurance \_\_\_\_\_

What was the patient's chief complaint in the ED? \_\_\_\_\_

What was the primary diagnosis in the ED? \_\_\_\_\_

What service admitted the patient? ☐ Medicine ☐ Other \_\_\_\_\_

What type of floor was the patient admitted to? ☐ Floor ☐ ICU

Did the patient have any of the following comorbidities?

(review ED note, inpatient H&P, or another note from < 1 year from admission)

☐ diabetes

☐ AIDS

☐ immunosuppressed (e.g. meds / cancer)

☐ ESLD

☐ alcohol abuse

☐ tobacco use

☐ COPD / structural lung disease

### Step 3: Risk Factors for HCAP

What are the patient's risk factors for HCAP?

a) Hospitalization in past 3 months ( # days \_\_\_\_\_)

☐ YES ☐ NO

b) Antibiotics in past 6 months

☐ YES ☐ NO

c) Immunosuppression

☐ YES ☐ NO

d) Poor functional status

☐ YES ☐ NO

e) SNF

☐ YES ☐ NO

f) Chronic hemodialysis

☐ YES ☐ NO

g) Home infusion or wound care therapy

☐ YES ☐ NO

# Audit and Feedback of Adherence to Clinical Practice Guidelines for Community Acquired Pneumonia in the ED

Data Collection Instrument

PI: Stacy Trent, MD MPH

## Step 4: CAP or HCAP

How many risk factors for HCAP does the person have? \_\_\_\_\_

(1) Was the patient admitted to the floor? \_\_\_\_\_

(2) Did the patient receive the appropriate antibiotics based on type of pneumonia and floor status?

What antibiotics did the patient receive? \_\_\_\_\_

Date/time antibiotics given? \_\_\_\_\_

**Table 1: Recommended Antibiotic Selection**

CAP (Floor and ICU)	Low Risk HCAP	High Risk HCAP
Ceftriaxone (1gm) + Azithro (500mg IV or PO) OR Levaquin (750mg IV)	Ceftriaxone (1gm) + Azithro (500mg IV or PO) OR Levaquin (750mg IV)	Vancomycin + Cefepime (2gm) OR Vancomycin + Levaquin (750mg)
+ Vanc (only if ICU)	+ Vanc (only if ICU)	

Low Risk HCAP = 1 Risk Factor HCAP

High Risk HCAP = >2 Risk Factors HCAP or > 5 days hospitalization within 3 months



# Audit and Feedback of Adherence to Clinical Practice Guidelines For Severe Sepsis and Septic Shock in the ED

Data Collection Instrument

PI: Stacy Trent, MD MPH

<u>Patient Identifiers</u>	
MR #:	
Encounter #:	
Date of Admission:	D/C:

<u>Provider Identifiers</u>
ED Attending:

## Step 1: Does the patient meet criteria for inclusion?

### Inclusion Criteria:

- |   |  |
|---|--|
| (1) Age $\geq 18$   | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| (2) Hospital discharge diagnosis of <b><u>sepsis, severe sepsis or septic shock</u></b> | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| (3) ED diagnosis or initiated treatment for the above diagnoses                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| (4) Admission to the hospital from the ED   | <input type="checkbox"/> YES <input type="checkbox"/> NO |

### Exclusion Criteria:

- |                                    |  |
|------------------------------------|--|
| (1) Transfer from another facility | <input type="checkbox"/> YES <input type="checkbox"/> NO |
|------------------------------------|--|

## Step 2: Review the medical record and answer the question below.

What was the date/time of ED arrival? \_\_\_\_\_

What service admitted the patient? ☐ Medicine ☐ Other \_\_\_\_\_

What type of floor was the patient admitted to? ☐ Floor ☐ ICU

## Step 3: Review the medical record to answer the following questions.

Did the patient meet sepsis criteria? ☐ YES ☐ NO ☐ ?

What was the presumed source of infection in the ED? \_\_\_\_\_

### Circle the additional criteria met

Temp  $< 36$  or  $> 38.3$  (max temp \_\_\_\_\_ or min temp if  $< 36$  \_\_\_\_\_)

HR  $> 90$  (max HR \_\_\_\_\_)

RR  $> 20$  (max RR \_\_\_\_\_)

WBC  $< 4$  or  $> 12$  (WBC \_\_\_\_\_)

Altered mental status (in absence of chronic AMS)

Glucose  $> 140$  mg/dL (in absence of diabetes) (glucose \_\_\_\_\_)

***If the patient does not meet sepsis criteria in the ED, STOP.***

# Audit and Feedback of Adherence to Clinical Practice Guidelines For Severe Sepsis and Septic Shock in the ED

Data Collection Instrument

PI: Stacy Trent, MD MPH

## Step 4: Review the medical record to answer the following questions.

(1) Was a lactate ordered in the ED? ☐ YES ☐ NO ☐ ?

What was the initial lactate? \_\_\_\_\_

What was date / time of initial lactate? \_\_\_\_\_

How much IV fluid was given prior to lactate being drawn? \_\_\_\_\_

(2) Did the patient meet criteria for severe sepsis in the ED? ☐ YES ☐ NO ☐ ?

Circle the end-organ that was **acutely** dysfunctional

SBP < 90 mmHg or MAP < 65 mmHg

SBP decrease > 40 mmHg from baseline

Kidneys (Cr > 2 mg/dL)

Lungs (acute hypoxia)

Liver (bilirubin > 2mg/dL)

Coags (INR > 1.5 in absence of coumadin)

Platelets (< 100 k/uL)

Cellular (lactate >2 mmol/L)

(4) Was the initial lactate  $\geq 4$ mmol/L or the SBP < 90mmHg? ☐ YES ☐ NO ☐ ?

What was the initial lactate? \_\_\_\_\_

What was the initial systolic BP? \_\_\_\_\_

(5) Were antibiotics given in the ED? ☐ YES ☐ NO ☐ ?

What antibiotics were given? \_\_\_\_\_

At what time were antibiotics given? \_\_\_\_\_

(6) How much IVFs were initially ordered? \_\_\_\_\_

Time Order? \_\_\_\_\_ Start? \_\_\_\_\_ Stop? \_\_\_\_\_

How much total fluid was ordered? \_\_\_\_\_

When were all fluids completed? \_\_\_\_\_

***If the initial lactate  $\geq 4$ mmol/L or the SBP < 90mmHg at any time, continue below***

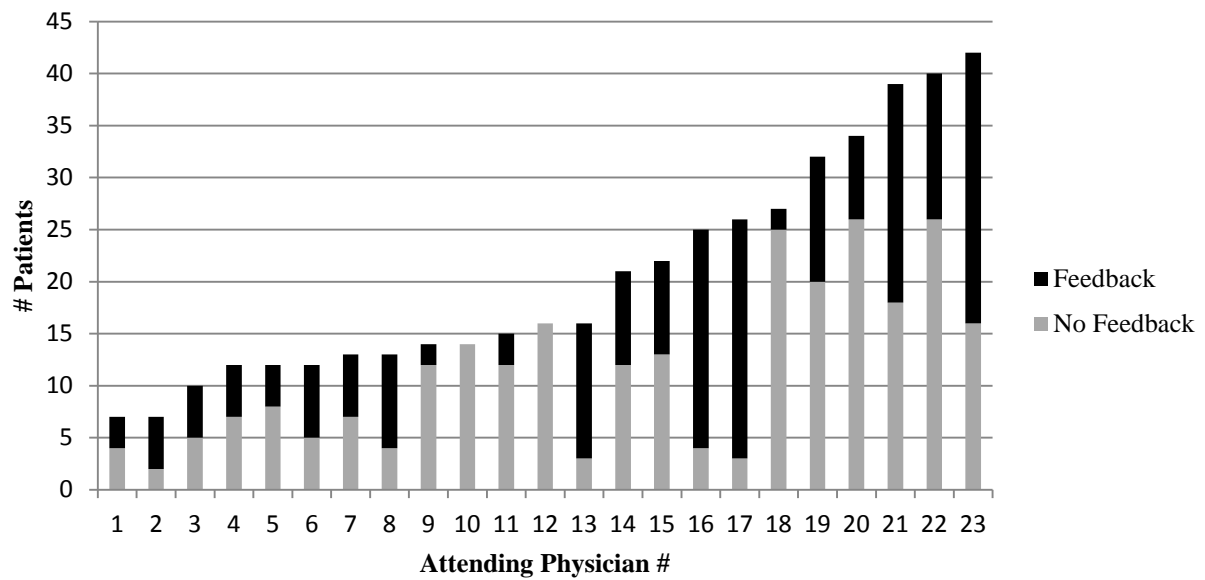
(7) Were blood cultures obtained in the ED? ☐ YES ☐ NO ☐ ?

(8) Was a minimum of 30mL/kg of IVFs given? ☐ YES ☐ NO ☐ ?

Was a weight documented either in the ED or in the inpatient setting? \_\_\_\_\_

If no weight, was at least 3L NS given? \_\_\_\_\_ Stop? \_\_\_\_\_

**Figure: Frequency of Patients Seen by Physician**



**Table: Unadjusted Effect of Feedback on Adherence to Components of Sepsis Guideline**

	N <sup>‡</sup>	No Feedback		Feedback		Median	
		N	Median (95% CI)	N	Median (95% CI)	Difference	(95% CI)
Lactate Collected (%)	245	145	100 (96-100)	145	100 (97-100)	0	(-4 to 3)
Time to BCx (min)	229	138	62 (32-118)	91	56 (33-102)	-6	(-26 to 15)
BCx before ABx (%)	245	145	81 (74-87)	100	82 (73-88)	1	(-10 to 10)
Time to ABx (min)	242	143	97 (54-156)	99	119 (73-173)	22	(-4 to 48)
30mL/kg IVF Given <sup>†</sup> (%)	181	116	110 (80-138)	65	103 (83-135)	-7	(-17 to 4)

BCx = blood cultures, ABx = antibiotics, min = minutes; CI = confidence interval

<sup>†</sup> septic shock patients only

<sup>‡</sup> excludes 16 patients who did not receive blood cultures and 3 patients who did not receive antibiotics