collaboration
innovation
community
teamwork
patient centered
quality improvement
knowledge sharing
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CCM Sepsis Measurement

Why and How

CCM Sepsis Measures

- Why is measurement important?
- What are we trying to measure?
- What we did in the past
- What we plan for the future

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Why is Measurement Important

"Measuring the quality of health care and using those measurements to promote improvements in the delivery of care are paramount to improving our health care systems"

- Mark Chassin NQF

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If we don’t measure our systems we don’t:

- know how well we are doing
- know if we are making improvements or having deleterious effects
- Can’t use positive or negative feedback to drive future change

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Reportable Emergency Department Measurements

- Percentage of patients who:

- Received antibiotics by time goal
- Blood cultures taken before IV antibiotics initiated
- 2nd liter of crystaloid initiated by time goal
- Appropriate lactate measurements by time goals
- Mortality

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Two separate groups

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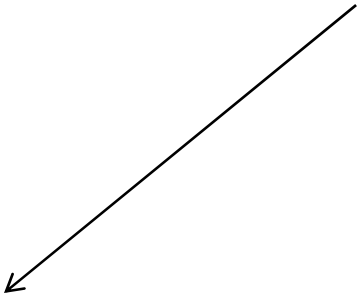
Two separate groups



Septic Shock (Systolic <90)
Severe Sepsis (Lactate >4)

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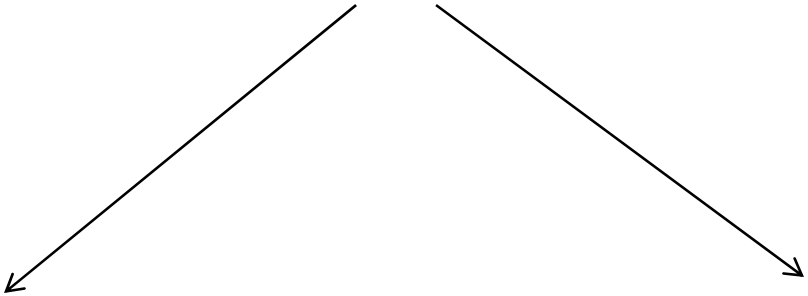

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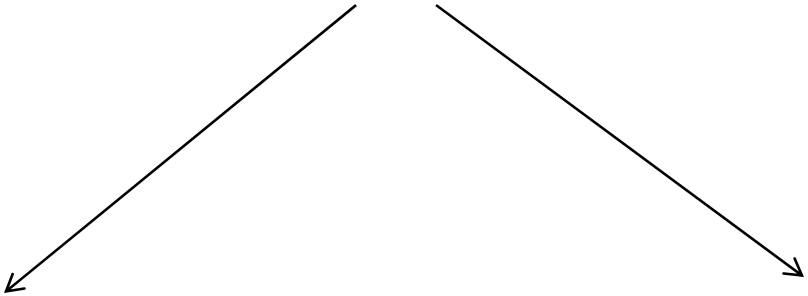

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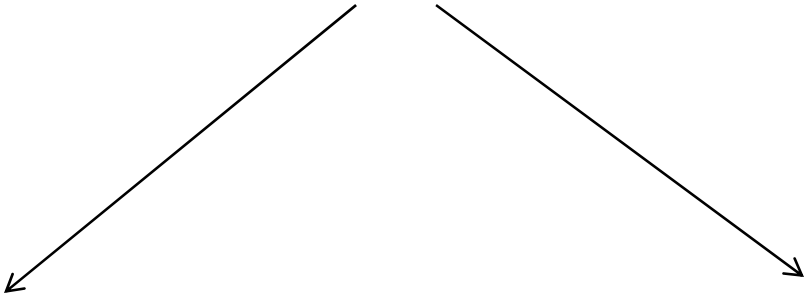

Septic Shock (Systolic <90)
Severe Sepsis (Lactate >4)

ALL PATIENTS

Admitted for IV antibiotics

SAMPLE OF 50/ MONTH

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Septic Shock (Systolic <90)
Severe Sepsis (Lactate >4)

ALL PATIENTS

Early (<30MIN) **and Repeated Lactate Measurement** (2-4hrs)

Early Cultures= before IV abx given

Early Antibiotics= <1 hr for SS/SS

Early Fluids= SS/SS 2nd L started < 1hr

MORTALITY

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Admitted for IV antibiotics

SAMPLE OF 50/MONTH

Early (<30MIN) **Lactate Measurement**

Early Cultures= before IV abx given

NONE OF THE SYSTOLIC <90 OR
LACTATE >4 SLIPPED THROUGH!!!!

MEASUREMENT
QUALITY CONTROL

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What we did in the past…..

ORIGINAL RESEARCH • RECHERCHE ORIGINALE

EM Advances

Effect of an emergency department sepsis protocol on the care of septic patients admitted to the intensive care unit

David D. Sweet, MD; Dharmvir Jaswal, MD; Winnie Fu, MD; Matt Bouchard, MD; Praveena Sivapalan, MD; Jen Rachel, MD; Dean Chittock, MD, MSc

Emergency Medicine Collaborative

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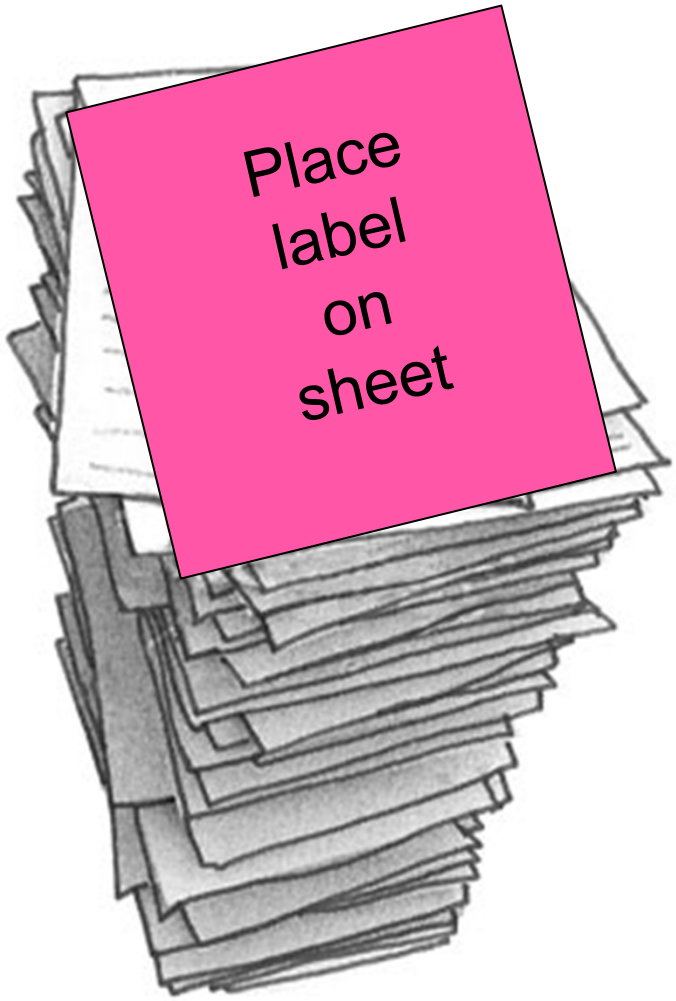
Sepsis
Pre-Printed
Orders



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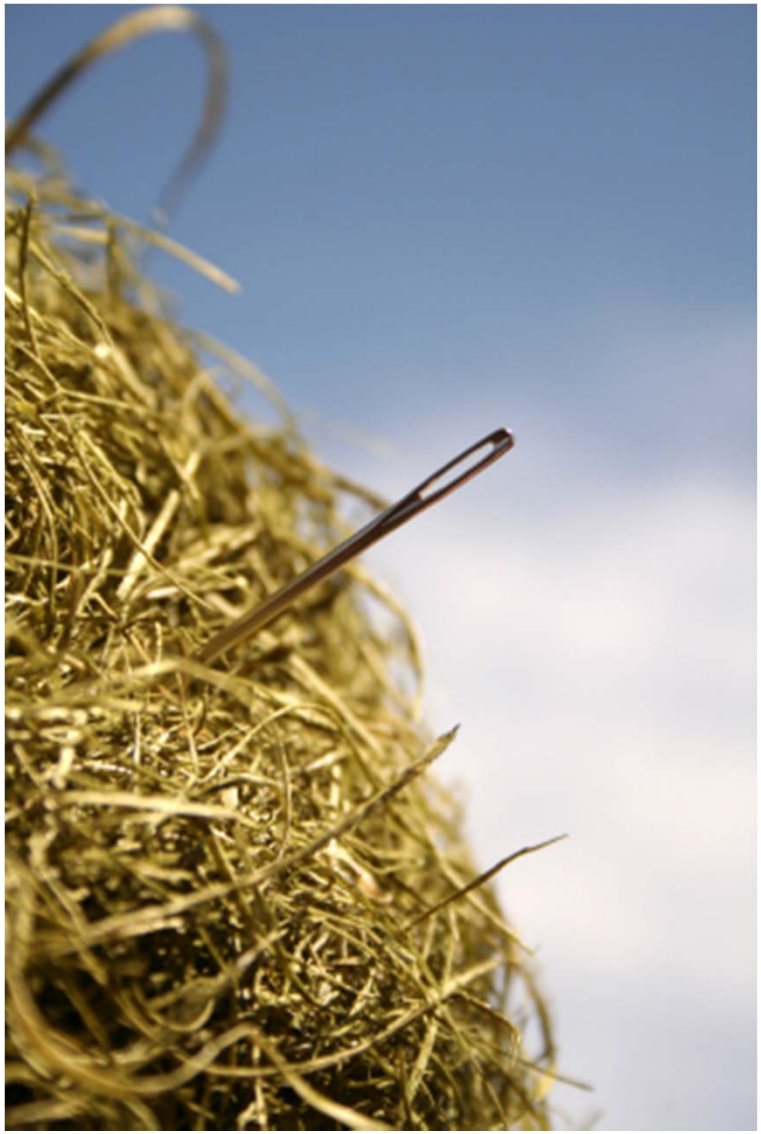

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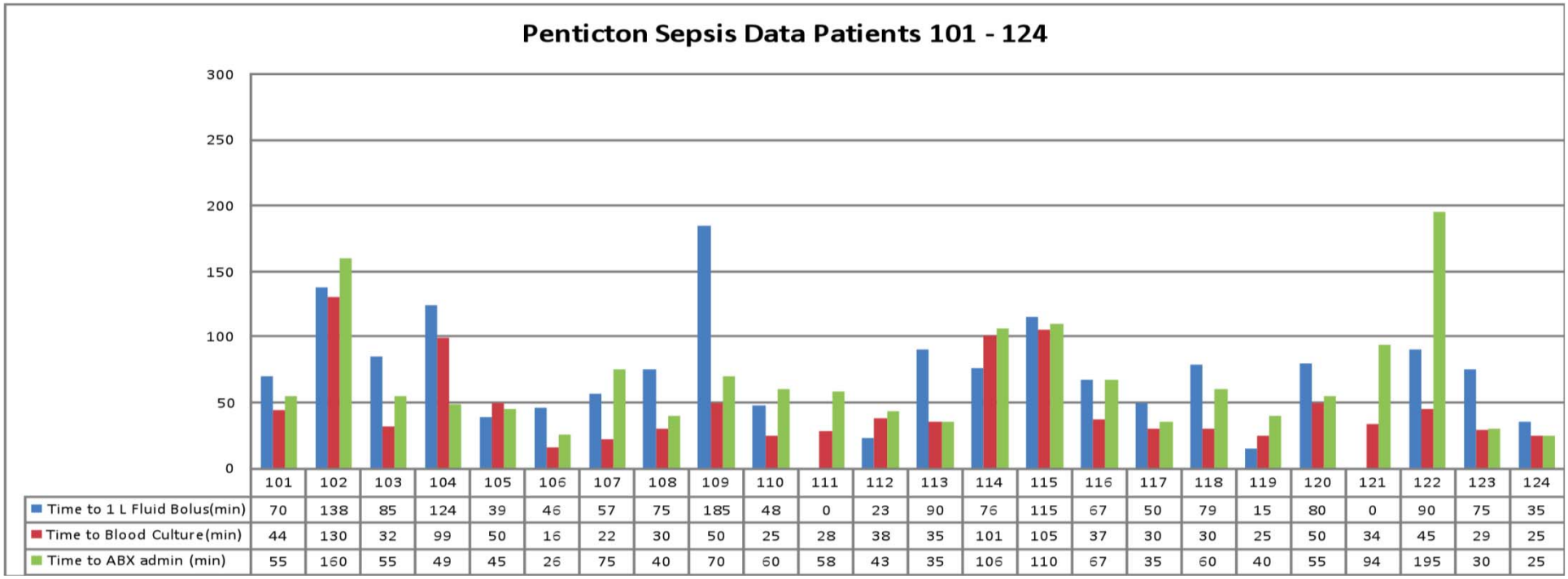
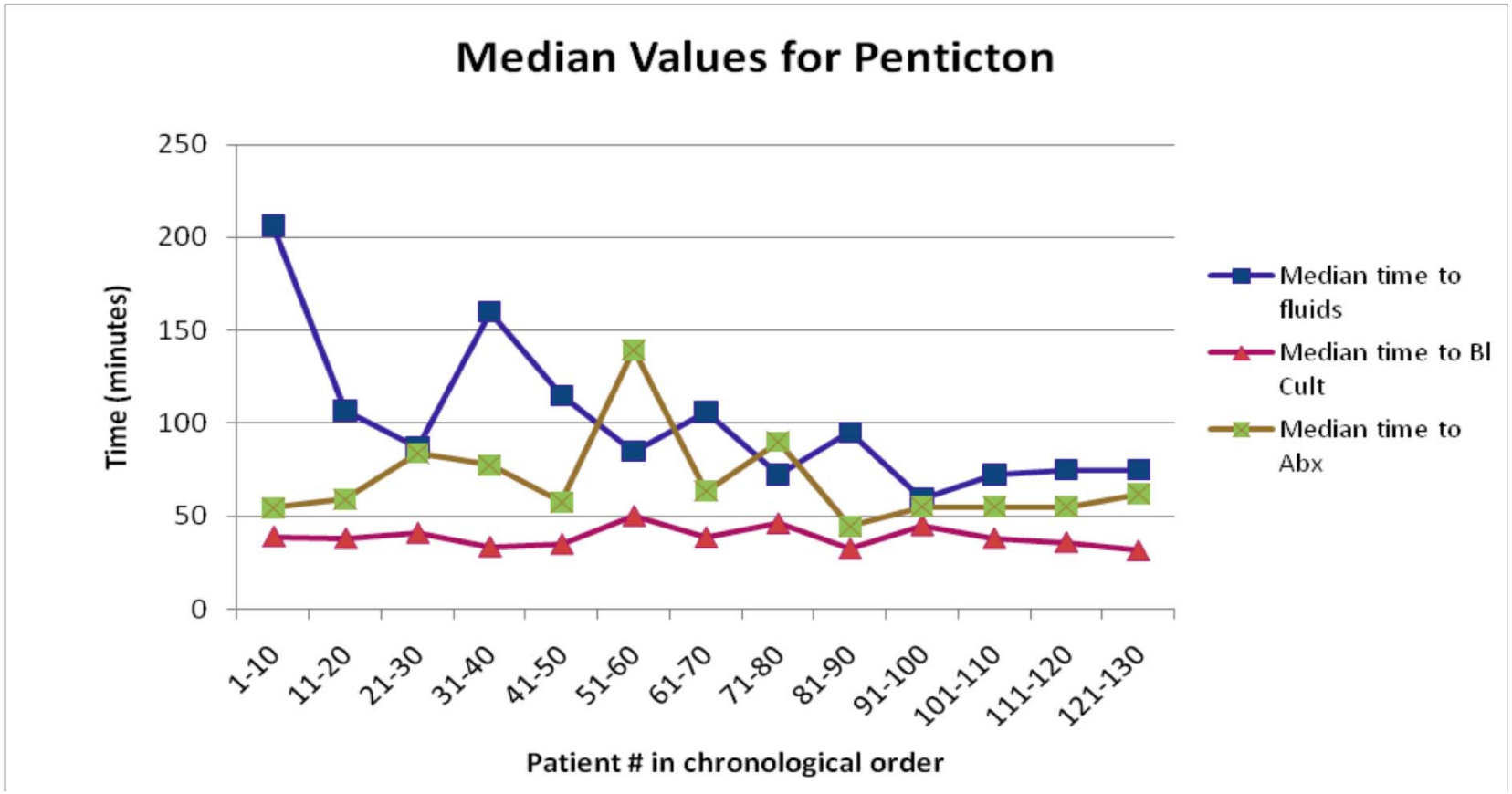
DATA COLLECTION



	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124
Time to 1 L Fluid Bolus(min)	70	138	85	124	39	46	57	75	185	48	0	23	90	76	115	67	50	79	15	80	0	90	75	35
Time to Blood Culture(min)	44	130	32	99	50	16	22	30	50	25	28	38	35	101	105	37	30	30	25	50	34	45	29	25
Time to ABX admin (min)	55	160	55	49	45	26	75	40	70	60	58	43	35	106	110	67	35	60	40	55	94	195	30	25

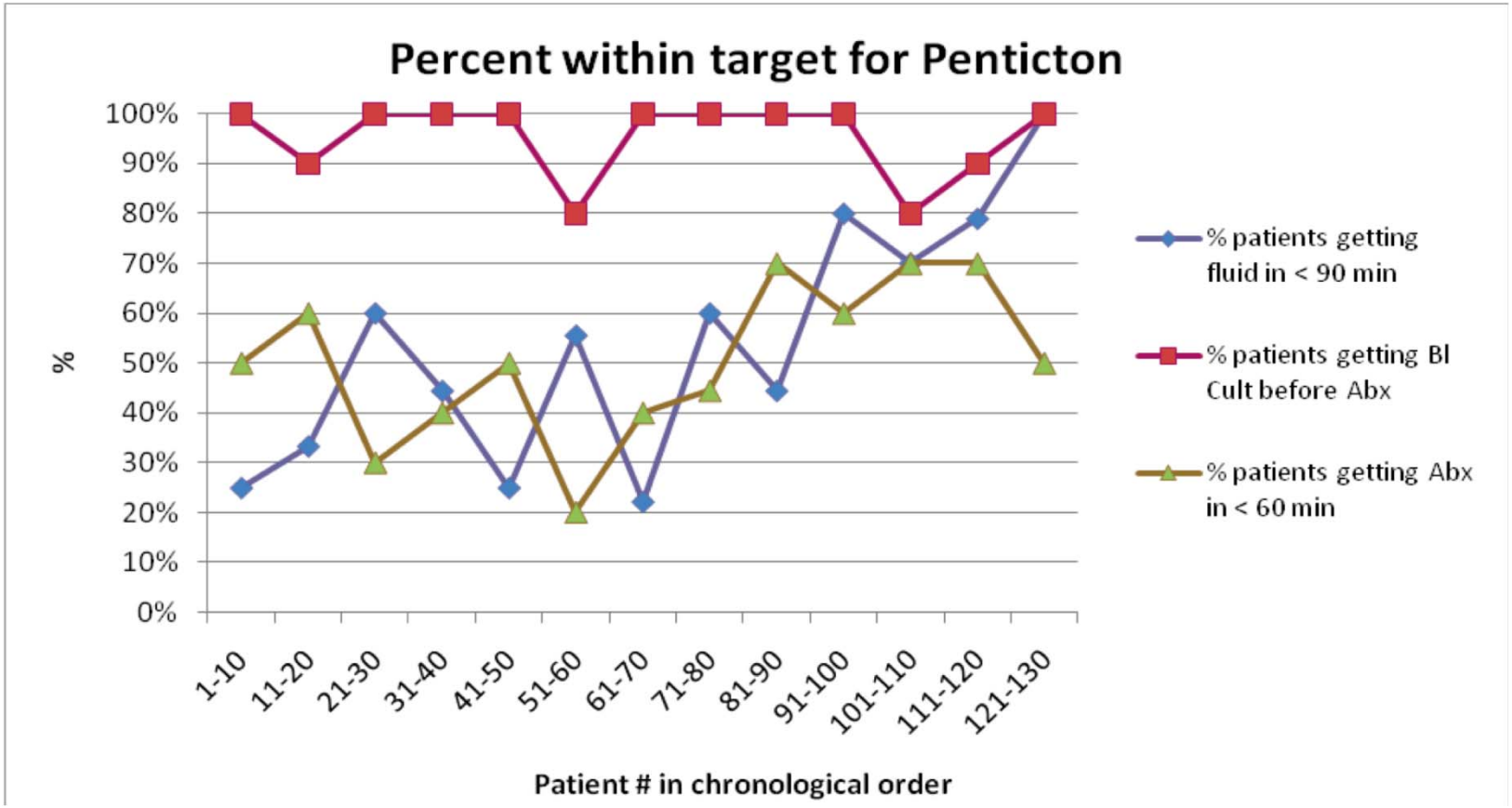
BC Patient Safety & Quality Council

DATA COLLECTION



BC Patient Safety & Quality Council

DATA COLLECTION



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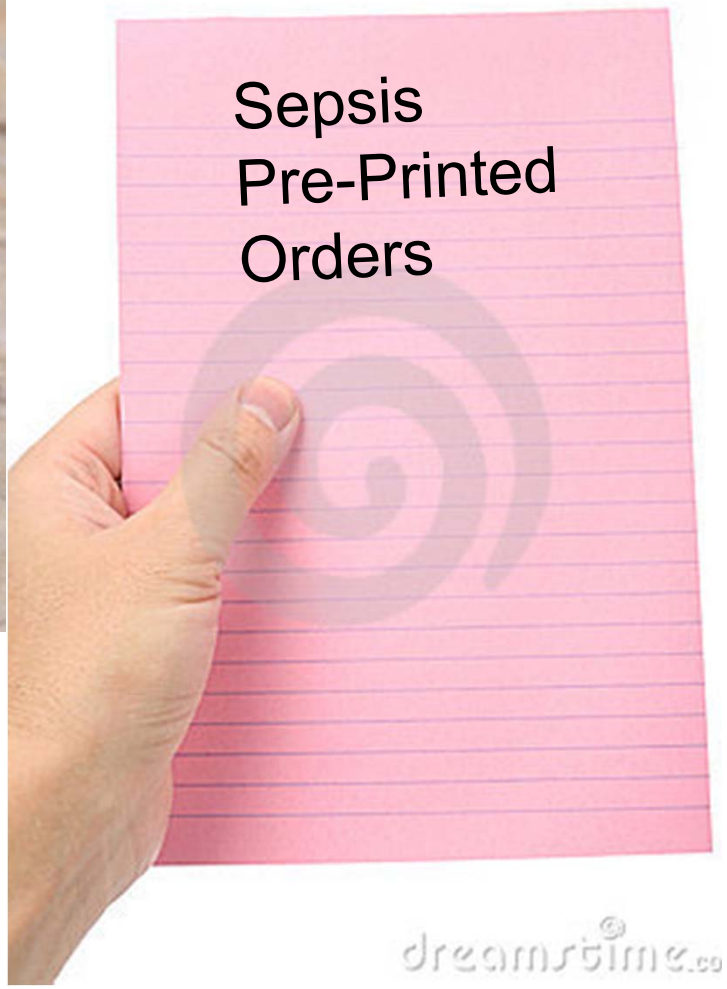

At M+M rounds we would find people that never got PPO. Never got a pink sheet collected.

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Is there a better way to capture this data??

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We know that prospective data collection is very difficult in the Emergency Department!

Can we flag patients…..

Retrospective data collection with a chart audit……

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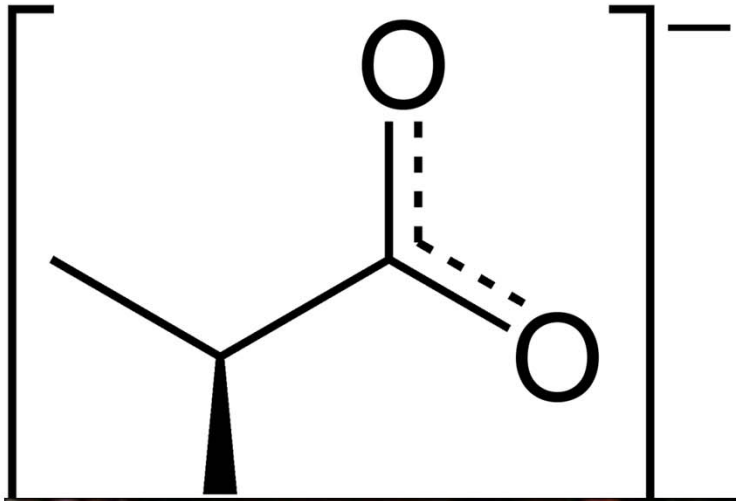
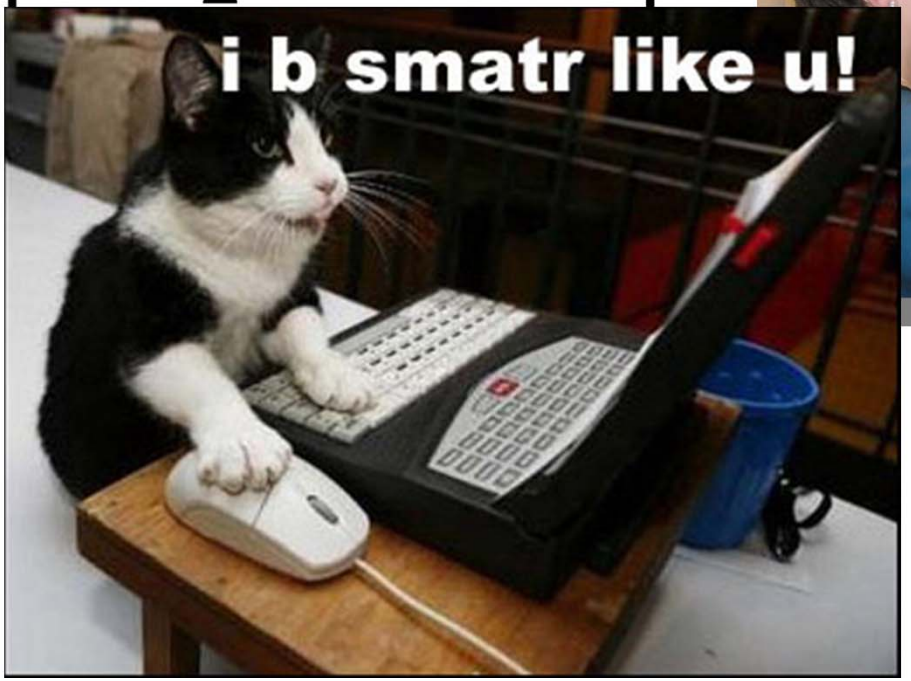
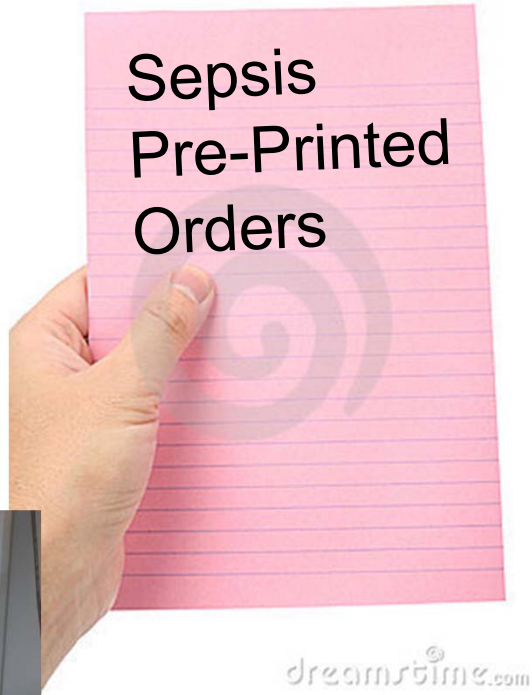
Flagging of Patients







Can we have a totally passive technique for flagging these patients for retrospective data collection?

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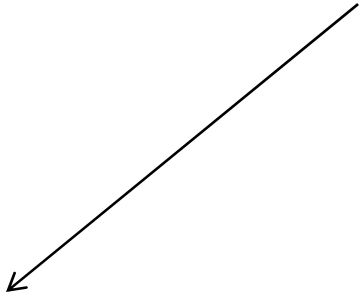
Two separate groups



Septic Shock (Systolic <90)
Severe Sepsis (Lactate >4)

ALL PATIENTS

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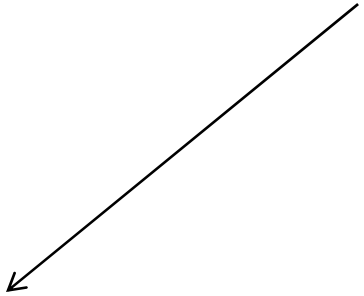
Two separate groups



Admitted

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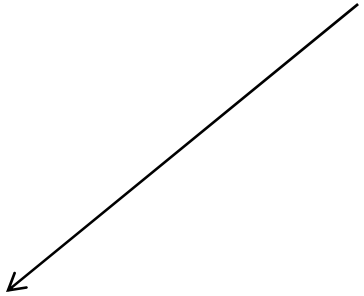

Admitted

Have a “septic” ED discharge diagnosis

Septic Shock (Systolic <90)
Severe Sepsis (Lactate >4)

ALL PATIENTS

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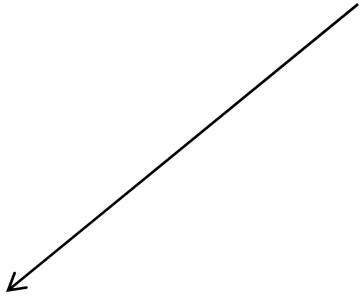
Sepsis	038.0 - 038.9	A40.0 - A40.9; A41.0 - A41.9
Septicemia	038.0 - 038.9	A40.0 - A40.9; A41.0 - A41.9
Shock	785.5	T81.1 with R57.2
Bacteremia	041.0-041.9; 790.7	A49.0 - A49.9
Bacteremia with meningococcal	036.2	A39.4
Enteritis with sepsis; Other gastroenteritis and colitis of infectious and unspecified origin	009.0 - 009.3	A09.0, A09.9
Pneumonia	480.0 - 487.8	J13; J14;J15.0 - J15.9; J16.0-J16.8; J17.0 - J17.8; J18.0 - J18.9
Pneumonia with sepsis	486	A41^ with J17.0
Cellulitis	681.0 - 681.9; 682.0 - 682.9	L03.0 - L03.9
UTI(urinary track infection)	599.0	N39.0
Urosepsis	599.0	N39.0
Pyelonephritis	590.8	N16 with A41.0-A41.9
Acute upper respiratory infection	465	J06.0 - J06.9, J09, J10.0 - J10.8, J11.1 - J11.8,
Appendicitis	541	K35.2-K35.8; K36; K37
Acute pancreatitis	577	K85.0 - K85.9, K86.0 - K86.9
Cholangitis	576.1	K80.30; K80.31; K80.40; K80.41; K83.0
Post-op infection	998.0; 998.5	T81.4
Dental abscess	522.4	K05.2

Two separate groups



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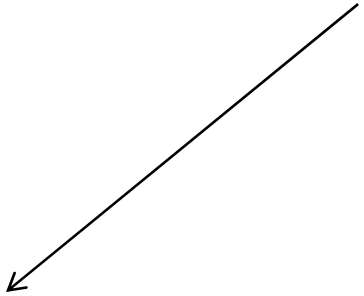

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Have a “septic” ED discharge diagnosis

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ALL PATIENTS

Have a septic COT “triage” code with a “general” ED discharge diagnosis

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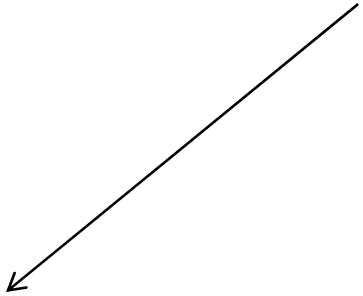
Two separate groups



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Have a septic COT “triage” code with a “general” ED discharge diagnosis

ALL PATIENTS

(eg fever looks unwell with dx of general symptoms)

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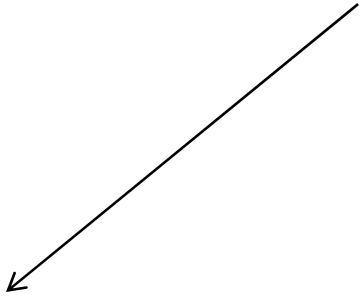
HN232	Neck stiffness, R/O meningitis
ID010	Cough +/- fever looks septic
ID011	Cough + sev resp distress
ID012	Cough / looks unwell
ID022	Fever, looks unwell
ID025	Fever,neck stiff,R/0 meningitis
ID026	Fever + immuno compromised
ID028	Fever looks septic
ID041	Sore Throat+dysphag+/-drool+strido
MC221	Post-op complications,looks unwell
OC084	Swollen 'hot' joint, looks unwell
RC111	Moderate respiratory distress
RC115	Severe respiratory distress
SK071	Rash, looks unwell
SK074	Rash, looks unwell, fever
SK080	Local swell/red +fever
SK081	Local swell/red, R/O cellulitis

Two separate groups



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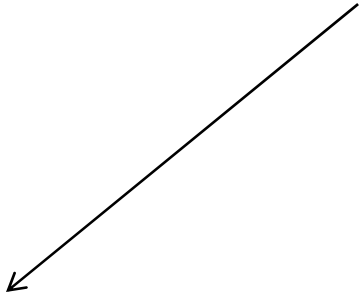

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ALL PATIENTS

CTAS=1

Have a septic COT “triage” code with a “general” ED discharge diagnosis

(eg fever looks unwell with dx of general symptoms)

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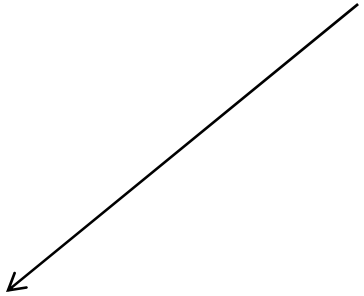

Admitted

Have a “septic” ED discharge diagnosis

Septic Shock (Systolic <90)
Severe Sepsis (Lactate >4)

ALL PATIENTS

CTAS=1

Lactate > 4 within 6 hours of triage time

Have a septic COT “triage” code with a “general” ED discharge diagnosis

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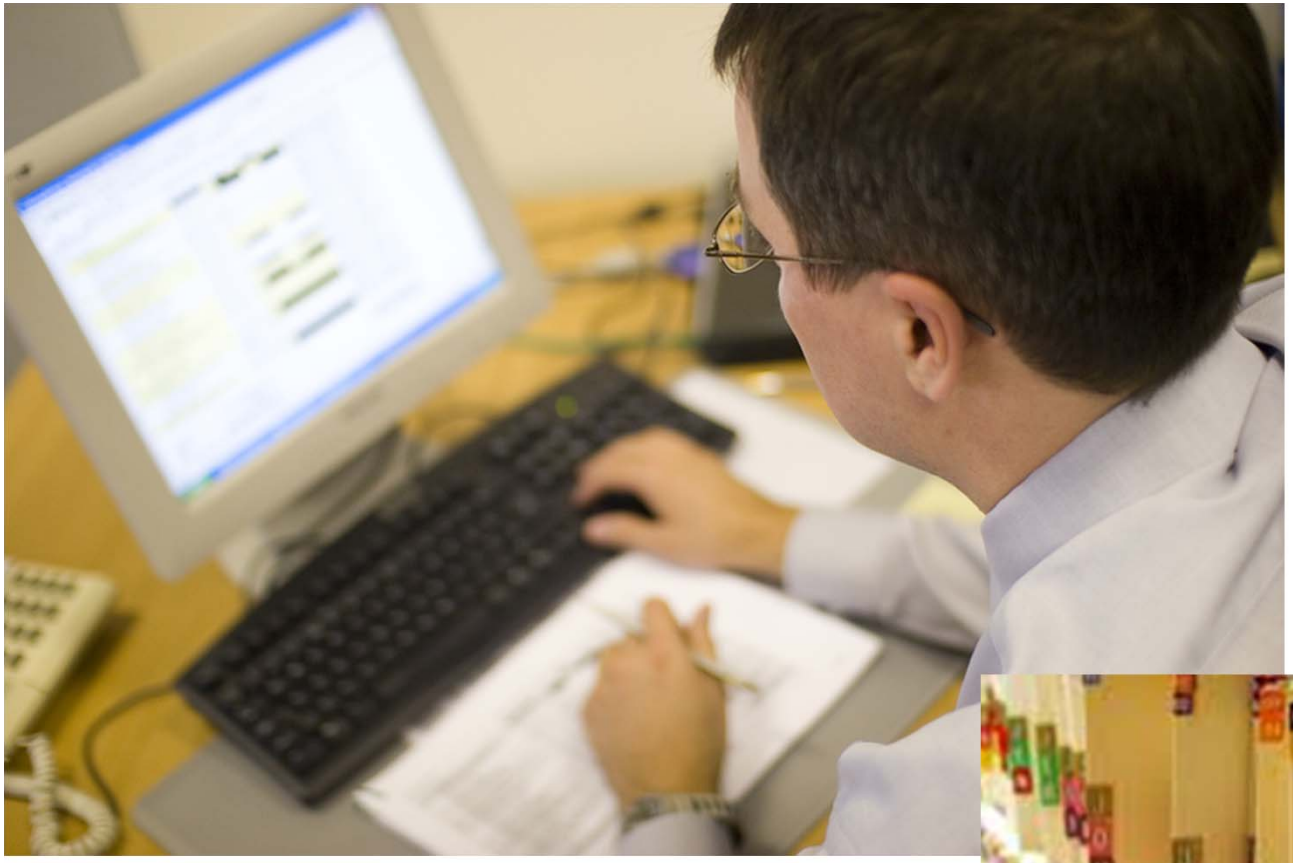

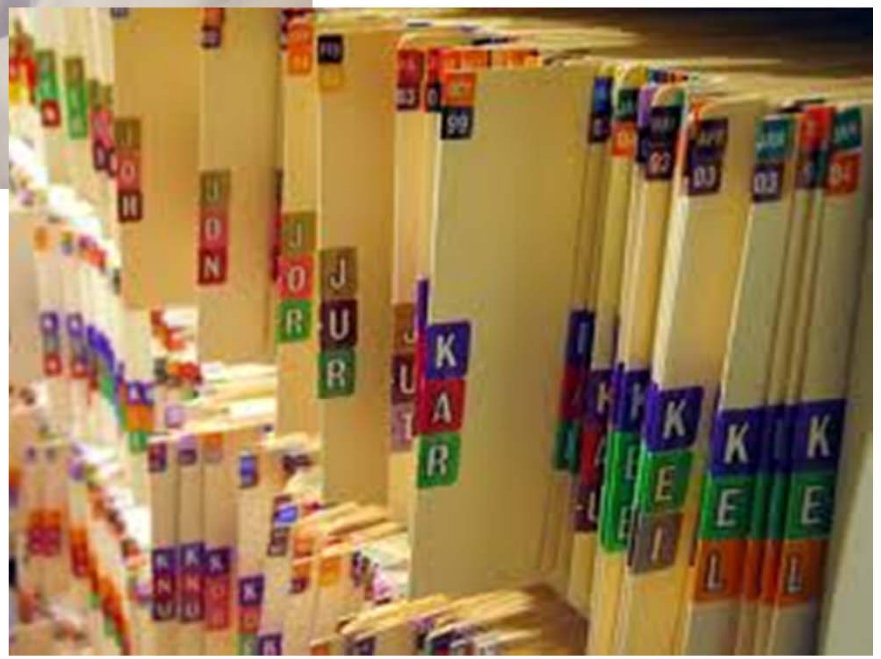

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<Insert logo here>

SEPSIS DATA COLLECTION FORM

<Place Pt Label Here>

<Site Code - Patient Code>

CRITERIA

WAS THE PATIENT ADMITTED TO THE HOSPITAL?

☐ YES (continue) ☐ NO (patient went home) ⇨ DISCARD THIS FORM

TRIAGE

1. Date of arrival (mm/dd/yy)_____
2. Patient arrival time at triage (24hr time): _____
3. Patients age_____
4. Vitals at triage: HR_____BP_____RR_____Sat_____Temp____
5. What was the patients initial CTAS score _____

TREATMENT

6. Time blood culture taken (24hr time): _____
7. Time antibiotic initiated (24hr time): _____
8. Initial lactate level: _____ Time taken (24hr time): _____
9. Second lactate level: _____ Time taken (24hr time):_____
10. Additional lactate levels_____ Times taken(initial 12 hrs): _____
11. Time to second litre of crystalloid (fluid) initiation (24hr time): _____
12. Was the patient hypotensive after second litre bolus? ☐YES ☐NO

OUTCOMES

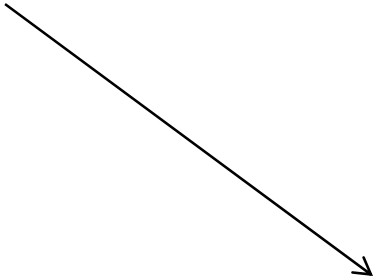
13. Time of transfer out of ED? Date(mm/dd/yr)_____time (24hr time): _____
14. Was the patient transferred to another facility? ☐YES ☐NO
15. Did the patient survive 28 days? ☐YES ☐NO ☐ UNSURE (*has not been 28days since triage time or was transferred to another facility*)
16. Presumptive Cause of Sepsis: _____

All information obtained from:

1) Emergency Nursing Notes
2) Computer Labs

Completed in 3 min!!

Two separate groups



Admitted for IV antibiotics

SAMPLE OF 50/ MONTH

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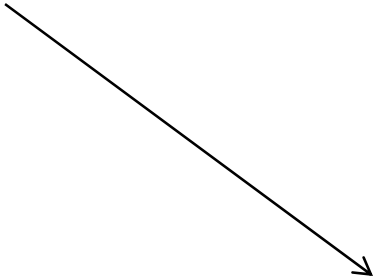

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SAMPLE OF 50/ MONTH

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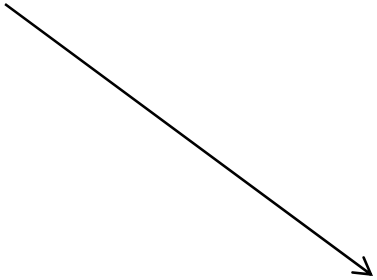

Admitted for IV antibiotics

SAMPLE OF 50/ MONTH

Random sample for:
- Quality control (no misses)
- Early lactate measure
- Cultures before Abx

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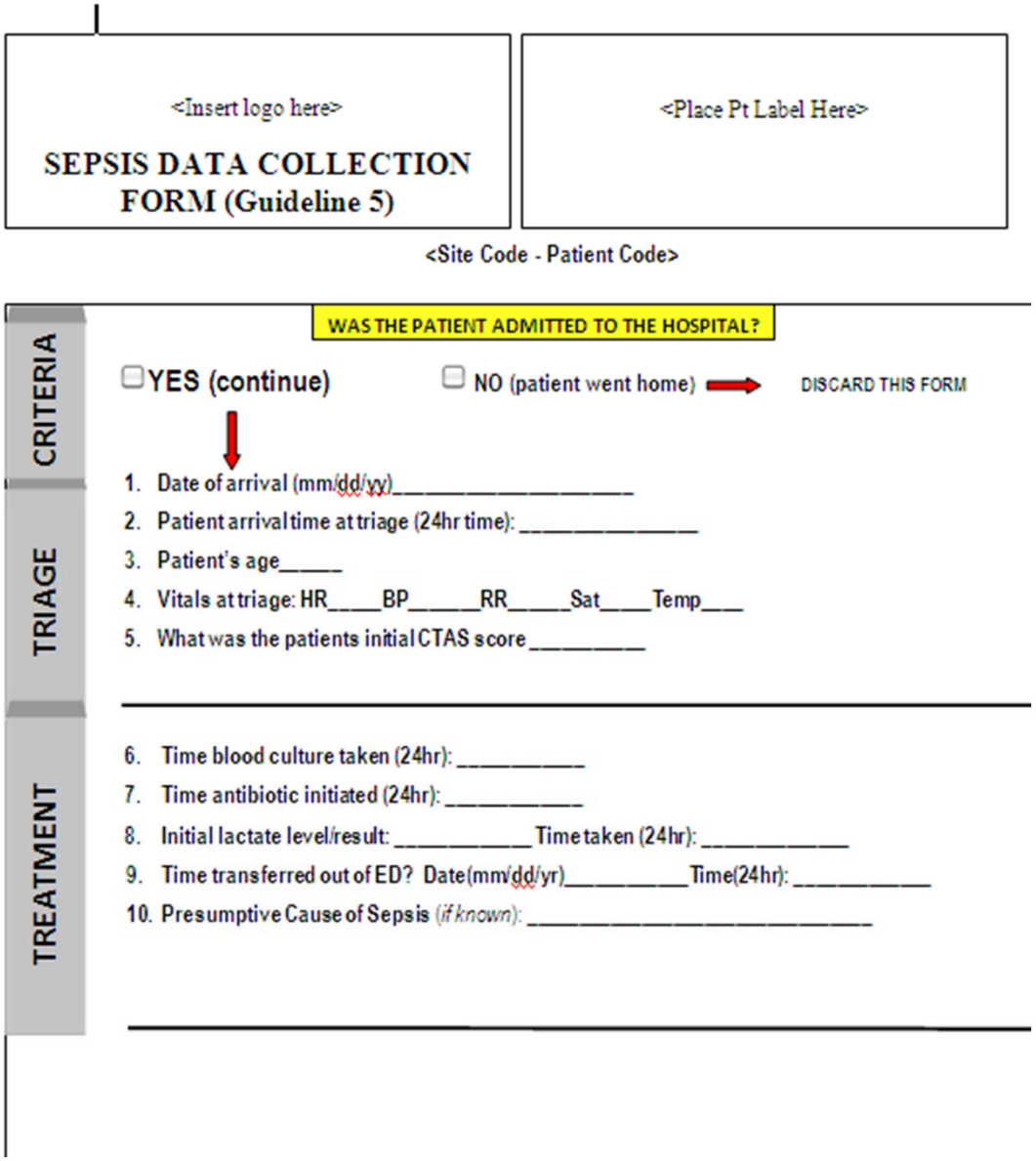
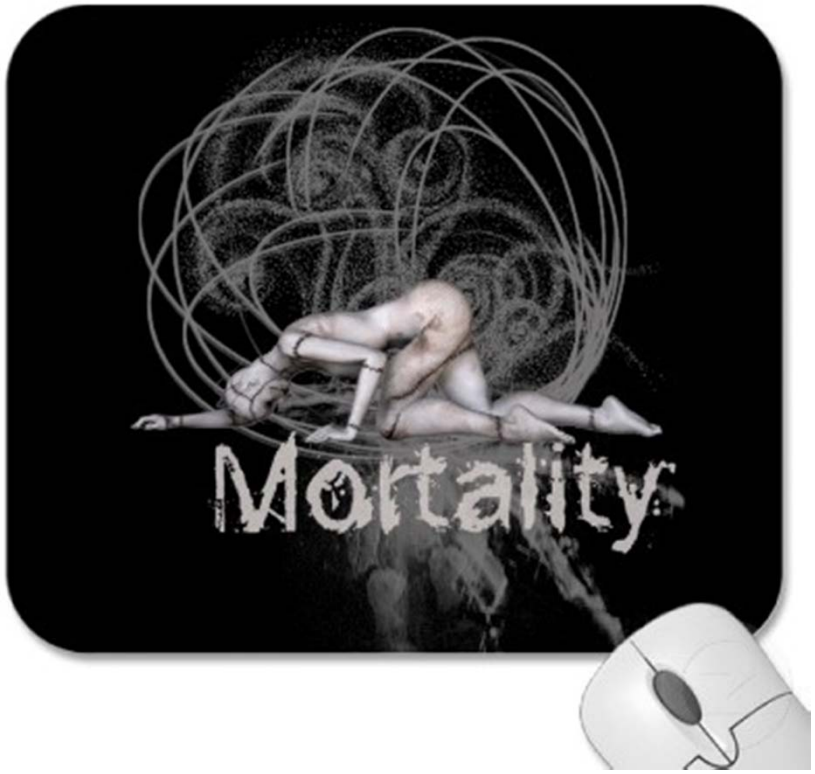


Completed in less than 3 min!!



Currently determining best way for this….linking provincial databases…..

PHN numbers…..

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Place
label
on

Automated Passive Data Collection

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Conclusions

1) Measurement is important

2) Different sites will likely need to take different approaches

3) Using method of prospective flagging with retrospective chart audit is likely most efficient

4) Eventually fully automated passive data collection is key and likely the future

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Questions and Discussion

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