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**– or –**

**Click F5**



F5 Key

Top Row of Keyboard

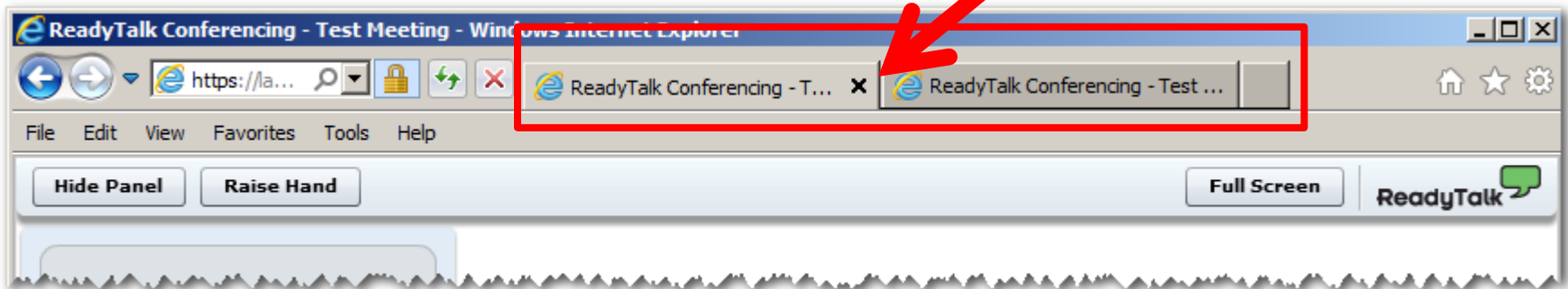


**Location of Buttons**

Refresh

# Troubleshooting Echo

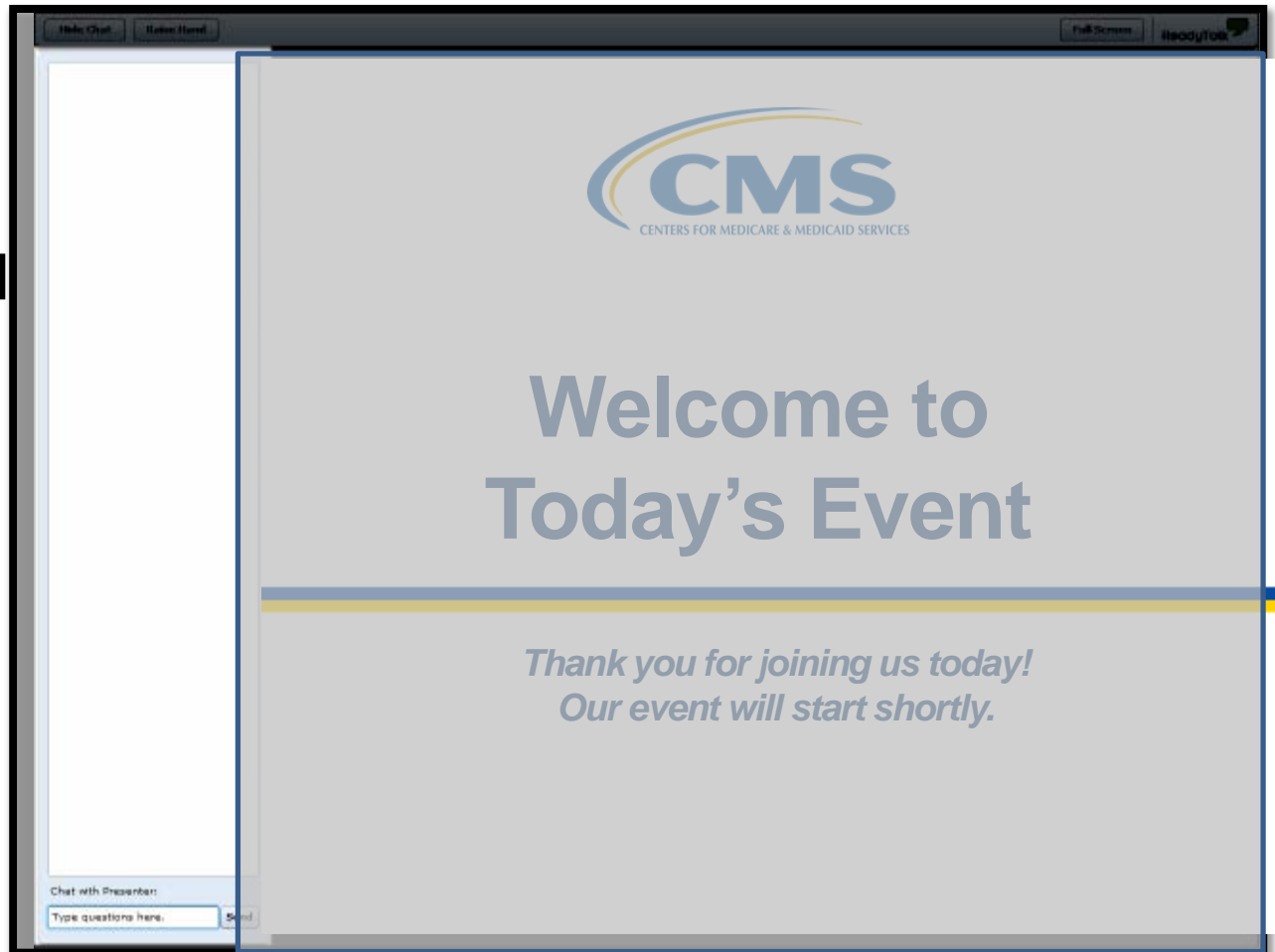
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The screenshot shows a web browser window with a CMS logo at the top center. The main content area displays a slide with the text "Welcome to Today's Event" and "Thank you for joining us today! Our event will start shortly." In the bottom-left corner, there is a chat window titled "Chat with Presenter" with a text input field and a "Send" button. The chat window is partially overlapping the presentation slide.



# **Sepsis Efforts at Bellevue Hospital and SEP-1 Early Management Bundle, Severe Sepsis/Septic Shock: v5.0b through v5.2a Analysis Results**

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Lead Program Analyst I

Mathematica Policy Research

**November 14, 2017**

# Objectives

At the end of the presentation participants will be able to:

- Understand sepsis efforts at Bellevue Hospital.
- Understand trends in performance and mortality rates for SEP-1 from version 5.0b to version 5.2a of the specifications manual.



Amit Uppal, MD

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## **Sepsis Efforts at Bellevue Hospital**

# Our Approach

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- Initial working group
- Baseline data
- Protocol development
- Formal sepsis committee
- Protocol dissemination/education
- Evolution in response to trends, regulations



# Initial Working Group

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- Physicians and nurses from the following areas:
  - ED
  - Inpatient medicine
  - Critical care

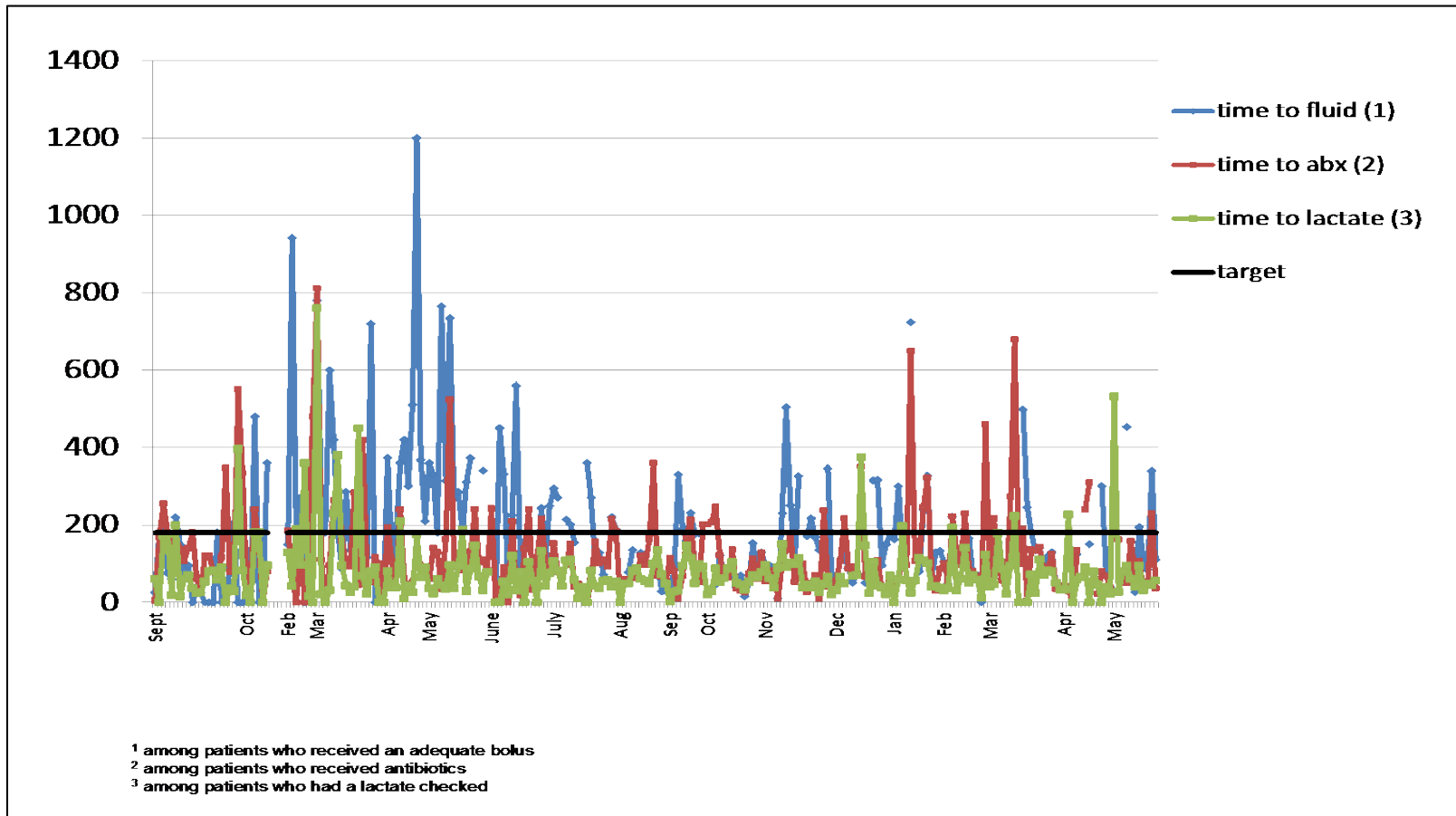
# First Steps

- Manual physician collection of real-time case data
  - ICU admissions
  - Known cases
- Focus on clinical care, not documentation
- Baseline data

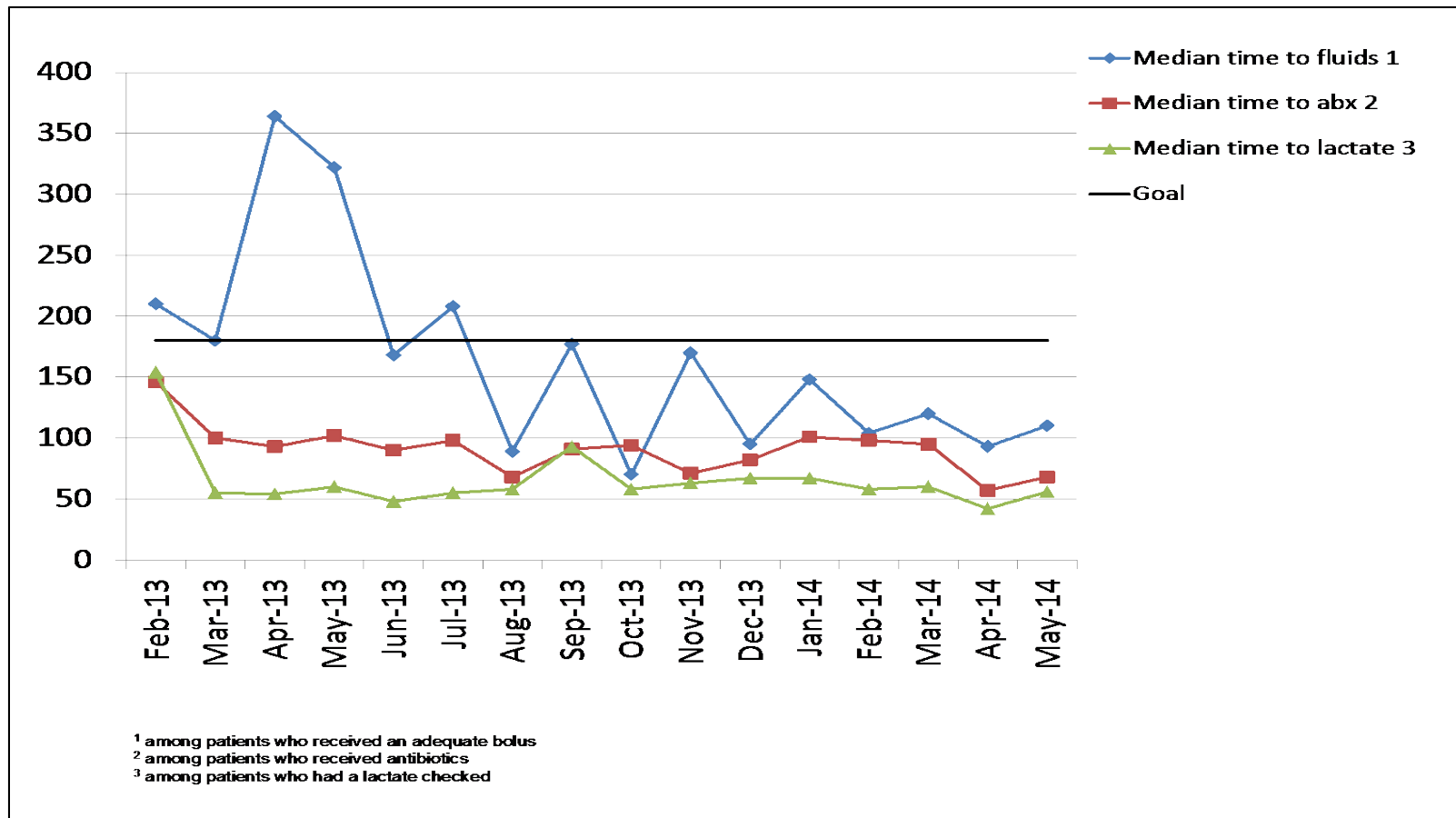
# ED 3-Hour Bundle Elements

	Element	June 2013	July 2013	August 2013
<b>F L U I D S</b>	n	15	16	12
	Adequate fluid bolus	80%	75%	67%
	Time to completion of bolus	Mean: 194 Median: 168 (50%)	Mean: 206 Median: 208 (33%)	Mean: 78 Median: 89 (100%)
	Overall bolus compliance	40%	25%	67%

# ED 3-Hour Bundle Elements



# ED 3-Hour Bundle Elements



# Protocol Development

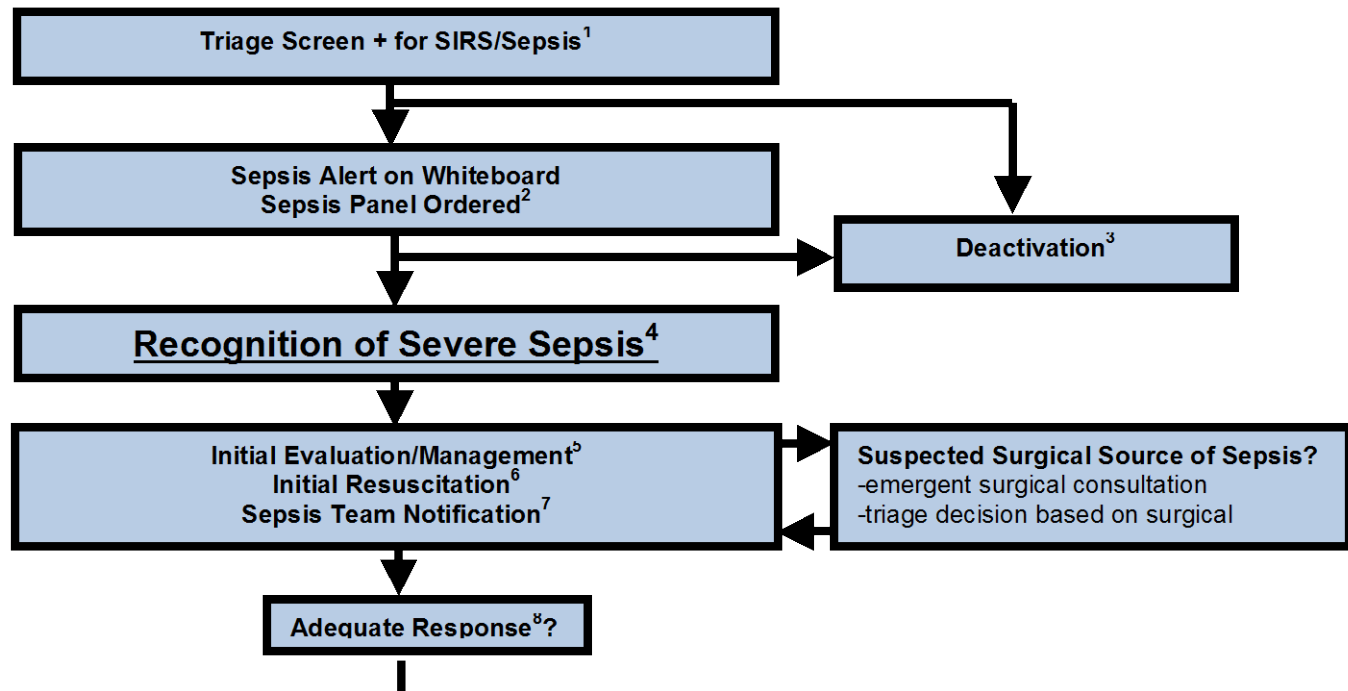
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- Existing surviving sepsis campaign bundles
- Expanded indication for 30cc/kg bolus
- Sepsis response team

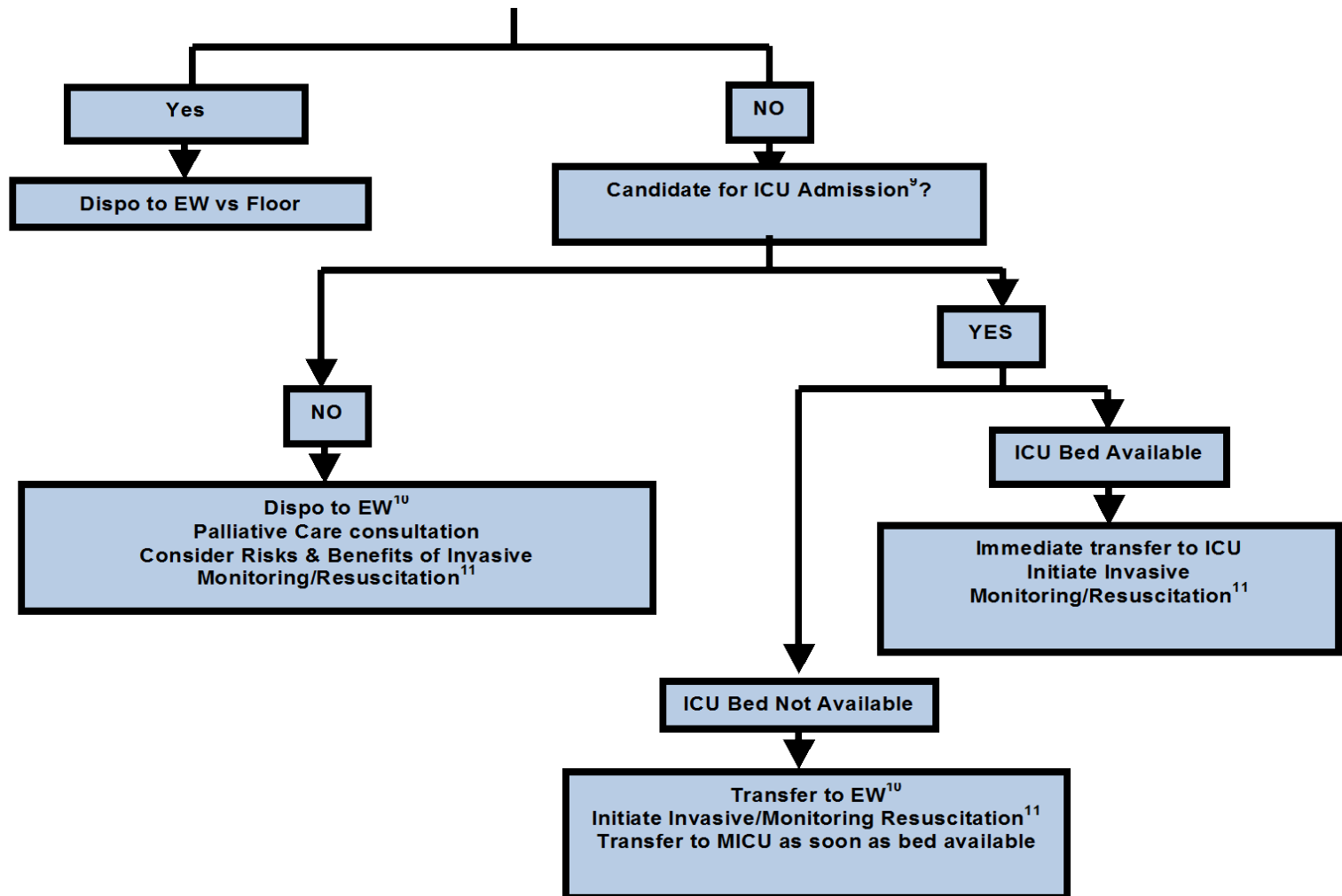
# Protocol Development



## Bellevue Severe Sepsis Triage Protocol- Adults (Age ≥ 18) Presenting to ED



# Protocol Development





# Sepsis Response Team

- Overhead alert
- ICU RN, ICU fellow, medical consult resident
- Three functions:
  - Ensure bundle elements completed/educate provider
  - Bring antibiotics
  - Assist with triage

# Formal Sepsis Committee

- Physicians, nurses, pharmacist, laboratory staff, quality management specialist, IT staff, administrative leadership
- Weekly review of real-time cases/feedback
- Evaluation of trends
- Targeted improvement efforts

# Protocol Dissemination and Education

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- Structured:
  - Core conferences, M&M conferences, orientations
- In the moment:
  - Sepsis team
  - Consistent case feedback

# Pattern of Fallout

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- Long delays in recognition
- Rapid management once recognized

# Proactive Screening for Potential Cases

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- Screening both in ED and inpatient units
- Obligate physician response to positive screens

# EHR System Documentation

Event Time	12 Mar 14 0851	Event Status	complete				
16) Blood Pressure:	136/79						
17) Pulse:	96						
18) Respirations:	16						
19) Temperature:	95.0 F (35.0 C)						
20) Temperature Method:	Tympanic						
21) Glucose:	115 mg/dL						
<b>22) Suspected Infection?:</b>	yes						
<b>23) Alteration of Mental Status:</b>	yes						
24) Pain Screen:	pt denies pain at this time						
<b>25) ESI Level:</b>	2						
<b>26) Team Assigned:</b>	AES Team 2						
Select field to review or Choose option:							
n							
(A) Audit	(B) View/Search	(G) Graph	(R) Ranges	(T) Trend	(P) Previous Event	(N) Next Event	(C)

# EHR System Documentation

<input type="button" value="Back"/> <input type="button" value="Forward"/> <input type="button" value="Refresh"/> <input checked="" type="checkbox"/> Automatic Refresh (30 seconds)		<input type="button" value="Print"/> <input type="button" value="OK"/>											
AES Tm 1	AES 16	[REDACTED]	27 Y F 3	*pregnancy with vaginal bleed	1/1	0/2/3				100/100 - 99 - 10 - 99% - 97.1 - -7	6.40		
AES Tm 1	AES 16 10W-44-B	[REDACTED] IP30	39Y M 3	c/o L foot wounds x 3 days	0/0/3 P	0/1	0/0/4			124/85 - 75 - 18 - 100% - 99.1 - -7 3	6.48	F	C
AES Tm 1	AES 14	[REDACTED]	44Y F 3	c/o weakness, states "x" 2 months preg"	1/1	0/0/1				137/83 - 86 - 18 - 99% - 97.9 - -5	7.07		
AES Tm 2	Hall	[REDACTED]	39Y M 3	asthma						146/73 - 82 - 19 - 98% - 97.6 - -5	0.24		
AES Tm 2	Hall	[REDACTED]	65Y F 3	ETOH intox	0/0/1	0/4/0				123/74 - 103 - 18 - 95% - 95.3 - -1	0.43		
AES Tm 2	AES 6	[REDACTED] IP30	34Y M 3	ivv. abd pain	1/1/3	8/0/0				151/100 - 78 - 17 - 98% - 97.8 - -1	1.01		
AES Tm 2	Hall	[REDACTED]	64Y M 3	chest pain x 3 days	1/0					137/74 - 63 - 17 - 95% - 98.3 - -8	1.30		
AES Tm 2	AES 7	[REDACTED]	46Y M 3	ETOH intox Head lac	1/2					112/79 - 73 - 20 - 98% - 97.0 - -1	1.35		
AES Tm 2	AES 8	[REDACTED] IP30	66Y F 3	request dialysis.	1/0	0/0/1	1/0			173/91 - 100 - 18 - 97% - 97.6 - -7	1.49		
AES Tm 2	AES 7	[REDACTED] IP30	55Y M 3	Esophageal CA GT clogged	0/0/1	1/0				114/72 - 78 - 20 - 99% - 96.0 - -1	2.08		
AES Tm 2	Hall	MRN	26Y F 3	Abd pain	0/1/1	1/0/1	0/2/8		Attending	103/72 - 100 - 22 - 95% - 98.3 - -5	2.54		
AES Tm 2	AES 7	[REDACTED]	41Y M 2	near syncope	0/0/1	1/0	1/0/4		Resid out	158/117 - 99 - 20 - 99% - 98.0 - -1	4.17		
AES Tm 2	AES 6	[REDACTED] IP30	54Y M 3	Chest discomfort	0/0/1	1/0	0/0/5			153/93 - 73 - 18 - 98% - 97.6 - -5	4.49		
AES Tm 2	AES 5	[REDACTED]	61Y M 3	C/O increase noise in L1 ear & increase sob x 3 wks	0/0/5	0/1	0/0/4	0/1		130/69 - 89 - 18 - 98% - 95.3 - -1	5.22		
AES Tm 2	AES 5	[REDACTED]	62Y M 3	c/o generalized body pain, fever recently dx with PNA @ woodhull last wk.	0/0/1	0/1	0/1/5	1/0		124/67 - 89 - 18 - 96% - 98.6 - 126 - 6	6.20		
AES Tm 2	AES 5	[REDACTED] SS	33Y M 2	referred from clinic for eval and Rx of cough and fever x 2 days	0/1/3	3/2	1/0/13	0/1		123/88 - 89 - 20 - 92% - 98.0 - -6	6.42	M	FR
AES Tm 2	AES 6 AESTM2AD-B	[REDACTED]	61Y F 3	referred from pnd for FB in abd s/p endoscopy	0/0/2	0/1	0/2/8			111/59 - 70 - 18 - 96% - 98.3 - -5	6.44		3
AES Tm 2	Hall	[REDACTED]	40Y M 3	c/o abd pain, n/v/d x 1 day	0/0/12	0/1	0/1/8			104/56 - 110 - 18 - 96% - 99.6 - -6	6.56		
AES Tm 2	Hall AESTM2AD-A	[REDACTED]	55Y M 3	C/O Hematuria and mucus in urine x few wks. Also RT heel pain and swelling x 6 mths	0/0/3	0/3	0/0/5			102/65 - 87 - 18 - 99% - 97.8 - -8	8.16	M	FR
AES Tm 2	AES 6	[REDACTED]	52Y	c/o HA, blurry vision, L						142/59 - 92 - 18 -			Y

# EHR System Documentation

RN Sepsis Screen	
Event Time	15 Mar 14 0800
Event Status	complete
Temperature:	96.3 F (35.7 C) 15Mar2014 0800
Pulse:	79 bpm 15Mar2014 1035
Respiratory Rate:	32 15Mar2014 0800
O2 Sat:	98 15Mar2014 0800
BP:	100/53 15Mar2014 1035
<b>Suspected Infection:</b>	<u>yes</u>
<b>Alteration in mental status:</b>	no
<b>Immuno-Compromised:</b>	<u>yes</u>
<b>MD Notified:</b>	[REDACTED]
Sepsis Screen:	this is a positive sepsis screen. call md ...

Choose option:

(A) Audit	(B) View/Search	(G) Graph	(O) Order	(T) Trend	(P) Previous Event	(N) Next Event
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# Pattern of Fallout

- Fluid bolus administration
  - Inadequate volume of bolus
  - Inadequate rate of bolus administration
  - Failure to document fluid bolus in a timely way
- Blood cultures before antibiotics
  - True fallouts
  - Disconnect between clinical care and documentation

# Pattern of Fallout

**Order Entry** [Close]

Direct by Uppal,Amit at 18 Apr 17 0825

#	Order Name
17	Common Inpatient Orders KCI IV Large Volume
18	KCI Small Volume
19	IV Solutions
20	Potential Donor
21	Ventilator Bundle
Medicine	
22	General Medicine
23	Neurology
24	Oncology Protocols
25	Rehab Medicine
26	<b>Sepsis Order Set</b>
AES and PES Common Medication Orders	
27	Common Medications
28	Common Fluids Orders
29	Common IV Drips
30	CVAD Insertion
31	CVAD Release for Use
32	ED Bariatric Panel Orders

Select procedure(s) or Enter partial word(s) or Choose option:

(E) Edit Current Orders (R) Reactivate Discontinued Orders

Buttons: OK, Back, Keep, Cancel

Uppal,Amit April 18, 2017 08:25:34

Taskbar: Document1 [Com...], Document2 [Com...], Document3 [Com...], Outlook Web App..., QuadraMed CPR ..., CAM-Score/DELIR..., Untitled - Notepad, 8:25 AM

# Pattern of Fallout

**Order Entry** ×

Direct by Uppal,Amit at 18 Apr 17 0823

Procedure Options for SALINE-

1	Extra-Amniotic Saline Infusion (ExtraAmniotic Saline Infusion)
2	ExtraAmniotic Saline Infusion
3	Hypertonic Saline [HIGH ALERT MED] (3% Sodium Chloride [HIGH ALERT MED])
4	Intrathecal Preservative-Free Saline Flush
5	MagSulfate-KCl-Mannitol in Normal Saline (Chemotherapy Post-Hydration)
6	Normal Saline (Sepsis)
7	Phenol and Saline Liquid

(Select multiple options with Ctrl+click and range of options with Shift+click)

Select procedure(s):

Uppal,Amit April 18, 2017 08:24:31

Document1 [Compa... | Document2 [Compa... | Outlook Web App - ... | QuadraMed CPR - B... | CAM-Score/DELIRIU... | Untitled - Notepad | 8:24 AM

# Pattern of Fallout

**Order Entry** ×

Direct by Uppal,Amit at 18 Apr 17 0825

#	Severe Sepsis Order Set
<b>Therapeutic Interventions</b>	
<b>Antibiotics</b>	
10	<b>**Note: The antibiotic options provided below may not be appropriate for</b>
11	<b>all patients. Consider the potential sources of infection and the</b>
12	<b>likelihood of resistant organisms when selecting antibiotics. Please</b>
13	<b>refer to the Bellevue Intranet under "Antibiotic Stewardship Guidelines"</b>
14	<b>for guidance.</b>
15	Vancomycin Hydrochloride
16	Cefepime
17	Zosyn (Piperacillin-Tazobactam)
18	Aztreonam
19	metroNIDAZOLE
20	Amikacin
<b>Intravenous Fluids</b>	
21	<b>***Note: the recommended initial bolus is 30 cc/kg of crystalloid</b>
22	<b>delivered as a bolus via a pressure bag.</b>
23	Normal Saline (Sepsis)
24	Lactated Ringers (IV Solution)

Select procedure(s) or Enter partial word(s) or Choose option:

(E) Edit Current Orders (R) Reactivate Discontinued Orders Keep

**OK**  
**Back**  
**Cancel**

Uppal,Amit April 18, 2017 08:26:21

Windows taskbar: Document1 [Com...], Document2 [Com...], Document3 [Com...], Outlook Web App..., QuadraMed CPR -..., CAM-Score/DELIR..., Untitled - Notepad, 8:26 AM

# Pattern of Fallout

**Order Entry** [Close]

Direct by Uppal,Amit at 18 Apr 17 0823

\*\* Ht 168 cm (5'6",... \*\* Wt 80 kg (176 lbs) 23... \*\* BUN  
\*\* BSA \*\* Creat \*\* Preg  
\*\* K+ \*\* Mg++ \*\* EstCrCl \*\* Lact

\*\* Med Allergy Allergic to: ... Allergic to: ... Allergic to: ...  
Allergic to: ... Allergic to: I... Allergic to: ...  
Allergic to: ... Allergic to: ...

Normal Saline (Sepsis) New Order

#	Typical Order Options	Injection
1	30 mL/kg iv bolus stat over 30 minutes	IV Push

Select typical order or Press ENTER to specify complete order:

[Input Field] [OK] [Back] [Keep] [Cancel]

Uppal,Amit April 18, 2017 08:25:03

Document1 [Com... Document2 [Com... Document3 [Com... Outlook Web App... QuadraMed CPR ... CAM-Score/DELIR... Untitled - Notepad 8:25 AM

# Pattern of Fallout

**Order Entry** ×

Direct by Uppal,Amit at 18 Apr 17 0825

#	Severe Sepsis Order Set
Diagnostic Initial Evaluation	
Required Initial Evaluation	
1	Culture, Blood Routine
2	CBC w/auto & reflex to man diff (Hemogram Auto Diff w/rflx to Manual Diff)
3	Lactate Level Blood (Blood Gas)
4	Basic Metabolic Panel Ca Total Serum
Optional Orders	
5	Urinalysis Auto w/rflx to Micro
6	Culture, Urine
7	cxr (Chest DX*)
8	PTT (Hema) (Activated Partial Thromboplastin Time (Hema Routine))
9	Type and Screen Reflex
Therapeutic Interventions	
Antibiotics	
10	**Note: The antibiotic options provided below may not be appropriate for
11	all patients. Consider the potential sources of infection and the
12	likelihood of resistant organisms when selecting antibiotics. Please
13	refer to the Bellevue Intranet under "Antibiotic Stewardship Guidelines"

Select procedure(s) or Enter partial word(s) or Choose option:

(E) Edit Current Orders (R) Reactivate Discontinued Orders

OK  
Back  
Keep Cancel

Uppal,Amit April 18, 2017 08:26:10

Document1 [Com... Document2 [Com... Document3 [Com... Outlook Web App... QuadraMed CPR ... CAM-Score/DELIR... Untitled - Notepad 8:26 AM

# Pattern of Fallout

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“Middle-range” lactates not being treated as severe sepsis, not being repeated

# Pattern of Fallout

Lactate Level Blood (Blood Gas)			
Event Time	17 Apr 17 1205	Event Status	complete
1) Remark:	Spec # [REDACTED] 17 Apr 17 1205		
Lactate (mmol/L):	1.9 (1.0 - 1.9)		
Select field to review or Choose option:			
<input type="text"/>			OK
<input type="text"/>			Back
(A) Audit	(B) View/Search	(G) Graph	(O) Order
(R) Ranges	(S) Specimen Info	(T) Trend	Goto
(P) Previous Event			Cancel
			Print
Uppal,Amit April 18, 2017 08:29:15			

Taskbar: nt1 [Com...], Document2 [Com...], Document3 [Com...], Outlook Web App..., QuadraMed CPR ..., CAM-Score/DELIR..., Untitled - Notepad, 8:29 AM



# Pattern of Fallout

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- Still a delay between clinical care and documentation, particularly in ED
- Challenging to ask providers to deviate from established clinical workflow
- Committee felt it should be treated similar to a trauma, stroke, or STEMI

# Pattern of Fallouts

## ED SEPSIS/RESUSCITATION FLOW SHEET

NYCH + H | Bellevue PR 2/20/17 14:54

DATE: 02/26/2017  
 ALLERGIES: NKDA

SEPSIS Protocol: Yes  No  15:10  
 Time Sepsis Protocol Initiated: 15:10  
 IV fluid bolus completed: Yes  No   
 IV antibiotics within 30 minutes: Yes  No   
 Time Blood Cultures drawn: 15:10  
 1<sup>st</sup> Lactate Result: 4.1  
 2<sup>nd</sup> Lactate Result:

Approximate Weight in Kg 45 kg  
 (Adults — 30ml/kg, PEDS 20ml/kg)  
 Total Calculated Fluid Bolus 1.350 ml  
 Time Start 15:10 Time Ended 16:04  
 Total Bolus Given 1.350 ml

TIME 15:00 FINGER STICK 115

TIME	TEMP	RESP RATE	HR	BP (Cuff)	BP (A-line)	CVP	IV SOLUTIONS		DRUG INFUSIONS	
							END TIME			
15:15	37.6	16	60	116	76		16 NIS			
15:20	30.9	14	62	93	54		1000 LG			16:00
15:49	37.0	15	66	89	54		370 NIS 0.9			
15:56	37.2	15	68	77	54					
16:01	37.3	16	71	92	54					
16:30	37.5	16	82	92	58					

Time	STAT / PRN Medications	Initials
15:14	Epi 4 0.5IT	PS
15:47	Vanico 100mg	PS
16:30	Aty 100mg	PS
16:30	bolus 50ml NSP-3	PS

BR-235(1/17)

# Pattern of Fallouts

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- Reassessment after fluid bolus
  - Exam documented but missing certain required elements
  - Full exam documented, but after 6-hour window

# Pattern of Fallout

The screenshot displays a medical software interface with a menu of documentation options. The menu is organized into several sections:

- Documentation**: Service Transfer Note, Attending Note, Attending CPT Note, Patient Event Note, Invasive Procedure Note, Advance Directives, Brief Operative Note, Special Bed Needs, CVAD Insertion Procedure Note, Columbia-SSRS, **Sepsis Reassessment Note** (highlighted with a red box), Display History & P..., Care Plan (Single ...), Transfer Med Rec, RVUs for this Visit.
- Other Docume...**: Other Note, Other Contact Note, Depression Other ..., Adult Height and W..., DVT/PE Risk Re-A..., Tobacco Use Asse..., Invasive Procedure..., Chemotherapy Ne...
- Complete/Corr...**: Complete/Correct No..., Complete Partial Notes.

The interface also features a top navigation bar with tabs for: Rehabilitation, Pt Demo/Face Sheet, Pulmonary, Research, Reports, CDS for CQM, History & Physical, Care Plan, Patient Profile, Med Admin Summary, Asthma, HIV, Other Services, Items for Review, Inpatient Documentation, Discharge Processing, and New Med Rec.

At the bottom of the screen, the taskbar shows the following applications: Document1 [Com..., Document2 [Com..., Document3 [Com..., Outlook Web App..., QuadraMed CPR -..., CAM-Score/DELIR..., and Untitled - Notepad. The system clock indicates the date and time as April 18, 2017 08:26:40.

# Pattern of Fallout

**Sepsis Reassessment Note** ×

Sepsis Reassessment Note

New Event Time: Tue, 18 Apr 17 0826      Prev Event Status: (unscheduled)

Recent BP:	120/80 (23 Mar 17 1343)
Recent Pulse:	80 bpm (23 Mar 17 1343)
Recent Respirations:	18 (23 Mar 17 1343)
Recent Temperature:	97.8 F (23 Mar 17 1343)
Recent Lactate:	1.3 mmol/L (12 Jan 17 1022)
6) Heart Exam:	normal
7) Lung Exam:	normal
8) Capillary Refill:	normal/brisk
9) Peripheral Pulse:	Radial
10) Skin Exam:	normal
11) CVP by Central Venous Catheter:	
12) Bedside Cardiovascular US:	
13) Passive Leg Raise:	
14) Affirmation:	

Affirm patient assessment via this evaluation? Choose option:

(Y) Yes   (N) No      Keep   Goto           

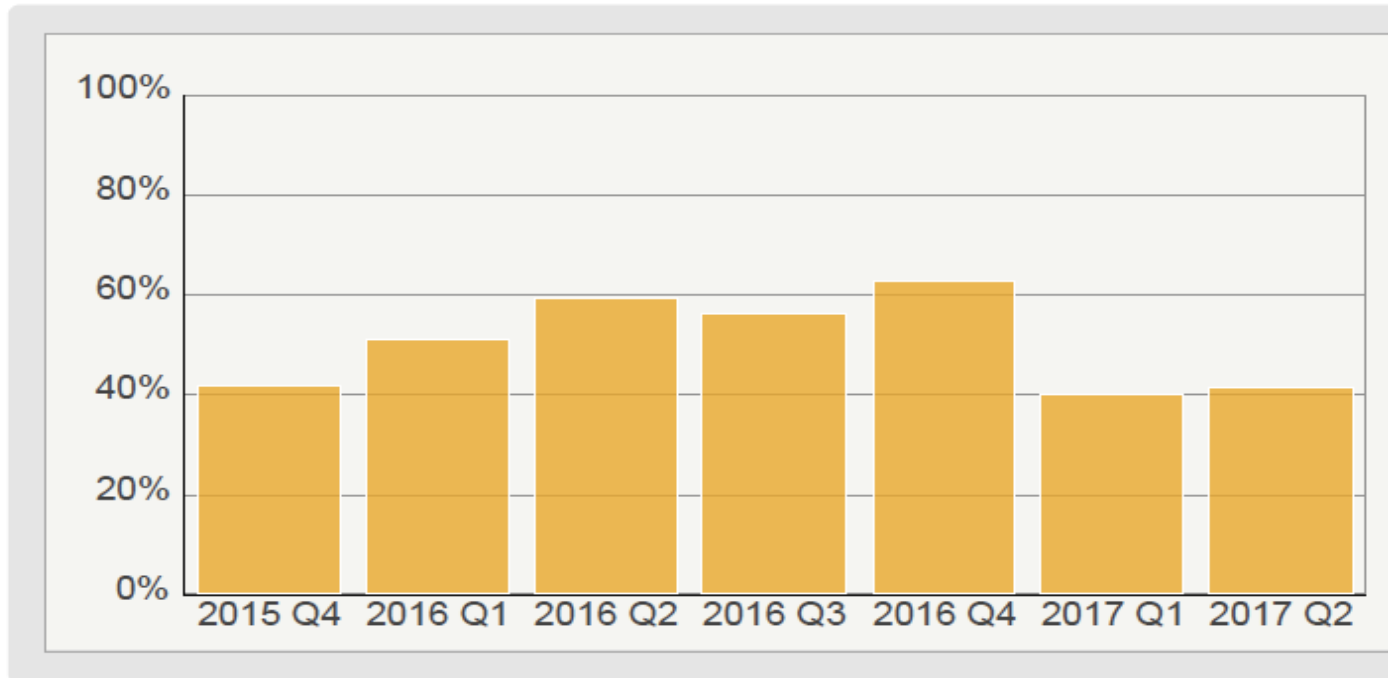
Uppal,Amit   April 18, 2017 08:27:22

Document1 [Com...]   Document2 [Com...]   Document3 [Com...]   Outlook Web App...   QuadraMed CPR -...   CAM-Score/DELIR...   Untitled - Notepad   8:27 AM

# Evolution of Sepsis Response Team

- Gradually became obsolete
  - Shared understanding of sepsis management
  - Pixis machines (nearly) house-wide
- Sepsis Response Team was disbanded.

# Current Data



Quarter	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2
Rate	42.11%	51.28%	59.26%	56.25%	62.50%	40.00%	41.38%
Numerator	16	20	16	18	20	14	12
Denominator	38	39	27	32	32	35	29

\*Data is based on Bellevue Hospital's internally measured performance.

# Current Challenges

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- Documentation of blood cultures as drawn before antibiotics
- Fluid bolus documentation
- Timely reassessment documentation, especially in ED



# Future Plans – Blood Cultures

- Antibiotic orders that meet the following criteria:
  - Broad spectrum
  - STAT order
  - Not ordered in last 24 hours
  - No recent blood cultures
- Generate a prompt to provider to consider order for blood cultures

# Future Plans – Fluid Bolus

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- “Sepsis Fluid” order
  - Auto-calculated volume based on weight
  - Allows entire volume in one order
  - Default rate of 3000cc/hr

# Future Plans – Reassessment

- Positive triage screen prompts questions on ED disposition
  - Was this patient treated for severe sepsis or septic shock?
    - No – Document “not sepsis”
    - Yes
      - Was sepsis fluid bolus given?
        - » No
          - Document “not indicated” or list contraindication
        - » Yes
          - Reminder to perform sepsis exam and document this

# Future Plans – Reassessment

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- Prompt documentation of “not sepsis”
- Prompt documentation of allowed contraindications to fluid bolus
- Prompt documentation of reassessment

# Other Challenges

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- “Sepsis Fatigue”
- Evolving/conflicting evidence
- Evolving regulations
- New residents each July in training programs

# Lessons Learned

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- Education is central, IT changes supplemental
- Real time data and feedback
- Teamwork

# Thank You

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Bob Dickerson, MSHSA, RRT

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**SEP-1 Early Management Bundle,  
Severe Sepsis/Septic Shock:  
v5.0b through v5.2a Analysis Results**



# Disclaimer

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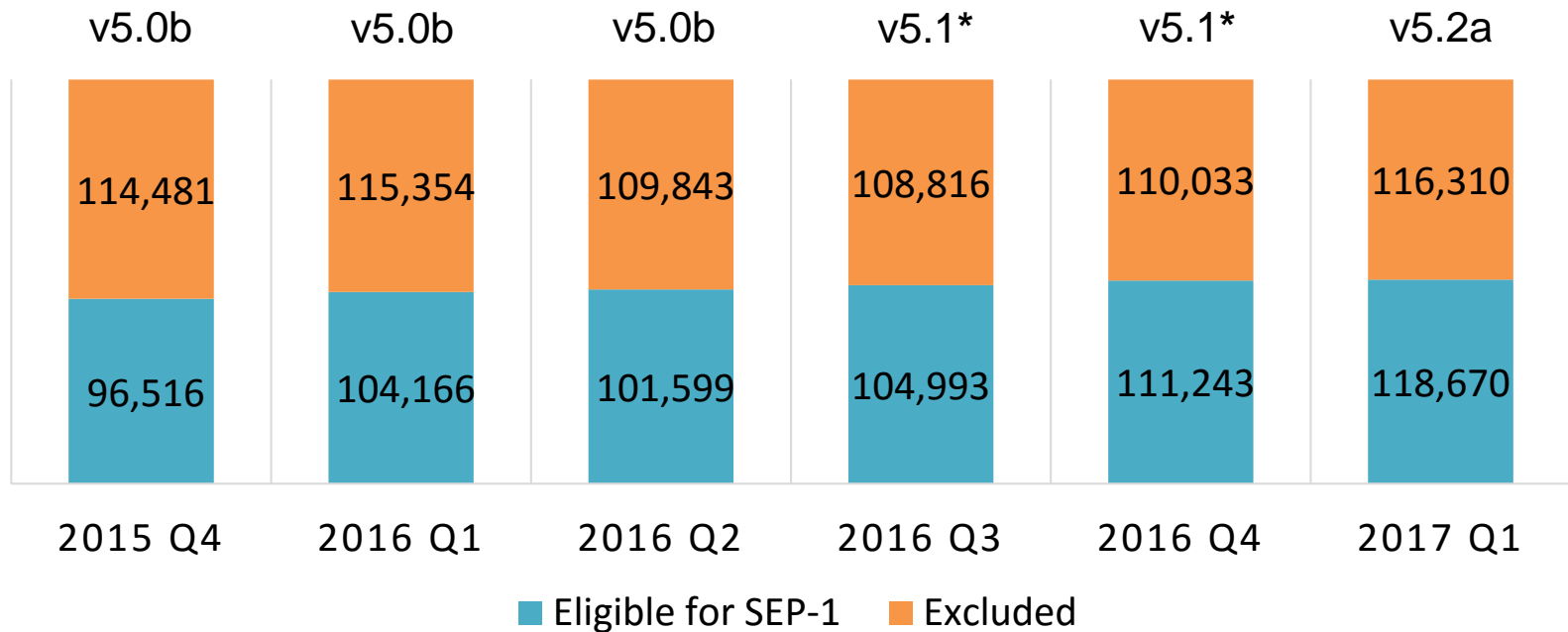
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# SEP-1: Completing The Bundles

Required Action	Severe Sepsis		Septic Shock	
	3 Hr Bundle	6 Hr Bundle	3 Hr Bundle	6 Hr Bundle
Initial Lactate Collection	Yes	Must be completed within 3 hrs of Severe Sepsis Presentation		
Blood Culture Collection	Yes			
Initial Antibiotic Started	Yes			
Repeat Lactate Collection (if Initial Lactate is > 2)	N/A	Yes	Completed within 6 hrs of Severe Sepsis presentation	
30 mL/kg Crystalloid Fluids Started	N/A	N/A	Yes	Completed within 3 hrs of initial hypotension and/or septic shock
Vasopressor Given (if hypotension persists)	N/A	N/A	Completed within 6 hrs of septic shock	Yes
Repeat Volume Status Assessment	N/A	N/A		Yes

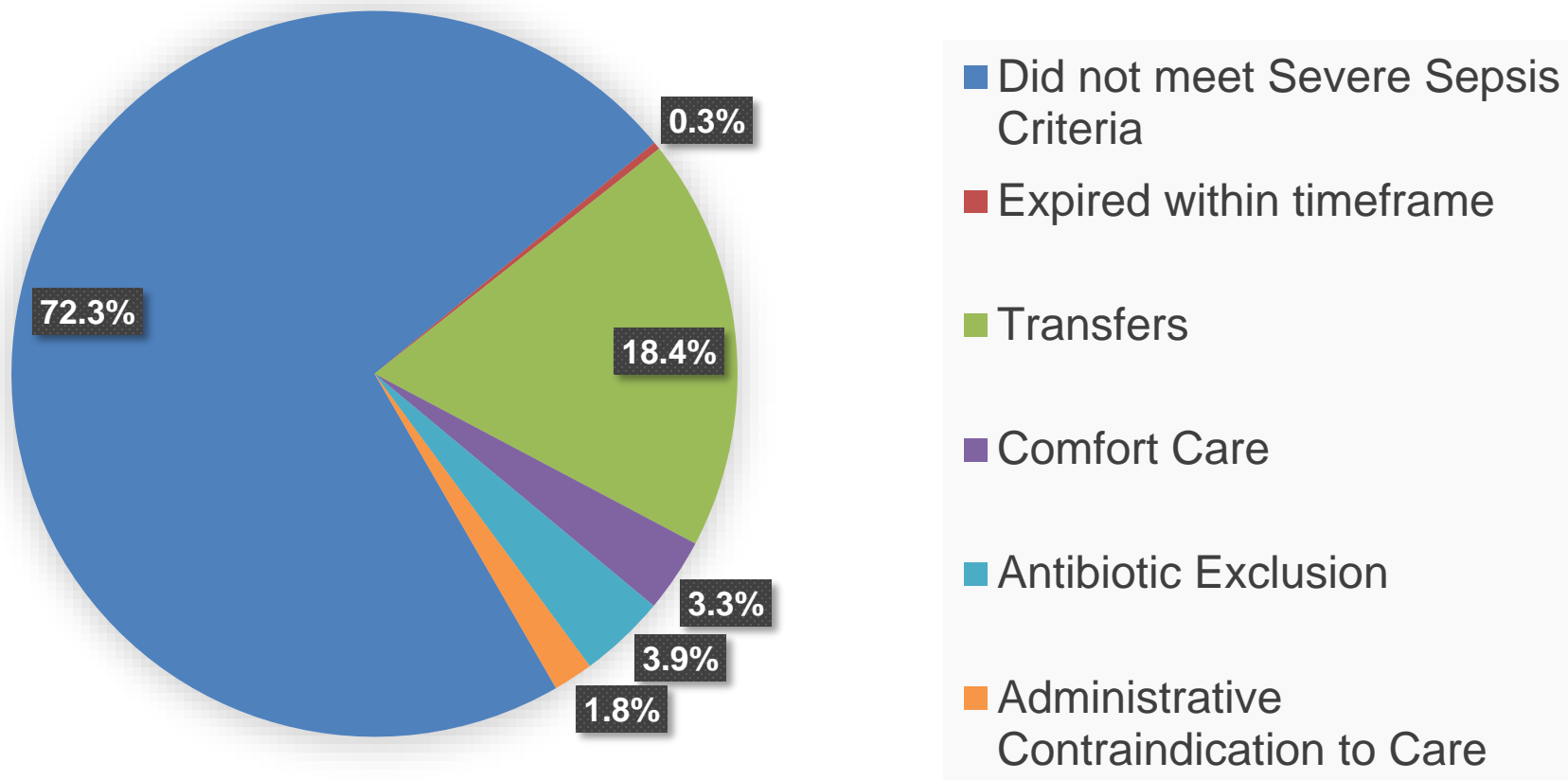
# SEP-1 Initial Patient Population



- > 99% of hospitals successfully submitted SEP-1 data
  - Q4 2015 (1<sup>st</sup> qtr of reporting) 99.9% of participating hospitals submitted data
  - Q1 2016 – Q3 2016 100% submitted data
  - Q4 2016 99.97% of participating hospitals submitted data

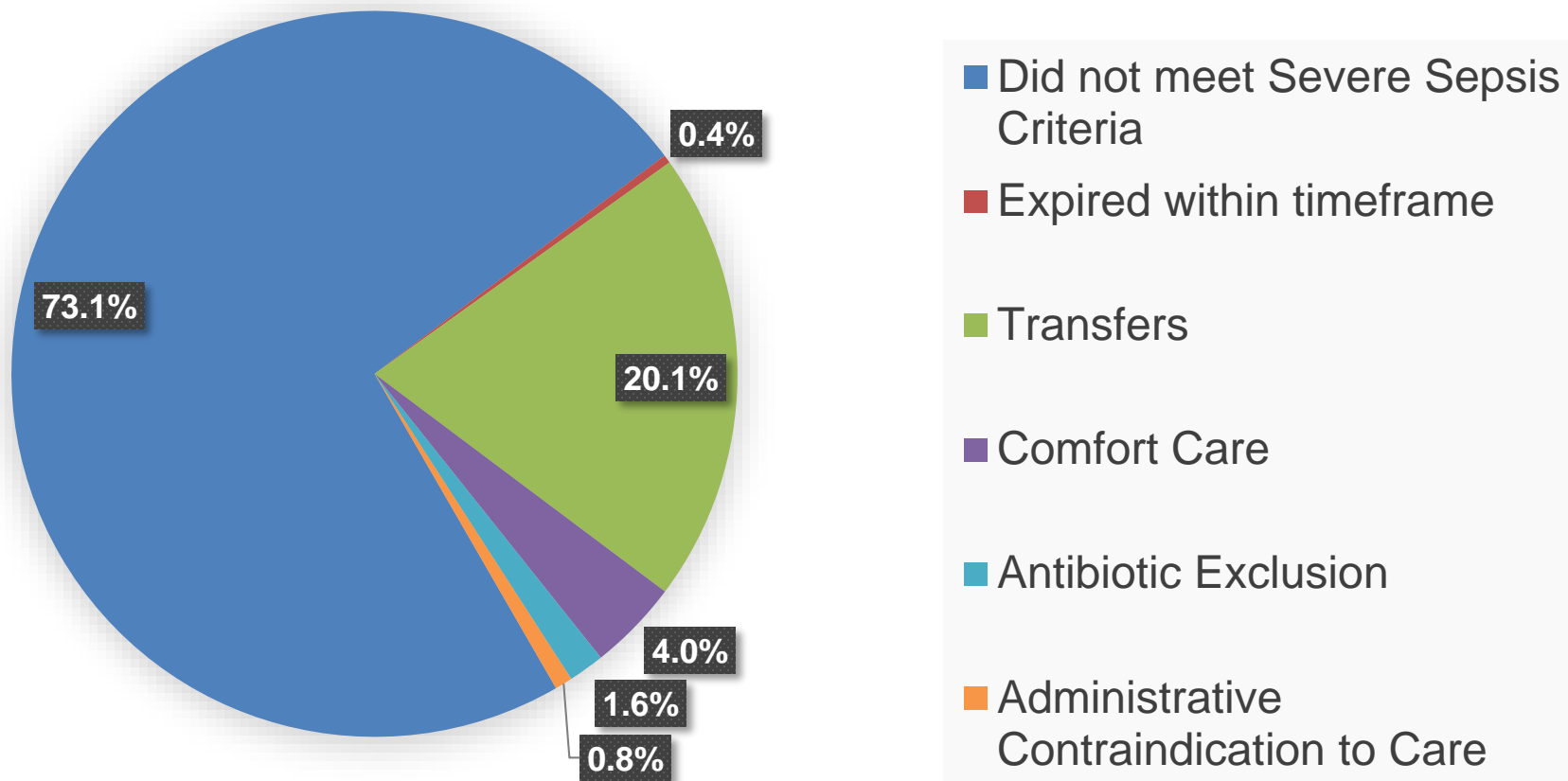
\*Delineated administrative contraindication to care between severe sepsis and septic shock cases

# Breakdown of SEP-1 Exclusion Population: v5.0b



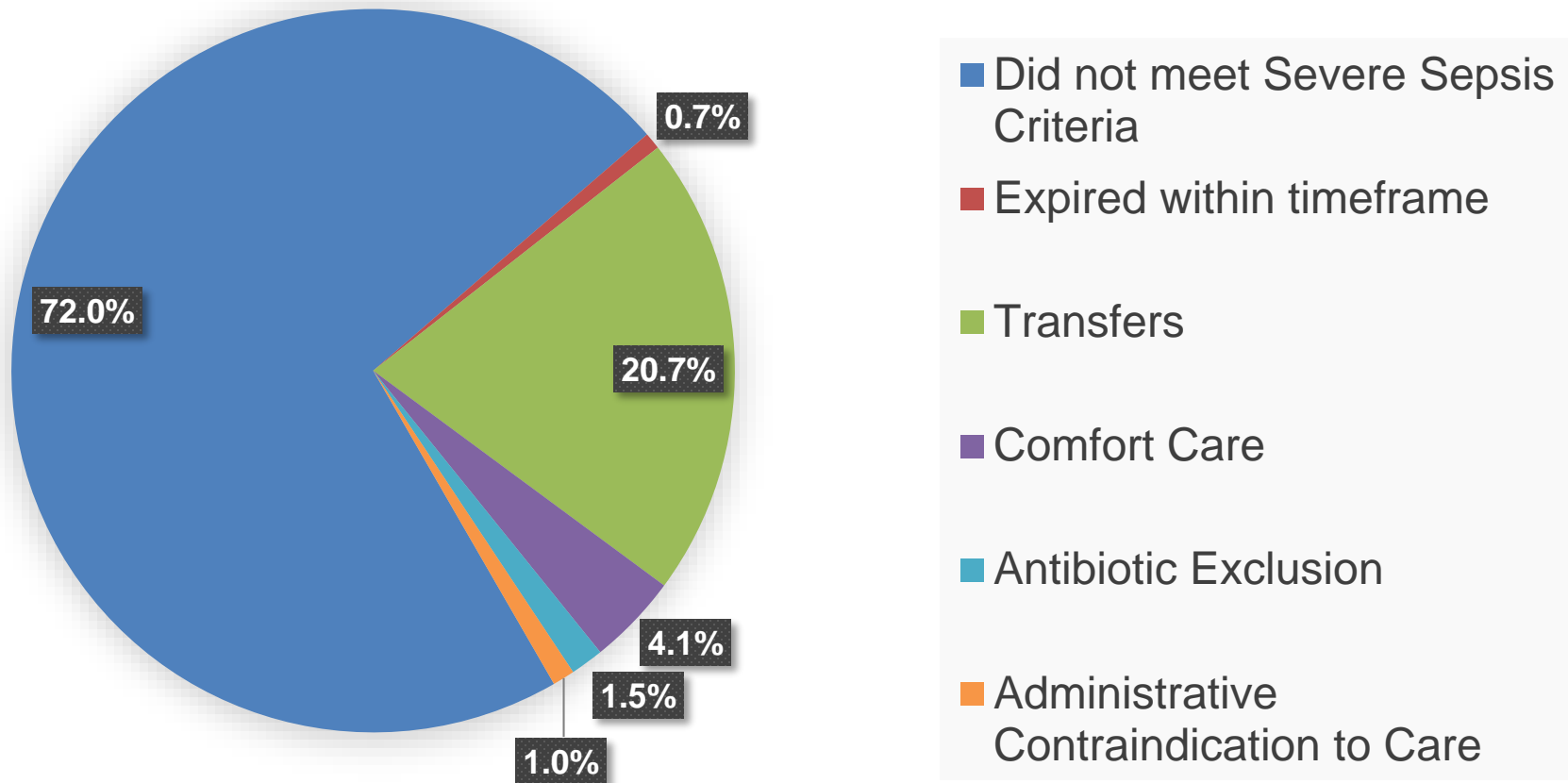
Note: Cumulative data from October 2015–June 2016  
(339,678 total exclusions for cases)

# Breakdown of SEP-1 Exclusion Population: v5.1



Note: Cumulative data from July 2016–December 2016  
(116,310 total exclusions for cases)

# Breakdown of SEP-1 Exclusion Population: v5.2a



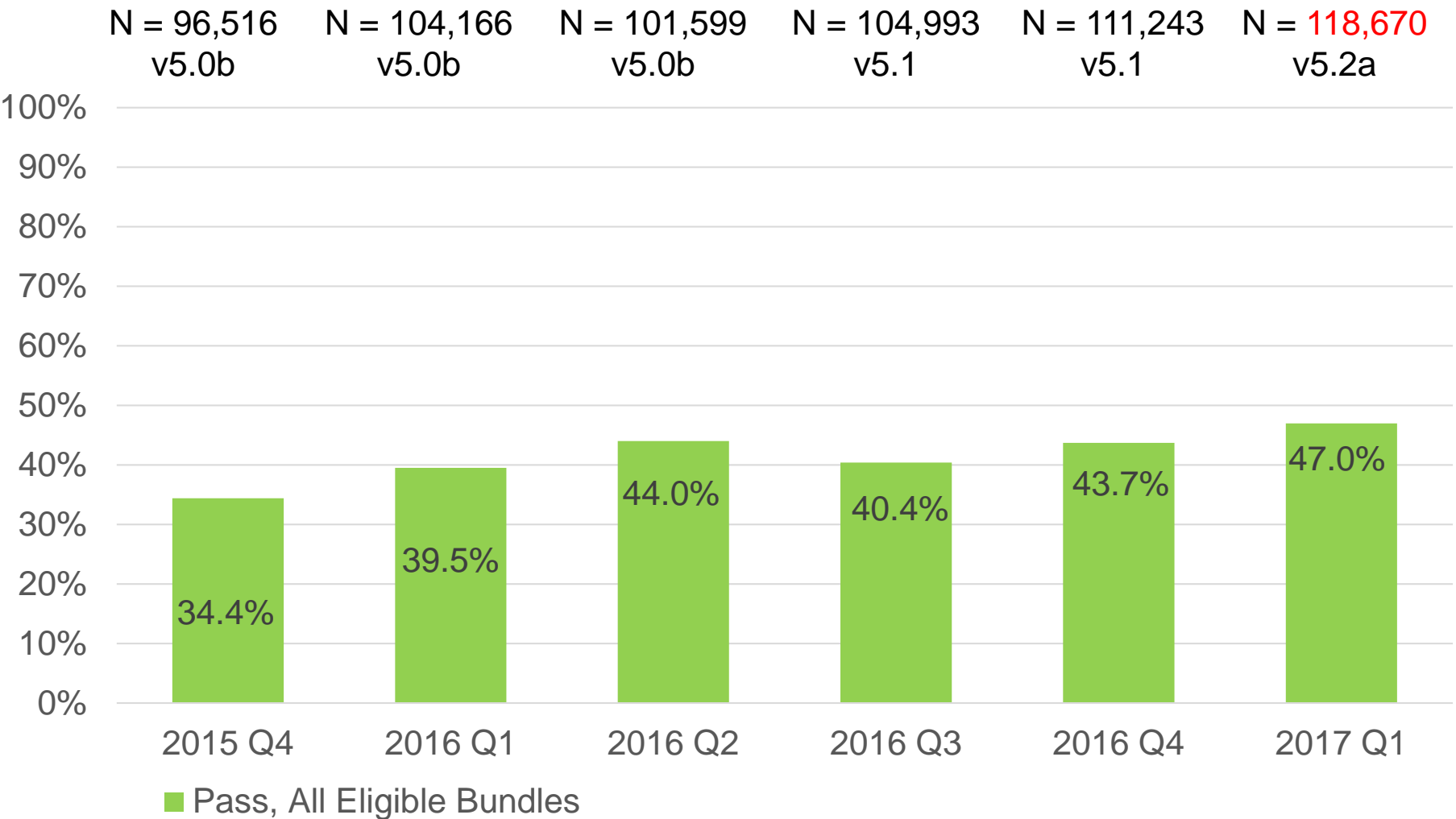
Note: Cumulative data from January 2017–March 2017  
(218,849 total exclusions for cases)

# Initial Population by Bundle and Total Eligible Cases

Bundle	v5.0b	v5.0b	v5.0b	v5.1	v5.1	v5.2a
	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017
<b>INITIAL PATIENTS</b>	210,997	219,520	211,442	213,809	221,276	234,980
Severe Sepsis 3 Hour	100,996	109,295	106,537	106,969	113,264	120,684
Severe Sepsis 6 Hour	52,844	58,819	58,612	51,498	56,817	61,912
Septic Shock 3 Hour	24,669	26,475	26,165	34,411	38,211	42,796
Septic Shock 6 Hour (Vasopressors)	5,127	5,301	5,139	4,312	4,650	5,067
Septic Shock 6 Hour (Repeat Volume Status Assessment)	8,567	9,888	10,096	8,460	9,748	11,335
<b>Total Eligible Cases*</b>	96,516	104,166	101,599	104,993	111,243	118,670

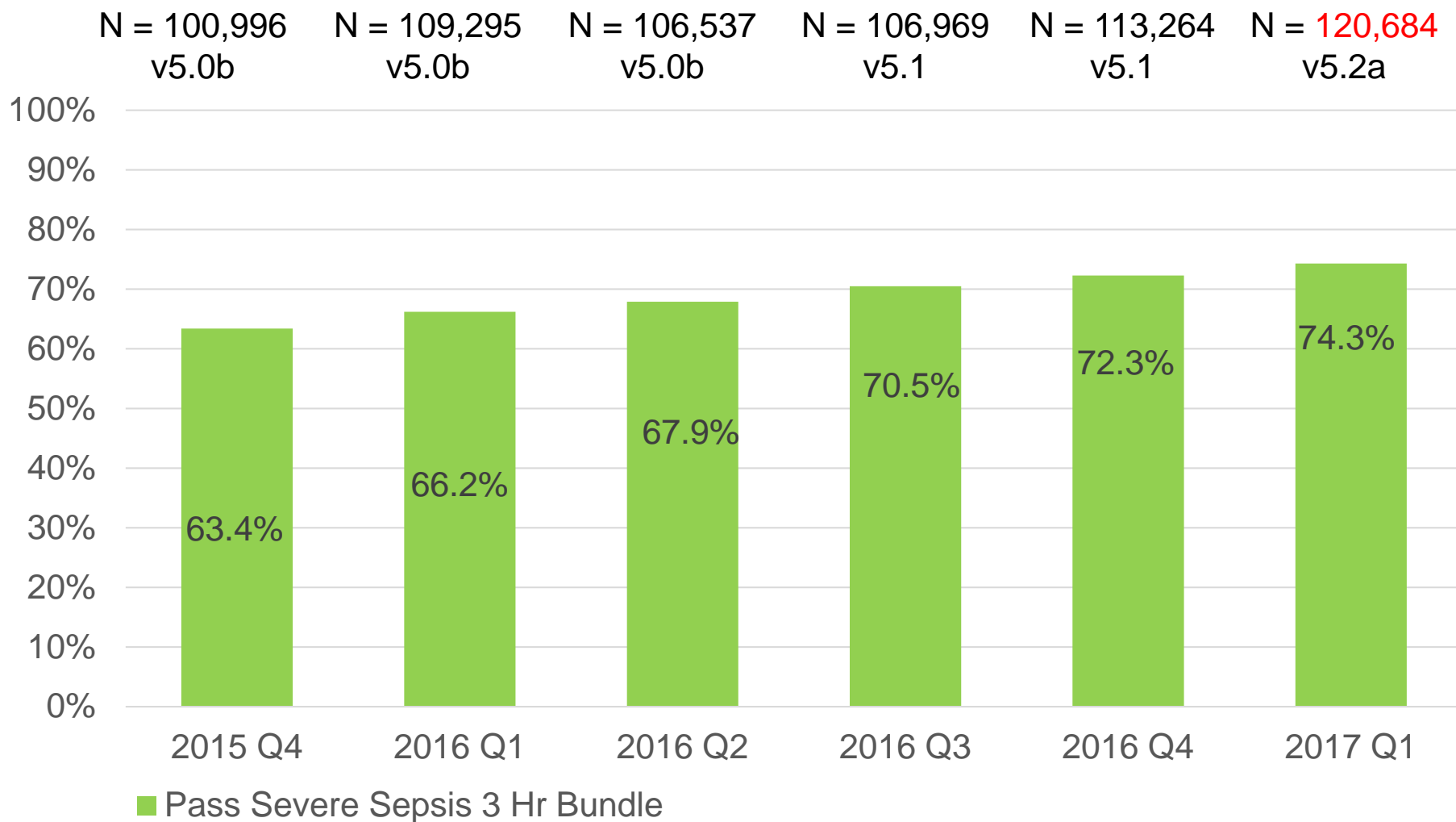
\*Total eligible cases are patients in initial patient population that met inclusion criteria and did not meet any exclusion criteria. Exclusions occur throughout the measure algorithm.

# Breakdown of SEP-1: Overall Performance for Eligible Population

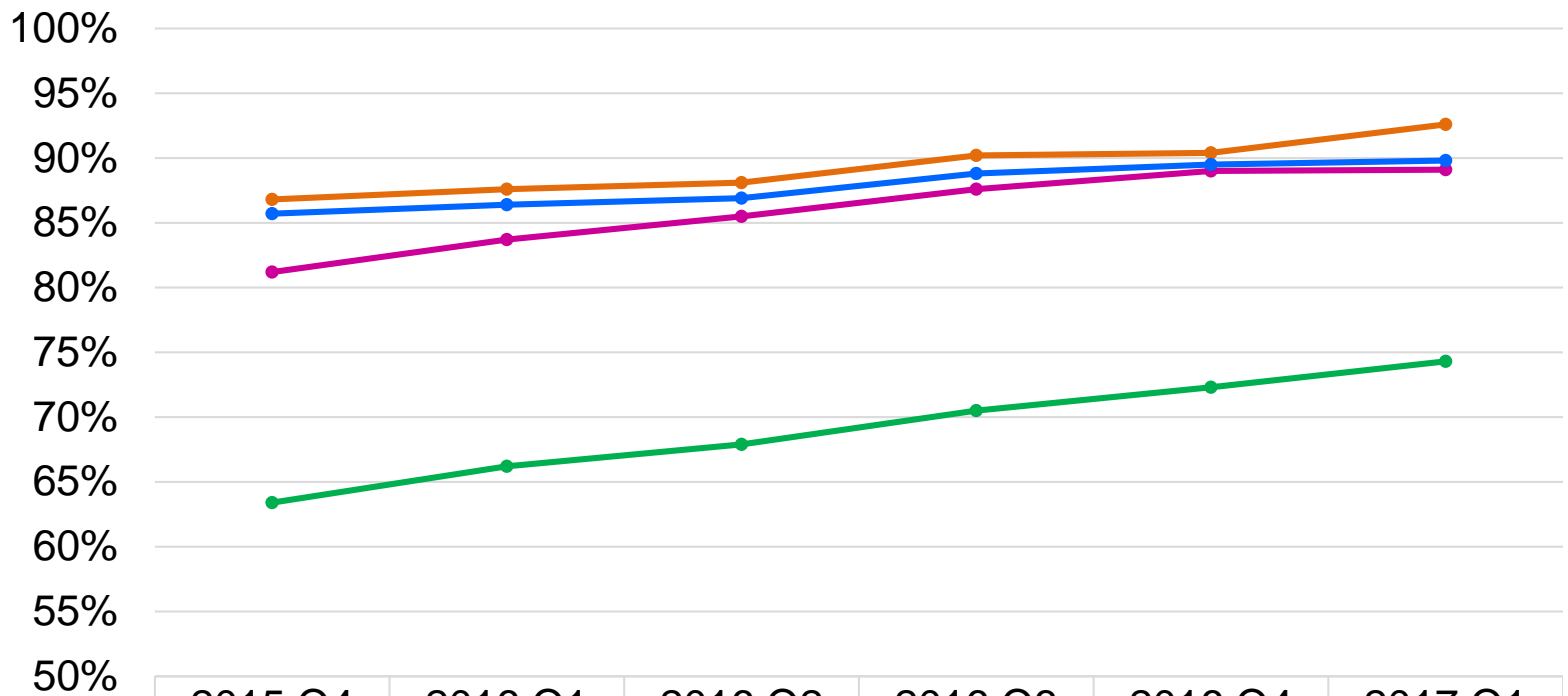




# Breakdown by SEP-1 Bundles: Severe Sepsis 3-Hour Bundle



# Breakdown by SEP-1 Bundles: Severe Sepsis 3-Hour Bundle



	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1
Bundle Pass	63.4%	66.2%	67.9%	70.5%	72.3%	74.3%
Lactate pass	81.2%	83.7%	85.5%	87.6%	89.0%	89.1%
Culture Pass	86.8%	87.6%	88.1%	90.2%	90.4%	92.6%
Antibiotic Pass	85.7%	86.4%	86.9%	88.8%	89.5%	89.8%

(v5.0b)

(v5.0b)

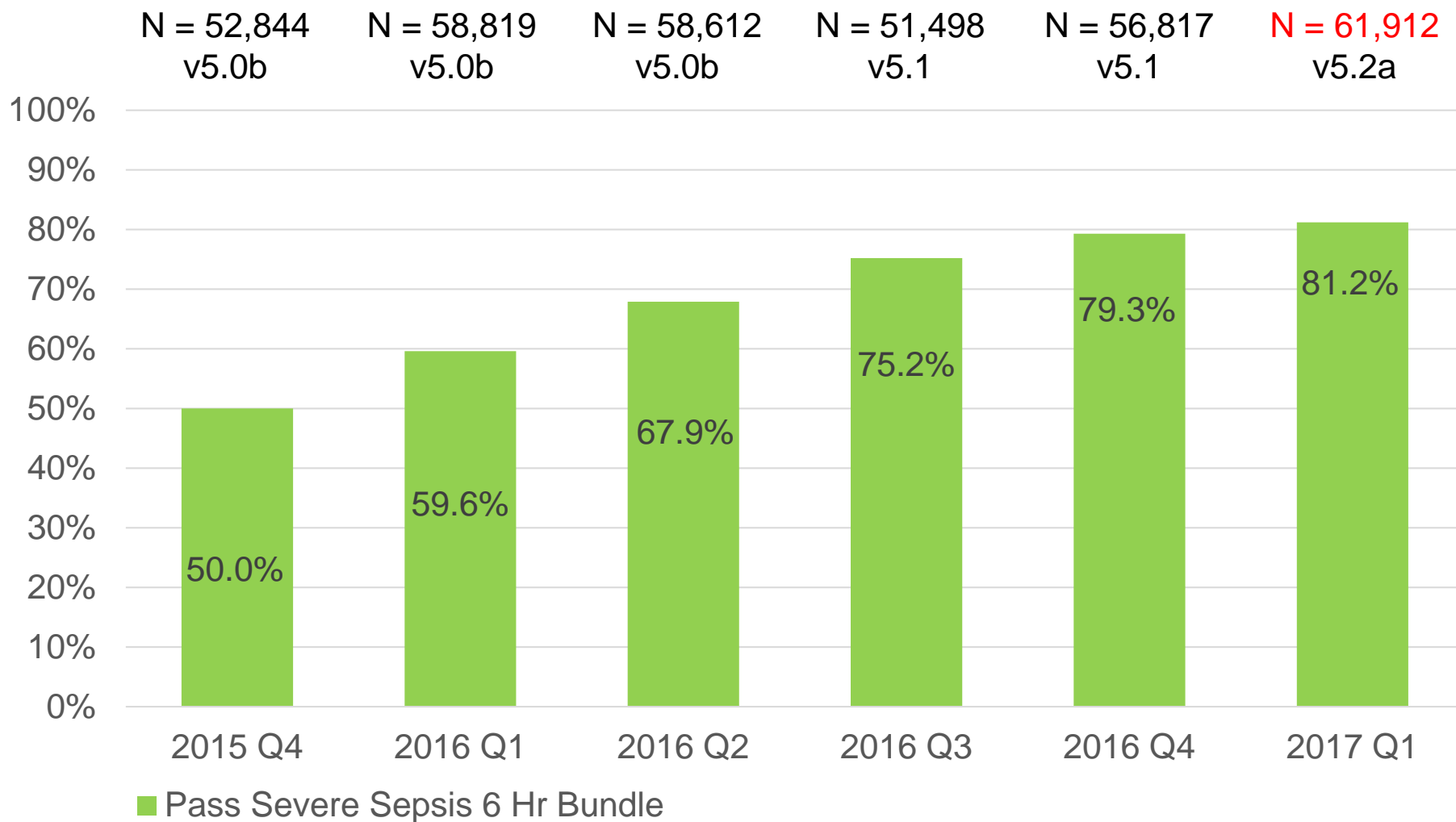
(v5.0b)

(v5.1)

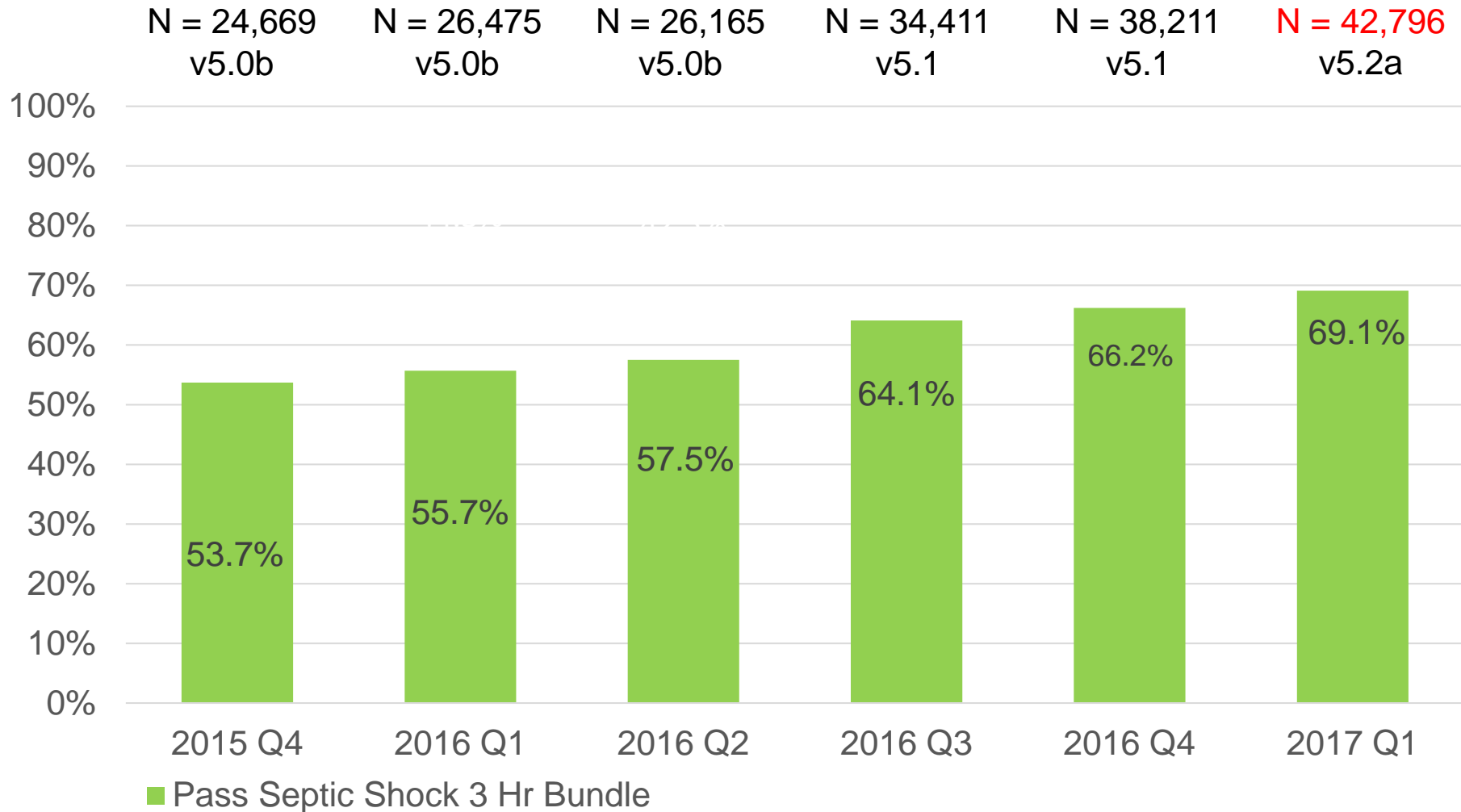
(v5.1)

(v5.2)

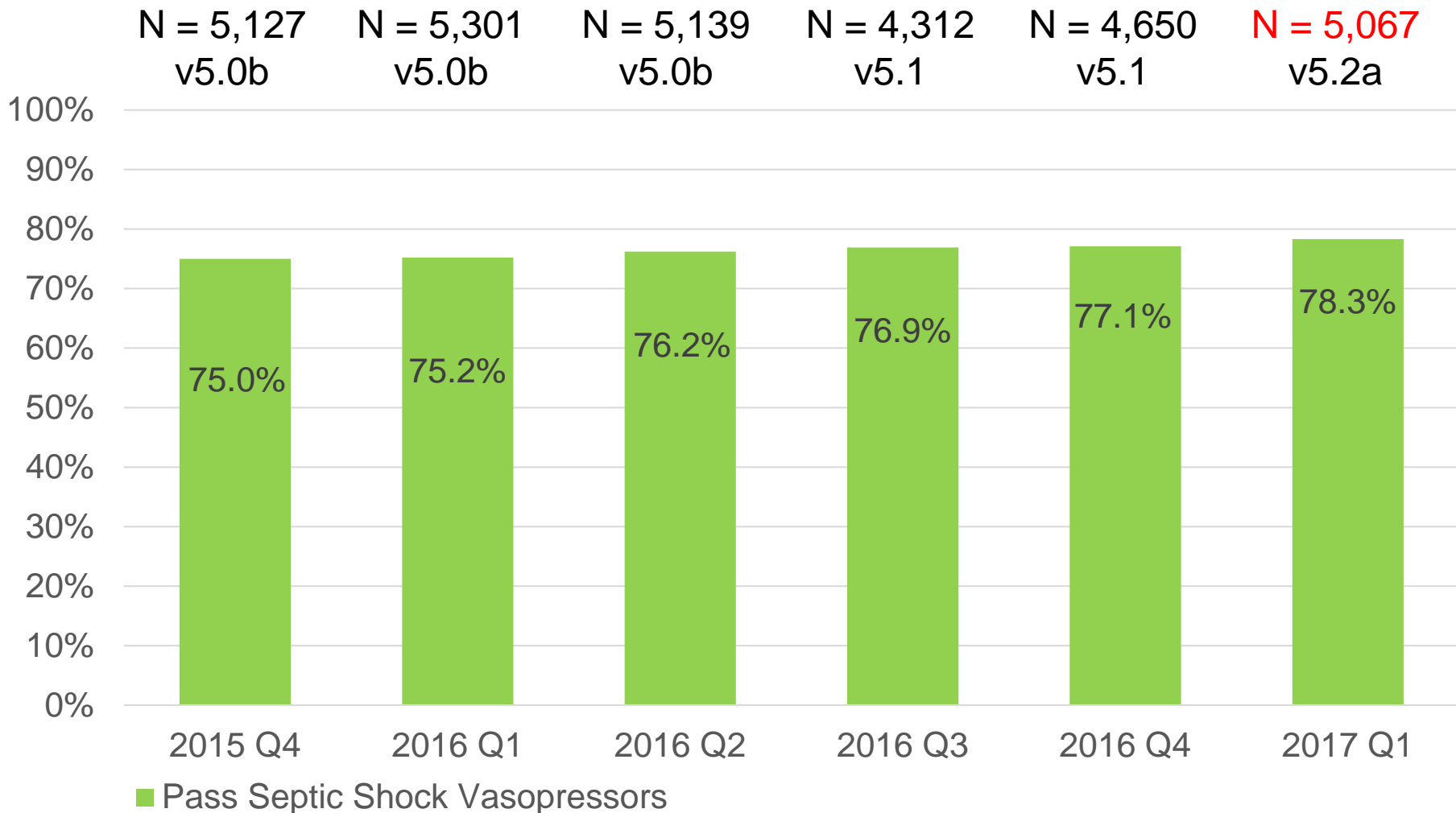
# Breakdown by SEP-1 Bundles: Severe Sepsis 6-Hour Bundle



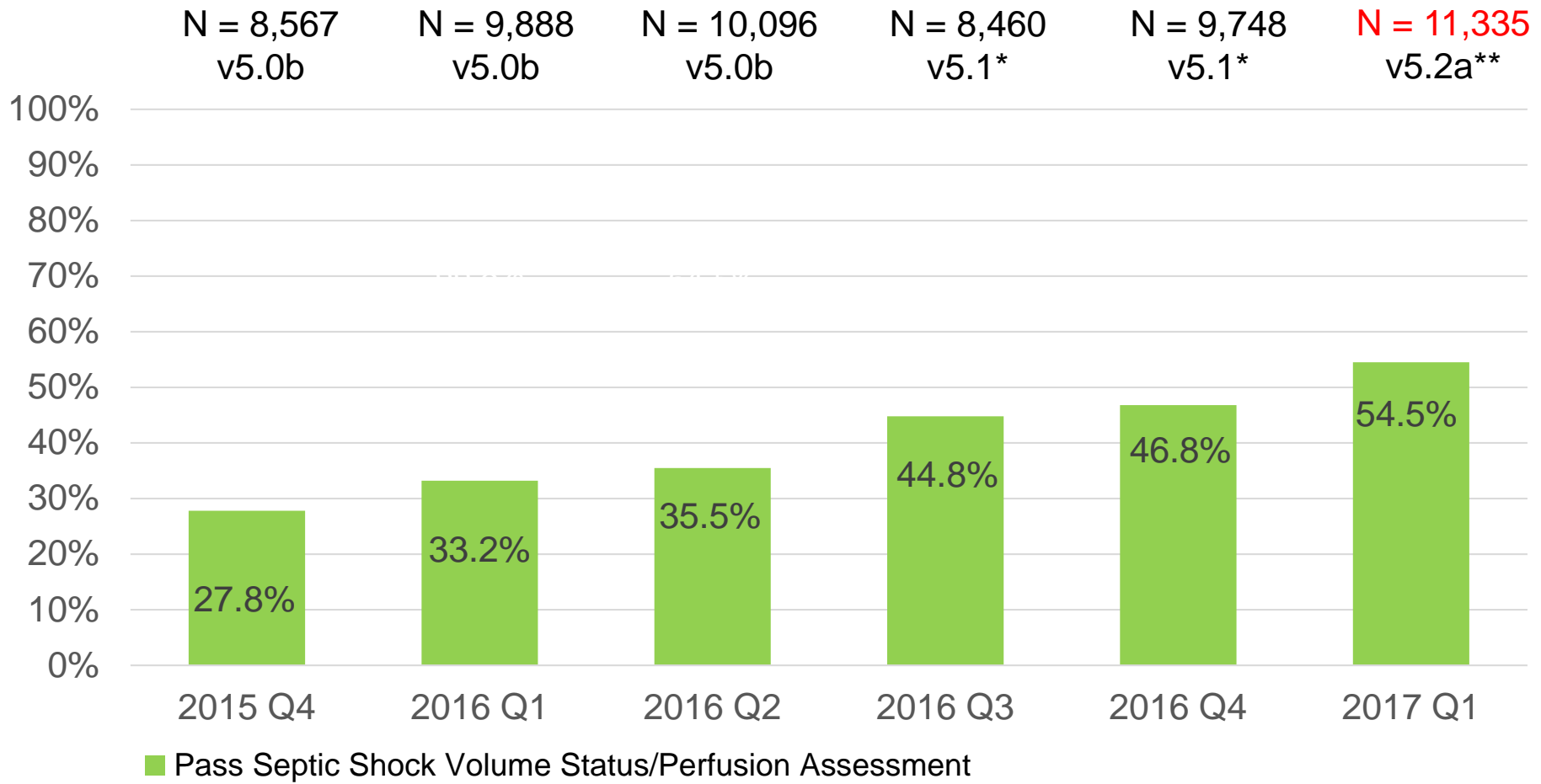
# Breakdown by SEP-1 Bundles: Septic Shock 3-Hour Bundle



# Breakdown by SEP-1 Bundles: Shock 6-Hour Bundle – Vasopressors



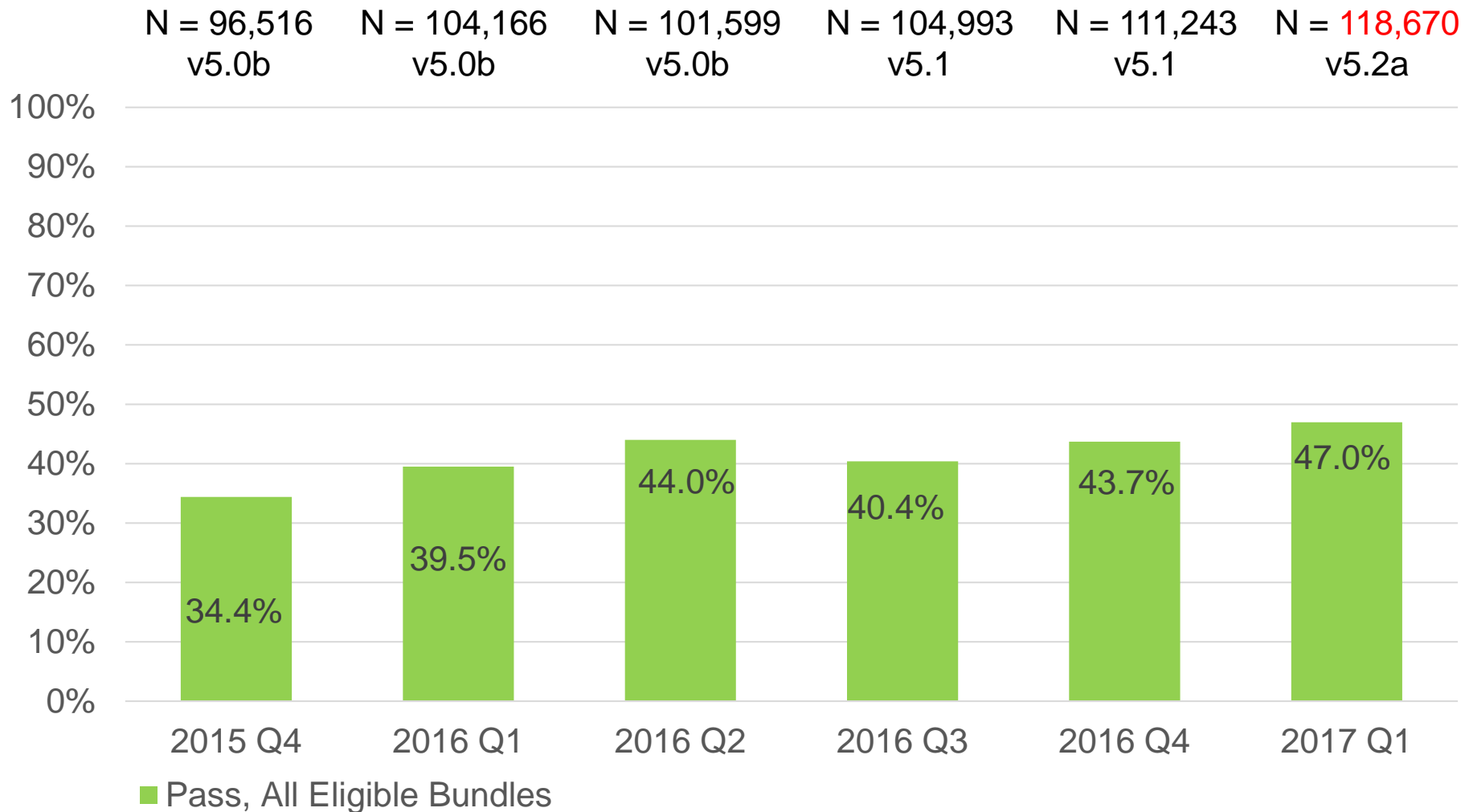
# Breakdown by SEP-1 Bundles: Septic Shock 6-Hour Bundle – Assessment



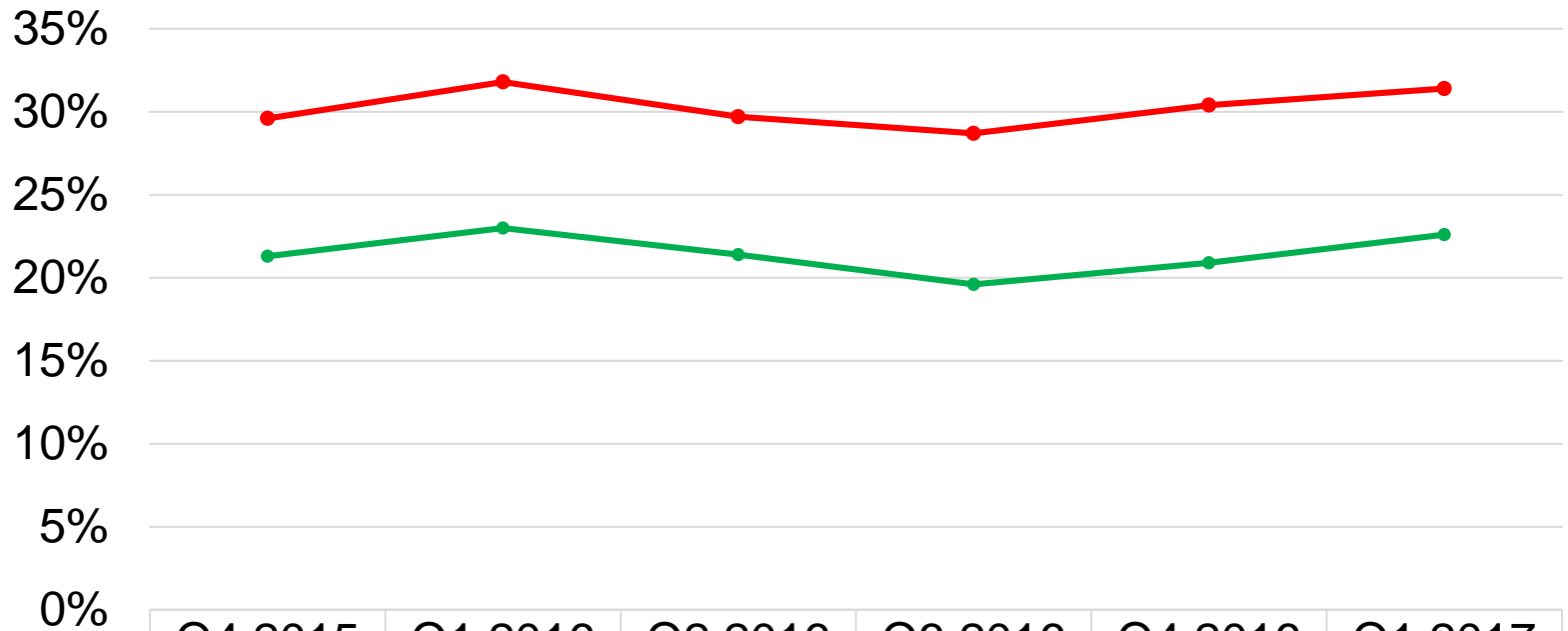
\*Changed requirement from physician performed to physician documented.

\*\*Clinician attestation of performing assessment added.

# Breakdown of SEP-1: Overall Performance for Eligible Population



# SEP-1 Mortality Rate Trend\* for Eligible Population



	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017
Delta	8.3%	8.8%	8.3%	9.1%	9.5%	8.8%
Passed	21.3%	23.0%	21.4%	19.6%	20.9%	22.6%
Did Not Pass	29.6%	31.8%	29.7%	28.7%	30.4%	31.4%
	(v5.0b)	(v5.0b)	(v5.0b)	(v5.1)	(v5.1)	(v5.2a)

\*Mortality analysis is limited to Medicare patients. Results of analysis are not risk-adjusted.  
Differences in mortality rates are statistically significant.



# Takeaways

- SEP-1 refinement ongoing and iterative process
- Involves engaging with multiple stakeholders
- Refinement driven by goals:
  - Maximize beneficiary sepsis care
  - Minimize clinician documentation burden
  - Minimize hospital abstraction burden
- Expect increased performance in future analyses (ongoing Q1 2017 and pending Q2 2017)

# CMS Sepsis Measure Information

## ***QualityNet* Fact Sheets and Measure Updates:**

<https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1228772869636>

## ***QualityNet* Question Submission Link:**

[https://cms-ip.custhelp.com/app/utils/login\\_form/redirect/ask](https://cms-ip.custhelp.com/app/utils/login_form/redirect/ask)

## **SEP-1 Frequently Asked Questions:**

<https://cms-ip.custhelp.com/app/answers/list>

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# Questions?

# Continuing Education Approval

This program has been approved for 1.5 continuing education (CE) units for the following professional boards:

- **National**
  - Board of Registered Nursing (Provider #16578)
- **Florida**
  - Board of Clinical Social Work, Marriage & Family Therapy and Mental Health Counseling
  - Board of Nursing Home Administrators
  - Board of Dietetics and Nutrition Practice Council
  - Board of Pharmacy

**Please Note:** To verify CE approval for any other state, license or certification, please check with your licensing or certification board.

# CE Credit Process

- Complete the ReadyTalk<sup>®</sup> survey that will pop up after the webinar, or wait for the survey that will be sent to all registrants within the next 48 hours.
- After completion of the survey, click “Done” at the bottom of the screen.
- Another page will open that asks you to register in the HSAG Learning Management Center.
  - This is a separate registration from ReadyTalk<sup>®</sup>.
  - Please use your **personal** email to receive your certificate.
  - Healthcare facilities have firewalls up that block our certificates.

# CE Certificate Problems

- If you do not **immediately** receive a response to the email that you signed up with in the Learning Management Center, you have a firewall up that is blocking the link that was sent.
- Please go back to the **New User** link and register your personal email account.
  - Personal emails do not have firewalls.

# CE Credit Process: Survey

No

Please provide any additional comments

**10. What is your overall level of satisfaction with this presentation?**

Very satisfied

Somewhat satisfied

Neutral

Somewhat dissatisfied

Very dissatisfied

If you answered "very dissatisfied", please explain

**11. What topics would be of interest to you for future presentations?**

**12. If you have questions or concerns, please feel free to leave your name and phone number or email address and we will contact you.**

Done

Powered by [SurveyMonkey](#)  
Check out our [sample surveys](#) and create your own now!

# CE Credit Process: Certificate

Thank you for completing our survey!

Please click on one of the links below to obtain your certificate for your state licensure.

You must be registered with the learning management site.

**New User Link:**  
<https://lmc.hshapps.com/register/default.aspx?ID=da0a12bc-db39-408f-b429-d6f6b9ccb1ae>

**Existing User Link:**  
<https://lmc.hshapps.com/test/adduser.aspx?ID=da0a12bc-db39-408f-b429-d6f6b9ccb1ae>

**Note:** If you click the 'Done' button below, you will not have the opportunity to receive your certificate without participating in a longer survey.

Done



# CE Credit Process: New User

The screenshot shows a web page for registration. At the top left is the HSAG logo (Health Services Advisory Group). At the top right, there is a security notice: "this is a secure site please provide credentials to continue" with a lock icon. Below this is the text "Learning Management Center". The main heading is "Learning Center Registration: OQR: 2015 Specifications Manual Update - 1-21-2015". The registration form includes four input fields: "First Name:", "Last Name:", "Email:", and "Phone:". Below the fields is a "Register" button.

**HSAG** HEALTH SERVICES ADVISORY GROUP

this is a secure site  
please provide credentials to continue

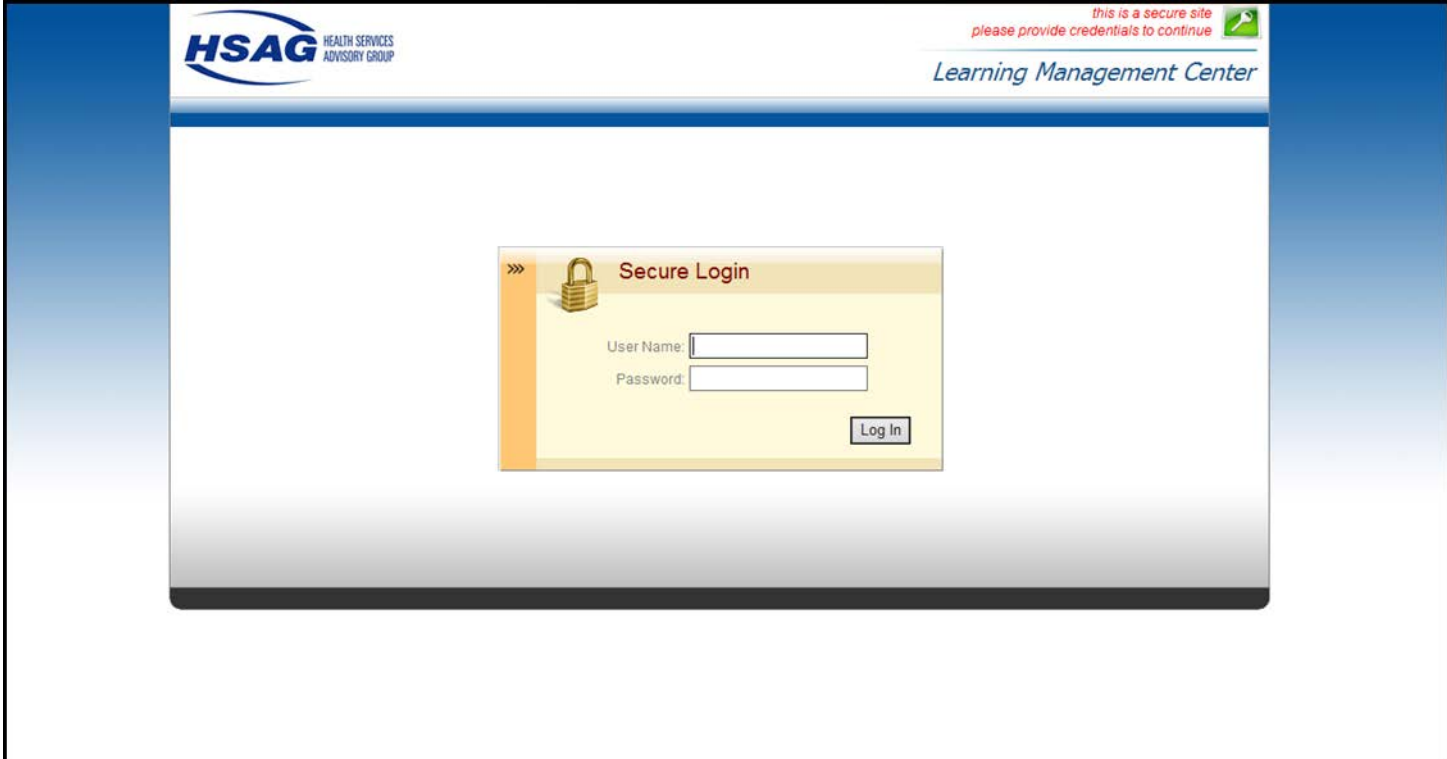
Learning Management Center

**Learning Center Registration: OQR: 2015 Specifications Manual Update - 1-21-2015**

First Name:  Last Name:

Email:  Phone:

# CE Credit Process: Existing User



The screenshot displays the HSAG Learning Management Center login interface. At the top left is the HSAG logo with the text "HEALTH SERVICES ADVISORY GROUP". At the top right, a security notice reads "this is a secure site please provide credentials to continue" next to a lock icon. Below this is the text "Learning Management Center". The main content area features a "Secure Login" box with a padlock icon, a "User Name:" label and input field, a "Password:" label and input field, and a "Log In" button.