



XI congresso nazionale  
**simeu**

**ROMA 24-26 MAGGIO 2018**

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**SPOTTING SEPSIS IN ER: I RISULTATI DEL PROGETTO  
"NETWORKING SEPSIS PER MIGLIORARE LA GESTIONE  
DELLA SEPSI IN AREA DI EMERGENZA"**

# WORLD SEPSIS DAY 2017

## La sepsi rappresenta una problematica globale

31.500.000 persone sviluppano sepsi ogni anno<sup>1</sup>

5.300.000 persone muoiono di sepsi ogni anno<sup>1</sup>

60.000 in Italia



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Fleischmann C, Scherag A, Adhikari NK, et al.: Assessment of Global Incidence and Mortality of Hospital-treated Sepsis. Current Estimates and Limitations. American journal of respiratory and critical care medicine. 193:259-272, 2016. ([Pubmed](#))

Rhodes A, Evans LE, Alhazzani W, et al.: Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016. Intensive care medicine. 2017. ([Pubmed](#))



Sepsi



20%

Shock settico



40%

Shock settico refrattario



60%

### Lo sapevi che...

- La sepsi è la causa primaria di morte per infezione
- La sepsi è la patologia più costosa trattata in un ospedale
- La sepsi uccide dieci volte più di un attacco cardiaco

### Inoltre, l'incidenza della sepsi è in aumento per vari motivi:

- Forte incremento della multiresistenza ai batteri Gram-negativi
- Invecchiamento della popolazione con aumento di comorbidità
- Interventi chirurgici e medici più aggressivi



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Shankar-Hari M, Phillips GS, Levy ML, et al.: Developing a new definition and assessing new clinical criteria for septic shock: For the third international consensus definitions for sepsis and septic shock (sepsis-3). JAMA : the journal of the American Medical Association. 315:775-787, 2016. ([Pubmed](#))  
Annane D, Bellissant E, Cavaillon JM: Septic shock. Lancet. 365:63-78, 2005. ([Pubmed](#))  
Bassi E, Park M, Azevedo LC: Therapeutic strategies for high-dose vasopressor-dependent shock. Critical care research and practice. 2013:654708, 2013. ([Pubmed](#))



IDENTIFICAZIONE

**DEFINIZIONE  
1994 - 2017  
9 REVISIONI**



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Nel maggio 2017, l'Organizzazione Mondiale della Salute ha approvato una risoluzione mirata a migliorare **la prevenzione, la diagnosi e la cura** della sepsi. La risoluzione richiede che i governi migliorino le procedure e le politiche relative alla sepsi, con particolare attenzione alla prevenzione dell'infezione ed alla limitazione di un'ulteriore diffusione della resistenza antibiotica. L'OMS sottolinea l'importanza dell'aumentare la consapevolezza pubblica della sepsi attraverso un'appropriata comunicazione dei sintomi, delle cause e dei possibili esiti.



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## TIME TO ACT

Severe sepsis: rapid diagnosis  
and treatment saves lives



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## Mr F's story

Mr F was 37 and married with two young children. When he was admitted to hospital with fever, aches, pains, sickness and other symptoms, staff initially failed to realise just how ill he was. He died the next day.

### What happened

Mr F had become increasingly unwell over a five-day period, with fever, aches and pains, diarrhoea and vomiting, dizziness, and breathlessness. His GP referred him to hospital.

When he arrived at hospital, he had a very rapid pulse, although his temperature was then normal; his blood pressure was low; and he was breathing quickly. The nurse told the doctor about the observations, and he asked for an ECG test before seeing him. Mr F was not seen by the doctor until one and a half hours later. The doctor noted that Mr F was not passing urine, had poor circulation, a rash, and swollen glands. Routine blood tests indicated that Mr F had an infection and advanced acute kidney failure. Intravenous fluids began and the emergency department consultant requested that Mr F was treated as an urgent medical and critical care case.

More than three hours after he had arrived at hospital, Mr F was seen by a middle grade doctor and half an hour later by the medical consultant. It was only at this point that Mr F was diagnosed with severe sepsis, and he was given antibiotics and more fluids.

More than eight hours after admission, Mr F was moved to intensive care. By then, he was desperately ill. He was given drugs to

stimulate his circulation, and two hours later was anaesthetised and put on a ventilator. He collapsed, but staff were able to resuscitate him. However, he became increasingly unstable and tragically died that night.

The post mortem examination showed that Mr F had died of overwhelming sepsis.

### What we found

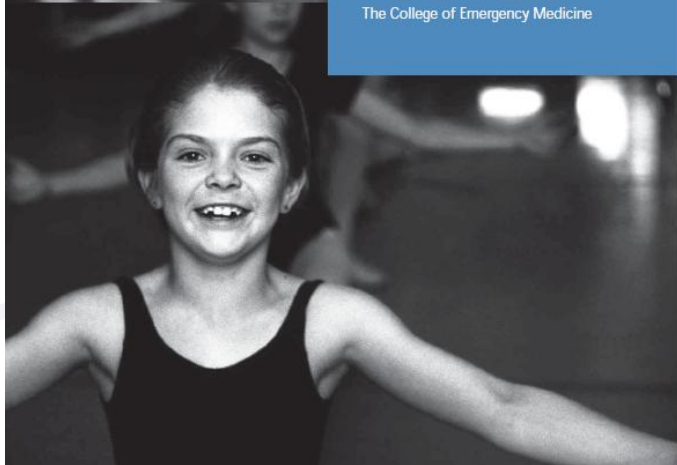
We found that during Mr F's first two hours in hospital, the severity of his condition was not recognised. Hospital staff failed to act on his severely abnormal vital signs and there was a delay in carrying out all necessary tests and in starting fluids and administering antibiotics. These failings fell substantially short of National Institute for Health and Care Excellence guidance on responding to acute illness in adults in hospital, and guidelines from the Surviving Sepsis Campaign. Although the care given to Mr F improved during the next six hours, he was not monitored frequently enough and there was uncertainty about which consultant was in charge.

Mr F's wife felt that her husband's care and treatment had reduced his chances of survival. She told us that: *'However slim a chance [he] had of recovery I would have liked that 10% to have been safe and secure. Did he have this 10% chance as he walked through the door?'*





*'Emergency departments  
should have a sepsis pathway.'*  
The College of Emergency Medicine



## Summary of failings against standards

### Clinical care

- ✗ Timely history and examination on admission or referral.

Investigations to determine:

- ✗ • Indices of perfusion
- ✗ • Indices of infection
- ✗ • Source of infection
- ✗ • Cultures of blood and other sites.

- ✗ Regular physiological monitoring using track and trigger systems.

- ✗ Accurate recognition of the severity of the illness.

Basic resuscitation with:

- ✗ • Large-volume fluid therapy
- ✗ • Intravenous broad-spectrum antibiotics after taking cultures.



## Our recommendations

The principal concerns arising from our sepsis casework are initial assessment, initial treatment, delays and staff training. The NHS must address these issues as a 'whole system' to improve outcomes and reduce avoidable deaths.

### 1. Improving recognition

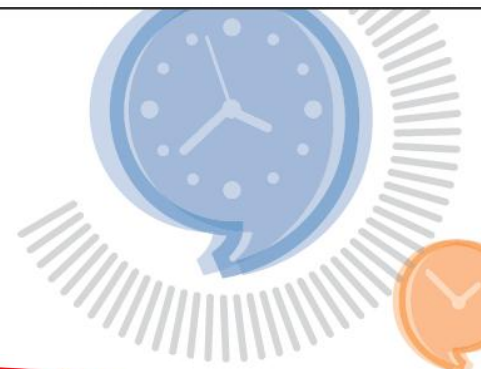
- 1.1 NICE will produce guidance to support GPs, ambulance staff and hospital clinicians to recognise severe sepsis in people at an early stage, so enabling earlier treatment which is known to improve outcomes. This should include the use of early warning scores, good practice in clinical assessment, best use of IT in managing available data, and new technology for near patient investigation (for example to measure blood lactate levels).
- 1.2 NHS England will prioritise a workstream on clinical deterioration including the early recognition of sepsis, and this may include helping providers of acute services to identify ways by which senior clinical staff are involved in patient management in a timely way.
- 1.3 The providers of acute services should identify ways by which senior clinical staff become involved early in the management of patients with severe sepsis.
- 1.4 NHS England will support the development of a public awareness campaign among vulnerable groups such as the immuno-compromised.
- 1.5 Education and training institutions should emphasise the importance of clinical staff listening to the relatives of patients as they can be the first to recognise the deterioration of the patient.

### 2. Improving treatment

- 2.1 NICE will include in guidance on sepsis the most clinical and cost effective management of people with severe sepsis, particularly in relation to the initial recognition and diagnosis of the condition and the timely use of antibiotics and fluid resuscitation.
- 2.2 Provider organisations should ensure full integration of available clinical guidance into their own clinical processes and systems to ensure timely treatment.
- 2.3 Provider organisations should foster attitudes and behaviours among their front-line staff which values critical clinical thinking, the timely availability of senior decision makers, focused priorities, and the prompt implementation of clinical plans.

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Time to act - Severe sepsis: rapid diagnosis and treatment saves lives



### 3. Continuous improvement

- 3.1 NICE will prepare a quality standard for the management of severe sepsis against which national audit should take place. The NHS should ensure appropriate data collection (examples of which should include times from arrival to commencement of fluid resuscitation and antibiotic administration, and the proportion of patients with infection screened for sepsis). This should be mandatory and linked to commissioning arrangements.

### 4. Research

- 4.1 Clinical practice should be underpinned by robust information. Current research questions worthy of sponsorship include optimal fluid replacement; the development of clinical tools highly predictive of severe sepsis applicable in primary care; development of near patient investigations applicable out-of-hospital and in emergency departments; and the reasons clinical guidance is not adhered to.

### Conclusion

Our recommendations have been developed and agreed with the support and commitment of organisations who will be helping to implement them.

We believe that these actions will help to reduce the deaths and disabilities caused by sepsis.

Time to act - Severe sepsis: rapid diagnosis and treatment saves lives

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The Joint Commission

## Ernest Amory Codman Award

*National Health Care Award for Performance Measurement*

### 2008 Ernest Amory Codman Award Program Hospital Category

Carolinas Medical Center Charlotte, North Carolina

#### Application of Early Goal-Directed Therapy

#### For the Treatment of Severe Sepsis and Septic Shock in the Emergency Department

Over a three-year time frame, Carolinas Medical Center achieved a 30 percent relative reduction in in-hospital mortality of patients in the Emergency Department with suspected or confirmed sepsis. Using a modified version of the early goal-directed therapy (EGDT) protocol, the medical center's Code Sepsis Task Force created major change in the diagnosis and treatment of severe sepsis and septic shock. Sepsis patients were treated with a significantly greater crystalloid volume (3.3 L versus 6.3 L), higher frequency of vasopressor infusion (34 percent versus 73 percent), and greater packed red blood cell transfusion (3 percent versus 39 percent).

#### Achievements

- From 2004 to the intervention period (November 2005 to November 2007), absolute mortality for septic patients was reduced 8 percent and relative mortality was reduced 30 percent.
- Before the project was initiated, in-hospital mortality of sepsis patients was 21 of 79 patients (27 percent). During the second year of intervention (November 2006 to November 2007), mortality decreased to 13 of 75 patients (17 percent).
- Improved secondary outcomes for acute respiratory distress syndrome (6 percent reduction in mortality) and acute renal failure (7 percent reduction in mortality).



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**Mortalità Relativa 30%**  
**Mortalità Assoluta 8%**  
**Decremento 10% annuo**



## Azienda Ospedaliero-Universitaria "Policlinico-Vittorio Emanuele"

- ARNAS Garibaldi
- Azienda Ospedaliera Cannizzaro
- ASP Catania
- Università degli Studi di Catania



Il progetto di **networking** nella gestione della **sepsi**

# 2016



Le azioni che il progetto intende perseguire sono:

- definire le **buone pratiche** per una **diagnosi** ed un **trattamento tempestivo**;
- promuovere un **percorso di gestione organizzativa** del paziente affetto da sepsi anche al fine di garantire un **setting assistenziale appropriato**;
- pianificare una **attività di formazione**;
- pianificare una attività di **implementazione delle buone pratiche individuate**;
- pianificare una attività di **monitoraggio periodico**;
- **condividere** conoscenze e risorse.



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## Il progetto di networking nella gestione della sepsi

### Gli obiettivi del programma

#### Completare entro le 3 ore

- 1) La rilevazione della lattacidemia;
- 2) Eseguire una emocoltura prima di iniziare la terapia antibiotica;
- 3) Somministrare un antibiotico ad ampio spettro (entro 45 minuti);
- 4) Somministrare 30 mL/kg di cristalloidi nel paziente ipoteso o con lattati  $\geq 2$  mmol/L;

#### Completare entro 6 ore:

- 1) Somministrare vasopressori se l'ipotensione non risponde all'iniziale infusione di liquidi;
- 2) Mantenere la pressione arteriosa media  $>65$  mmHg
- 3) In caso di ipotensione persistente o di lattati  $\geq 2$  mmol/L, nonostante la somministrazione di liquidi:
  - a. Monitorare la volemia
  - b. Ripetere la rilevazione dei lattati, se quella iniziale è  $\geq 2$  mmol/L

#### Obiettivi terapeutici delle prime sei ore:

- 1) PVC 8 -12 mm Hg ovvero un reperto ecografico di vena cava inferiore distesa con una riduzione inspiratoria del diametro del 30%;
- 2) PAM  $\geq 65$  mm Hg;
- 3) diuresi  $\geq 0.5$  mL/kg/h;

**L'obiettivo è ambizioso: ridurre la mortalità  
nei casi di sepsi e di shock settico.**



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## 1 FASE FORMAZIONE

- Operatori sanitari
- Auditor

## 2 FASE DIVULGAZIONE

- TESTIMONIAL
- MATERIALE  
INFORMATVO

## 3 FASE NETWORKING

- PIATTAFORMA  
INFORMATICA

## 4 FASE ANALISI DEI DATI

- DATI  
PRELIMINARI

# IL PROGETTO PRIMA FASE: FORMAZIONE

**2016 - 6 edizioni 346 partecipanti**

**2017 - 9 edizioni 800 partecipanti :**

Medici Ps  
Ginecologi  
Chirurghi  
Infettivologi  
Laboratoristi  
Infermieri  
Ostetrici

**2016 -2017 – 50 AUDITOR**



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Il progetto di networking nella gestione della sepsi	
Orario	Argomenti
09.00-09.30	1. Conoscere la sepsi: definizione e classificazione di gravità
09.30-10.00	2. Aspetti epidemiologici nella provincia di Catania e risultati della valutazione di un campione di casi di pazienti dimessi con diagnosi correlate alla sepsi
10.00-10.30	3. Le problematiche microbiologiche e la terapia antimicrobica
10.30-11.00	4. La gestione iniziale: i top ten
<b>Pausa</b>	
11.30-12.00	5. La correzione glicometabolica nel paziente con sepsi
12.00-12.30	6. Le terapie complementari
12.30-13.00	7. Le profilassi nel paziente con sepsi: TEV, malnutrizione, ulcere da stress
<b>Pausa</b>	
14.00-16.00	8. Management del paziente con sepsi e discussione di casi clinici

Il progetto di networking nella gestione della sepsi						
N. EDIZIONI	7	N. TOTALE PARTECIPANTI	756			
DATA E LUOGO	ORA	PROFESSIONI	N. PARTECIPANTI PER EDIZIONE			
29 aprile 30 maggio 7 giugno 30 settembre 31 ottobre 30 novembre 12 dicembre <b>Aula A. Mazzeo PO Vittorio Emanuele</b>	8-16	54 dirigenti 54 infermieri • Pronto soccorso • Laboratorio analisi • Radiologia • Medicina interna • Rianimazione • Chirurgia • Farmacia	AOU CT	ASP	ARNAS	Cannizzaro
			32	32	22	22
			PS 4 Lab analisi 2 Radiologia 2 Med interna 10 Rianimazione 2 Chirurgia 10 Farmacia 2	PS 4 Lab analisi 2 Radiologia 2 Med interna 10 Rianimazione 2 Chirurgia 10 Farmacia 2	PS 4 Lab analisi 2 Radiologia 2 Med interna 5 Rianimazione 2 Chirurgia 5 Farmacia 2	PS 4 Lab analisi 2 Radiologia 2 Med interna 5 Rianimazione 2 Chirurgia 5 Farmacia 2

## Buone pratiche per una diagnosi ed un trattamento tempestivo



### I **top ten** e gli **obiettivi terapeutici** del progetto «**networking sepsis**»

1. **Identificare** la sepsi
2. **Monitorare** i parametri vitali
3. Misurazione della concentrazione ematica dei **lattati**
4. Monitoraggio della **volemia**
5. Esecuzione prelievo per **emocoltura** da vena periferica e/o da CVC se inserito da > 48 ore
6. **Studio per immagini** per l'eventuale localizzazione di loci infettivi
7. Esecuzione dosaggio **procalcitonina** e **beta-glucano**
8. Somministrazione di **terapia antibiotica**
9. Somministrazione di **terapia con colloidali o cristalloidi** per l'ipotensione persistente o in caso di Lattati >2mmol/L
10. Somministrazione di **terapia con vasopressori, farmaci inotropi e/o corticosteroidi** in caso di ipotensione persistente





# IL PROGETTO SECONDA FASE: DIVULGAZIONE

**ARNAS GARIBALDI** AZIENDA OSPEDALIERA DI RILEVATO NAZIONALE E DI ALTA SPECIALIZZAZIONE  
**OSPEDALE CANNIZZARO** AZIENDA OSPEDALIERA PER L'EMERGENZA  
**ASP CATANIA** AZIENDA SANITARIA PROVINCIALE



Gruppo Interaziendale:  
 Coordinatore: Stefano Infrati  
 Paolo Sola, Bruno Cocopardo, Giuseppe Carpinari, Anna Calomero, Alfa Cristoforo, Maria Guada, Adriana Cuglioli, Carmelo Denaro, Albano Pavetta, Emilio Pizzaro, Vito Di Gerolamo, Brian Grassi, Carmelo Iacobone, Giuseppe La Ferla, Annamaria Longhinato, Agata Maria Mangano, Salvatore Mazza, Gaetano Pitarè, Vincenzo Pannella, Giuseppe Saglimini, Agata Solazzo

## I criteri clinici per la diagnosi di sepsi

**modifiche nel quick Sepsis-related Organ Failure Assessment**

infezione +  $\geq 2$

Glasgow Coma Scale  $< 15$     Frequenza respiratoria  $\geq 22$     Pressione arteriosa sistolica  $\leq 100$  mmHg

**TOP TEN**

1. Identificare la sepsi
2. Monitorare i parametri vitali
3. Misurare la concentrazione ematica dei lattati
4. Monitorare della volemia
5. Eseguire prelievo per emocultura da vena periferica e/o da CVC se inserita da >48 ore
6. Studiare per immagini per l'eventuale localizzazione di foci infettivi
7. Eseguire il dosaggio della procalcitonina
8. Somministrare terapia antibiotica
9. Somministrare cristalloidi per l'ipotensione persistente o in caso di lattati  $\geq 2$  mmol/L
10. Somministrare vasopressori, farmaci inotropi e/o corticosteroidi in caso di ipotensione persistente

**Applica il SOFA**

PaO <sub>2</sub> /FIO <sub>2</sub>	GCS	PLT	PA	Bilirubinemia	Creatinemia
$< 400$ Po <sub>2</sub> = 85 aa	$< 15$	$< 150.000$	$\leq 65$ mmHg	$\geq 1.2$ mg/dL	$\geq 1.2$ mg/dL

$\geq 2$

**Sospetta la SEPSI**  
 Salva una vita

Facoltà:  
 Responsabile scientifico: Stefano Infrati  
 Bruno Cocopardo, Giuseppe Carpinari, Roberto Costantini, Bianca Cusano, Bianca Glizzo, Gaetano Guadagno, Calogero Incalcaterra, Carmelo Iacobone, Paolo Naro, Agata Solazzo, Fortunato Striano







Melissa.jpg\_large



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# IL PROGETTO TERZA FASE: «NETWORKING»


**Regione Siciliana**

 Migliorare la gestione della **Sepsi**
parrinello (ADM)

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Azienda 
 Anno 
 Numero

Codice triage   
 Anamnesi   
 Data/Ora fine triage   
 Reparto di ricovero   
 Trasferito   
 Reparto di dimissione   
 Esito

Evento	Data	Ora	Luogo	Valori/Referti	Note
Valutazione clinica					
Sensorio					
PA					
Frequenza respiratoria					
Saturazione					
Temperatura corporea					
Diuresi (Output urinario)					
HCT					
Emogasanalisi (ECA)					
Emocromo					
Bilirubina					
PTT					
INR					
Dosaggio Procalcitonina					
Emocoltura					
Esami colturali					
Diagnostica per immagini					
Ecofast					
Terapia con fluidi					
Terapia con inotropi					
Terapia con antibiotici					
Terapia con vasopressori					
Terapia con corticosteroidi					



RESEARCH

Open Access

# Validity of administrative data in recording sepsis: a systematic review

Rachel J Jolley<sup>1</sup>, Keri Jo Sawka<sup>1</sup>, Dean W Yergens<sup>1</sup>, Hude Quan<sup>1,4</sup>, Nathalie Jetté<sup>1,3,4,5</sup> and Christopher J Doig<sup>1,2,5,6\*</sup>

## Abstract

**Introduction:** Administrative health data have been used to study sepsis in large population-based studies. The validity of these study findings depends largely on the quality of the administrative data source and the validity of the case definition used. We systematically reviewed the literature to assess the validity of case definitions of sepsis used with administrative data.

**Methods:** Embase and MEDLINE were searched for published articles with International Classification of Diseases (ICD) coded data used to define sepsis. Abstracts and full-text articles were reviewed in duplicate. Data were abstracted from all eligible full-text articles, including ICD-9- and/or ICD-10-based case definitions, sensitivity (Sn), specificity (Sp), positive predictive value (PPV) and negative predictive value (NPV).

**Results:** Of 2,317 individual studies identified, 12 full-text articles met all eligibility criteria. A total of 38 sepsis case definitions were tested, which included over 130 different ICD codes. The most common ICD-9 codes were 038.x, 790.7 and 995.92, and the most common ICD-10 codes were A40.x and A41.x. The PPV was reported in ten studies and ranged from 5.6% to 100%, with a median of 50%. Other tests of diagnostic accuracy were reported only in some studies. Sn ranged from 5.9% to 82.3%; Sp ranged from 78.3% to 100%; and NPV ranged from 62.1% to 99.7%.

**Conclusions:** The validity of administrative data in recording sepsis varied substantially across individual studies and ICD definitions. Our work may serve as a reference point for consensus towards an improved and harmonized ICD-coded definition of sepsis.

## MAJOR ARTICLE

# ANALISI DEI DATI → ICD.9

(995.91-995.92.-785.52-038. 771.81)

## Comparison of Trends in Sepsis Incidence and Coding Using Administrative Claims Versus Objective Clinical Data

Chanu Rhee,<sup>1,2</sup> Michael V. Murphy,<sup>1</sup> Lingling Li,<sup>1</sup> Richard Platt,<sup>1</sup> and Michael Klompas<sup>1,2</sup>; for the Centers for Disease Control and Prevention Epicenters Program

<sup>1</sup>Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, and <sup>2</sup>Division of Infectious Diseases, Brigham and Women's Hospital, Boston, Massachusetts



Contents lists available at ScienceDirect

American Journal of Emergency Medicine

journal homepage: [www.elsevier.com/locate/ajem](http://www.elsevier.com/locate/ajem)

## Original Contribution

### Triage sepsis alert and sepsis protocol lower times to fluids and antibiotics in the ED ☆☆☆

Geoffrey E. Hayden, MD<sup>a,\*</sup>, Rachel E. Tuuri, MD<sup>b</sup>, Rachel Scott, MD<sup>a</sup>, Joseph D. Losek, MD<sup>b</sup>, Aaron M. Blackshaw<sup>c</sup>, Andrew J. Schoenling<sup>c</sup>, Paul J. Nietert, PhD<sup>d</sup>, Greg A. Hall, MD<sup>a</sup>

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## NIH Public Access

### Author Manuscript

*Med Care*. Author manuscript; available in PMC 2015 June 01.

Published in final edited form as:

*Med Care*. 2014 June ; 52(6): e39–e43. doi:10.1097/MLR.0b013e318268ac86.

## Identifying Patients with Severe Sepsis Using Administrative Claims: Patient-Level Validation of the Angus Implementation of the International Consensus Conference Definition of Severe Sepsis

Theodore J. Iwashyna, MD, PhD<sup>1,2</sup>, Andrew Odden, MD<sup>1</sup>, Jeffrey Rohde, MD<sup>1</sup>, Catherine Bonham, MD<sup>1</sup>, Latoya Kuhn, MPH<sup>2</sup>, Preeti Malani, MD, MSJ<sup>1,3</sup>, Lena Chen, MD<sup>1,2</sup>, and Scott Flanders, MD<sup>1</sup>

<sup>1</sup>Department of Medicine, University of Michigan

## IL PROGETTO QUARTA FASE: ANALISI DEI DATI

AOU Catania - ARNAS Garibaldi - AO Cannizzaro  
n. pazienti dimessi con codice ICD-9 correlabile alla sepsi

Anno	N. casi
2015	489
2017	897



# Da dove siamo partiti

## Quanti sono i casi di sepsi a Catania? (negli ospedali)

AOU Catania - ARNAS Garibaldi - AO Cannizzaro  
n. pazienti dimessi con codice ICD-9 correlabile alla sepsi

	Sepsi	Sepsi severa	Shock settico	Setticemie	Setticemia (sepsi) del neonato	Totale casi sepsi
<b>2015</b>	73	40	101	188	87	489
<b>2107</b>	<b>305</b>	<b>142</b>	<b>159</b>	<b>229</b>	<b>62</b>	<b>897</b>

# Da dove siamo partiti

## Quanti sono i casi di sepsi a Catania? (negli ospedali)

AOU Catania - ARNAS Garibaldi - AO Cannizzaro  
n. pazienti dimessi con codice ICD-9 correlabile alla sepsi

	Sepsi (995.91)	Sepsi Severa(995.92)	Shock settico( 785.52)	Setticemie( 038.)	Setticemia (sepsi) del neonato (771.81)	Totale casi sepsi
<b>2015</b> mort.	73 12%	40 30%	101 63%	188 24%	87 3%	489 134
2107 mort.	<b>305</b> 22%	<b>142</b> 13%	<b>159</b> 44%	<b>229</b> 20%	<b>62</b> 1%	<b>897</b> 241

27%

## Andamento del livello di adesione ad alcuni Top Ten

1 ora

### MCAU 3 MCAU Vittorio Emanuele - Catania Gennaio-APRILE 2017

	Pa		Fc		sensorio		frequenza respiro		antibiotico		emocoltura		EGA		DIURESIS	
GENNAIO	8	62%	1	7,7%	4	31%	3	23%	3	23%	0	0%	5	38%	0	0%
FEBBRAIO	11	79%	5	35,7%	6	43%	3	21%	4	29%	0	0%	8	57%	2	14%
MARZO	8	53%	2	13,3%	7	47%	4	27%	4	27%	0	0%	7	47%	0	0%
APRILE	13	81%	3	18,8%	10	63%	5	31%	4	25%	0	0%	6	38%	0	0%

%	
0-10	Red
11-20	Light Red
21-30	Light Red
31-40	Light Red
41-50	Light Red
51-60	Light Green
61-70	Light Green
71-80	Light Green
81-90	Light Green
91-100	Dark Green





## Andamento del livello di adesione ad alcuni Top Ten

1 ora

### M.C.A.U. 3 MCAU Vittorio Emanuele - Catania Gennaio-Dicembre 2017

	Pa		Fc		sensorio		frequenza respiro		antibiotico		emocoltura		EGA		DIURESIS	
GENNAIO	8	62%	1	7,7%	4	31%	3	23%	3	23%	0	0%	5	38%	0	0%
FEBBRAIO	11	79%	5	35,7%	6	43%	3	21%	4	29%	0	0%	8	57%	2	14%
MARZO	8	53%	2	13,3%	7	47%	4	27%	4	27%	0	0%	7	47%	0	0%
APRILE	13	81%	3	18,8%	10	63%	5	31%	4	25%	0	0%	6	38%	0	0%
MAGGIO	10	71%	2	14,3%	12	86%	4	29%	4	29%	0	0%	11	79%	3	21%
GIUGNO	14	70%	4	20,0%	14	70%	6	30%	5	25%	0	0%	14	70%	5	25%
LUGLIO	16	89%	10	55,6%	14	78%	4	22%	3	17%	0	0%	12	67%	2	11%
AGOSTO	12	100%	12	100%	9	75%	3	25%	4	33%	3	25%	12	100%	7	58%
SETTEMBRE	9	100%	9	100%	6	67%	4	44%	4	44%	1	11%	9	100%	5	56%
OTTOBRE	16	100%	13	81%	13	81%	7	44%	7	44%	2	13%	14	88%	8	50%
NOVEMBRE	16	100%	16	100%	12	75%	8	50%	7	44%	2	13%	16	100%	8	50%
DICEMBRE	8	100%	7	88%	7	88%	4	50%	4	50%	2	25%	8	100%	6	75%

%	
0-10	Red
11-20	Light Red
21-30	Light Red
31-40	Light Red
41-50	Light Red
51-60	Light Green
61-70	Light Green
71-80	Light Green
81-90	Light Green
91-100	Dark Green



XI congresso nazionale  
**simeu**  
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*Non esiste vento favorevole per il  
marinaio che non conosca la  
rotta*

“

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