

**MAY 8, 2007**

**EPIC II**



**The Extended Study of Prevalence of  
Infection in Intensive Care II**

**A Multicenter International One-Day Prevalence Study**

**The EPIC Investigators**

**Study Protocol**



**Table of contents**

<b>1</b>	<b>General information .....</b>	<b>2</b>
1.1	Organization .....	2
1.2	Protocol summary .....	3
<b>2</b>	<b>Rationale and aim of the study .....</b>	<b>3</b>
<b>3</b>	<b>Study outcomes.....</b>	<b>4</b>
3.1	Primary outcome .....	4
3.2	Secondary outcomes .....	4
<b>4</b>	<b>Study description .....</b>	<b>4</b>
4.1	Study design .....	4
<b>5</b>	<b>Study population .....</b>	<b>4</b>
5.1	Inclusion criteria .....	4
5.2	Exclusion criteria .....	4
<b>6</b>	<b>Detailed study course .....</b>	<b>5</b>
6.1	Patients' enrollment .....	5
6.2	Ethics Committee approval .....	5
6.3	Therapeutic interventions .....	5
6.4	Daily documentation .....	5
<b>7</b>	<b>Organization .....</b>	<b>5</b>
7.1	Documentation .....	5
7.2	Collecting data .....	5
7.3	Data management and archiving .....	5
7.3.1	Data property .....	5
7.3.2	Data control .....	5
7.3.3	Subsequent use of data .....	6
7.3.4	Archiving .....	6
7.3.5	Publication rules .....	6
7.4	Sponsorship .....	6
<b>8</b>	<b>Statistical analysis .....</b>	<b>6</b>
<b>9</b>	<b>References .....</b>	<b>7</b>



## 1- General information

### 1.1 Organization

<b>Steering committee</b>	<b>Antonio Anzueto</b> <b>Jeff Lipman</b> <b>John Marshall</b> <b>Claude Martin</b> <b>Rui Moreno</b> <b>Konrad Reinhart</b> <b>Jordi Rello</b> <b>Eliezer Silva</b> <b>Jean-Louis Vincent (Chair)</b>
<b>Coordinating center</b>	Department of Intensive Care, Erasme University Hospital, Free University of Brussels, Belgium ( <b>Prof. Jean Louis Vincent</b> )
<b>Data management</b>	Hassane Njimi Department of Intensive Care, Erasme University Hospital, Free University of Brussels, Belgium.
<b>Hotline</b>	Marie-Rose André : 32.2.555.3380



## 1.2 Protocol summary

<b>Title of the study</b>	The Extended Study of Prevalence of Infection in Intensive Care II ( <i>EPIC II</i> )
<b>Design</b>	Multicenter, international one-day prevalence study
<b>Target population</b>	All patients present on May 8
<b>Interventions</b>	No intervention
<b>Subgroup/ Sub-study analysis</b>	<ul style="list-style-type: none"> <li>- Country and regional differences in prevalence of infection and outcome</li> <li>- Age and sex differences in prevalence of infection and outcome</li> <li>- Epidemiology and variations in antibiotic use</li> <li>- Patterns of microorganisms and outcome</li> <li>- Comorbidities and prevalence and outcome of infection</li> <li>- Prevalence and outcome of specific microorganisms</li> <li>- Relation of ICU and hospital organizational issues to prevalence of infection and outcome</li> <li>- Prevalence and outcome of infection in specific subgroups (trauma, surgical, medical, etc...)</li> <li>- Prevalence of organ dysfunction/failure and relation to outcome</li> <li>- Organisation of intensive care services</li> <li>- End of life - Ethical decisions</li> </ul>
<b>Study duration</b>	One-day prevalence (May 8)
<b>Follow up period</b>	ICU and hospital survival

## 2- Rationale and aim of the study

Sepsis is an important problem, representing about the 10<sup>th</sup> leading cause of death in industrialized countries, and the leading cause of death in the intensive care unit (ICU). Recent years have seen several studies providing important, national and international epidemiological data on the frequency, associated factors, and even costs of sepsis (1-7).

Angus and coworkers (1) analyzed more than 6 million hospital discharge records from seven states in the USA and estimated that 751,000 cases of severe sepsis occur annually in the US, with a mortality rate of 28.6%, and leading to average costs per case of \$22,100. Martin et al.(2) reviewed the discharge data on 750 million hospitalizations in the United States over a 22-year period and identified 10,319,418 cases of sepsis, with an increase in frequency from 82.7 cases per 100,000 population in 1979 to 240.4 cases per 100,000 population in 2000. Alberti and colleagues (3) examined 14,364 patients in six European countries and Canada, with more than 4500 documented infectious episodes and reported a hospital mortality rate of 16.9% for non-infected patients and 53.6% for patients who had repeated courses of infection while in the ICU. Padkin et al. (4) evaluated data from 56,673 ICU admissions in the United Kingdom and found that 27.1% of patients met severe sepsis criteria within the first 24 hours of admission, and that these patients used 45% of the ICU and 33% of the hospital bed days used by all ICU admissions. Brun-Buisson et al. (6) recently



reported the results of the EpiSepsis study involving all patients with sepsis admitted to one of 206 French ICUs during a 2-week period in 2001. From 3738 admissions, 546 (14.6%) had severe sepsis or septic shock during their stay, of which 30% were ICU-acquired. The hospital mortality rate for the patients with severe sepsis/septic shock was 42%. These authors reported an increase in the incidence of sepsis compared to a similar study conducted 10 years previously, but a fall in the mortality rate (from 56 to 42%). In Australia and New Zealand, the incidence of severe sepsis in a population of 5878 patients admitted to 23 ICUs was calculated at 11.8%, with a hospital mortality rate of 37.5% (7).

The European Prevalence of Infection in intensive Care (EPIC) study (8), performed 15 years ago, demonstrated how international collaboration can succeed in providing valuable information regarding disease prevalence and demographics of critically ill patients. In that prevalence study, data were collected on all patients present in the participating ICUs on a single day. The impact of hospital infection is greatest in the intensive care unit (ICU) and an effective response to the problem relies on the availability of up-to-date, adequate epidemiological data.

EPIC II will be performed on **May 8, 2007**, and will be extended **worldwide**. It will represent a major collaborative initiative resulting in the formation of a large database, which will be useful to address a number of fundamental questions.

### **3- Study outcomes**

#### **3.1 Primary outcome**

The primary outcome measure is hospital mortality from all cause within the 60 days.

#### **3.2 Secondary outcomes**

The secondary outcome measures are:

1. Survival
2. ICU and hospital length of stay

### **4- Study description**

#### **4.1 Study design**

A multicenter, international, observational, one-day prevalence study.

### **5- Study population**

#### **5.1 Inclusion criteria**

All patients present on May 8

#### **5.2 Exclusion criteria**

There are no exclusion criteria, all patients should be included.



## 6- Detailed study course

### 6.1 Patients' enrollment

Patients' enrollment will be limited to May 8 (from 00:00 until 24:00).

### 6.2 Ethics committee approval

Even though this is a purely epidemiological study (with entirely anonymous data collection), it is advised to submit the protocol to the local ethics committee for approval.

### 6.3 Therapeutic intervention

The study is a purely observational study, no interventions are planned.

### 6.4 Daily documentation

Data collection includes:

- a. On admission: demographic characteristics, comorbidities, source of admission, primary and secondary admission diagnoses,
- b. Baseline data (on the study day), including parameters used to calculate SAPS II score and SOFA score and infections,
- c. Outcome at ICU and hospital discharge.

## 7- Organization

### 7.1 Documentation

Data will be recorded using pre-printed case report forms (CRF) by the attending intensivist or a trained research nurse. The CRFs include the following sections:

**Form 1 Center inclusion:** This includes data on local organizational and patients' care in each center.

**Form 2 Enrollment:** This contains information on patients' demography, and data on infection on the day of the study.

**Form 3 Enrollment:** This contain parameters to evaluate the degree of severity and the degree of organ dysfunction on the day of the study.

**Form 4 Follow up:** This form should be completed at time of discharge.

### 7.2 Collecting data

Data should be faxed or mailed periodically to the coordinating center (Department of Intensive Care, Erasme University Hospital, Route de Lennik 808, B-1070 Brussels, Belgium. Tel : +32 2 555 3380, Fax : +32 2 555 4555).

Data can be sent either electronically or on paper form.

### 7.3 Data management and archiving

#### 7.3.1 Data property

The individual data provided by a participating ICU are primarily the property of the ICU who generated the data. All investigators have the right to access their data at any time.

#### 7.3.2 Data control

Data control will involve the following levels

1. All participants will be provided with detailed information, including exhaustive definitions of medical terms. The coordinating center will provide a rapid response for any query throughout the study period (Please see contact information).



2. Data plausibility check will start at the entry level electronically, setting validity limits for each variable. Investigators will be queried in case of outliers or excessive numbers of missing values.

#### **7.3.3 Subsequent use of data**

The steering committee, on behalf of the investigators has the right to use all data that are pooled in the databank for scientific purposes. Investigators will be regularly informed about ongoing study activities (See also under publication rules). All participants have the right to access the data, pooled in the databank, for research purposes after the research project has been terminated, and with the approval of the steering committee. A copy of the databases generated by the project can only be provided to third-part entities after specific approval by the participating ICUs.

#### **7.3.4 Archiving**

A copy of the electronic databank will be kept in the coordinating centers and preserved for 15 years for subsequent use by the steering committee and investigators. It is recommended that a copy of CRFs be kept at each center for future reference.

#### **7.3.5 Publication rules**

Authorship will take the following elements into account: study design, study organization, data collection, patient enrolment, data analysis, and contribution to the manuscript

### **7.4 Sponsorship**

There is no current sponsorship

## **8- Statistical analysis**

Statistical analysis will be performed using SPSS for windows version 13.0 (Chicago, USA).



## 9- References

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