



Ospedale Niguarda

Sistema Socio Sanitario



Regione
Lombardia



Quale Futuro per la Cardiologia ?

Dove sta andando l'UTIC ?

FABRIZIO OLIVA

**“A. De Gasperis” Cardio Center
ASST Niguarda, Grande Ospedale Metropolitano**

**EMOCLINIC SYMPOSIUM
Sulle Sponde del Ticino
“Cardiologia ieri. Oggi e domani”
Auditorium Banca Popolare di Novara
7-8 Giugno 2018**



Agenda

- Da dove siamo partiti: la storia
- L'evoluzione epidemiologica
 - L'importanza della terapia intensiva...cardiologica
- La realtà italiana
 - Dati
 - Errori
 - Correttivi
- Il futuro possibile...



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UCC Unità di Cure Coronariche

Osservazione e trattamento di complicanze peri-infartuali



UCIC Unità di Cura Intensiva Cardiologica

Terapia Intensiva per pazienti complessi
con patologie cardiovascolari con esigenze critiche

Unità di Cure Intensive Cardiologiche - ASST Niguarda Ca' Granda - Milano (Italy)

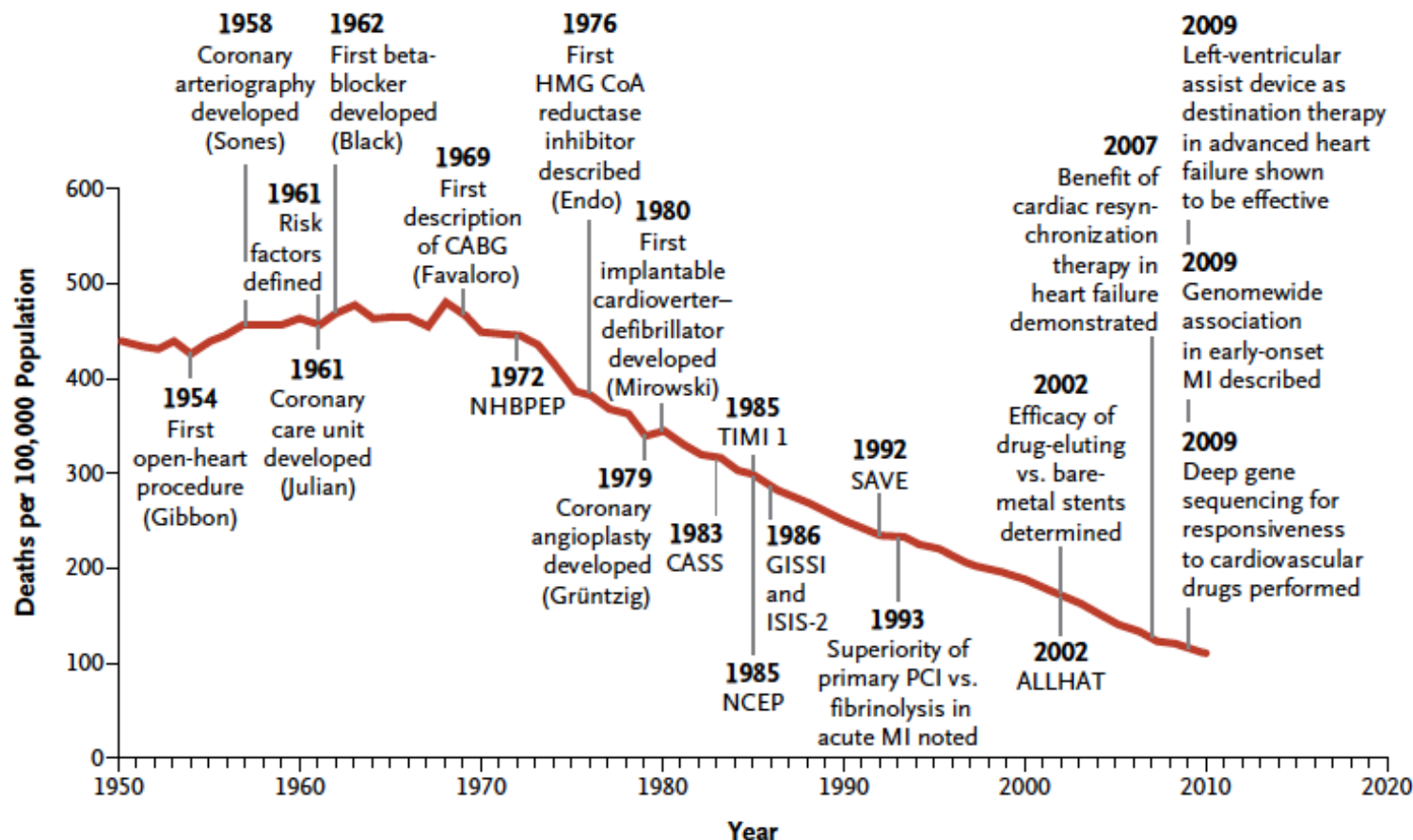


Figure 1. Decline in Deaths from Cardiovascular Disease in Relation to Scientific Advances.

CORONARY CARE UNITS

Until 1961, patients with acute myocardial infarction — if fortunate enough to survive until they reached a hospital — were placed in beds located throughout the hospital and far enough away from nurses' stations that their rest would not be disturbed. Patients were commonly found dead in their beds, presumably from a fatal tachyarrhythmia. Indeed, the risk of death occurring in the hospital was approximately 30%. The

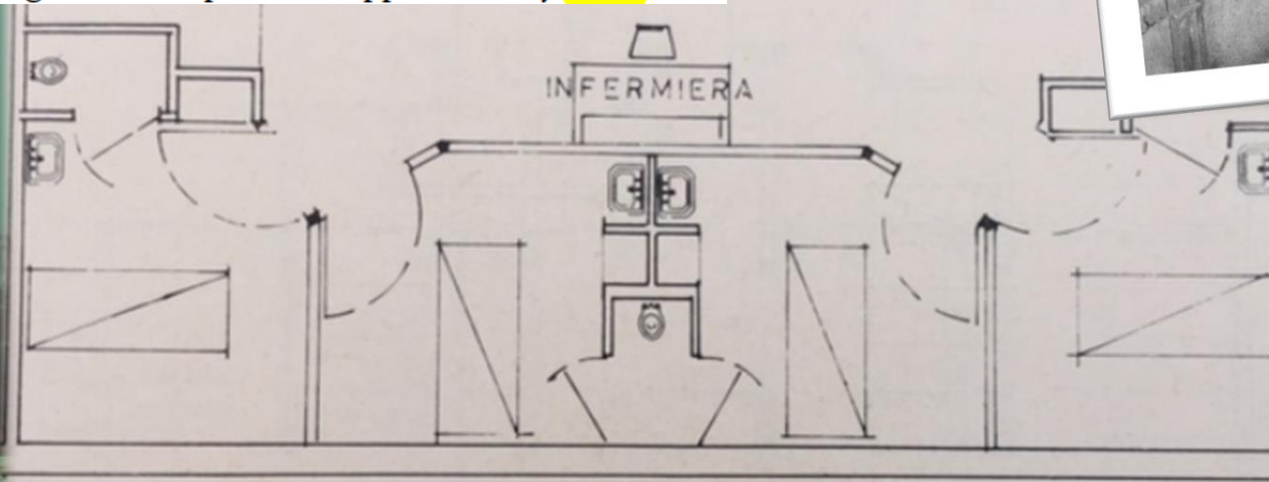


Fig. 2

Fig. 1 e 2 Schemi di planimetrie del «U.S.P.H.S.» (Stati Uniti d'America).



- *1961, British Thoracic Society:* Julian DG presented first description of Coronary Care Unit (CCU)

Julian DG Lancet 1961



The first coronary care area in the United States opened at Bethany Hospital, Kansas City, Kans., in May 1962. Although the earliest published report emanating from the unit did not appear in a professional journal until October 1963 (1), the

Beginning in the summer of 1962, the Heart Disease Control Program initiated major efforts toward establishing specialized coronary care units for patients with acute myocardial infarction. It was at that time that the name "coronary care unit" received its impetus as a specialized entity.

In 1964 the Public Health Service released the booklet, "Coronary Care Units" (2). The first printing was exhausted within 60 days of publication, and the booklet has been reprinted six times, an indication of the demand for information about this concept.

- (1) Day, H. W.: An intensive coronary care area. *Dis Chest* 44: 423-427, October 1963.
- (2) U.S. Public Health Service: Coronary care units: Specialized intensive care units for acute myocardial infarction patients. PHS Publication No. 1250. U.S. Government Printing Office, Washington, D.C., 1964.
- (3) U.S. Public Health Service: A facility designed for coronary care. PHS Publication No. 930-D-19. U.S. Government Printing Office, Washington, D.C., 1965.



Because the armamentaria for coronary care units require special accommodations, the Service's Division of Hospital and Medical Facilities designed and developed special architectural and engineering plans. These drawings were published in a handbook entitled, "A Facility Designed for Coronary Care," (3) in 1965. This booklet also has been widely disseminated.



UCC La Storia 1962-1967

Between 1962 and 1966, some 250 hospitals established coronary care units specifically for the care of patients with confirmed or suspected acute myocardial infarctions. The majority of these units have been established in community hospitals by using only local funds. In addition,

these seven essentials are the consensus of directors of coronary care units:

1. Appoint a coronary care committee.
2. Select a physician, preferably a cardiologist, to administer the operation of the unit.
3. Establish a policy for admitting and transferring patients to and from the unit.
4. Set up a cardiac-arrest team for the hospital.
5. Assure a quiet, tranquil environment.
6. Provide adequate, uncluttered space for resuscitative procedures within each patient's cubicle.
7. Require adequate and specialized training for nurses who staff the unit.

A meeting of nursing educators and cardiologists was held in Washington, D.C., in July 1966. From this meeting evolved a statement entitled, "Criteria and Guidelines for Nurse Training Courses in a Coronary Care Unit" (4). The statement includes recommendations encompassing program development, clinical techniques, selection of trainees, and evaluation of courses for nurse training centers. The

(4) U.S. Public Health Service: Criteria and guidelines for nurse training courses in coronary care units. PHS Publication No. 1629. U.S. Government Printing Office, Washington, D.C., 1967.



UCC La Storia 1962-1967

Treatment of Myocardial Infarction in a Coronary Care Unit: A Two-Year Experience With 250 Patients

by T. Killip, III, J. T. Kimball (1)

ABSTRACT

The results of treatment of 250 patients with established acute myocardial infarction in a coronary care unit in a university hospital are described. The criteria for diagnosis have been carefully defined. In 62 percent of patients admitted with a tentative diagnosis of acute infarction, the initial impression was confirmed. Fifteen percent of patients admitted to the unit were classified as having possible infarction; in this group, the mortality rate was 3 percent. A classification of functional severity based on clinical evidence of heart failure or shock is presented.

Morbidity and mortality in acute myocardial infarction are related to the functional severity of the illness. Although arrhythmia is common, the overriding importance of five life-threatening arrhythmias is emphasized. Mortality of patients in the coronary care unit was not improved in comparison to those treated under regular care until strong central direction of therapeutic programs, immediate treatment of arrhythmia in cardiac arrest, and delegation of some medical authority to trained nurses was accomplished. The change in concept of the purposes and practices of special coronary care from resuscitation to prevention of arrhythmia is emphasized.

The mortality in myocardial infarction complicated by shock remains high. In the absence of shock, aggressive medical treatment in the coronary care unit reduced mortality from 26 to 7 percent. The implications of these data in the management of patients admitted to a hospital with a diagnosis of acute myocardial infarction are discussed.





Changing patterns and mortality of acute myocardial infarction in a coronary care unit

British Medical Journal, 1977, 1, 795-798

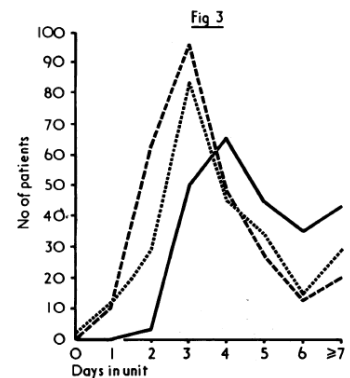
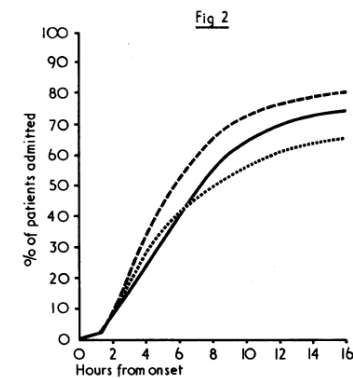
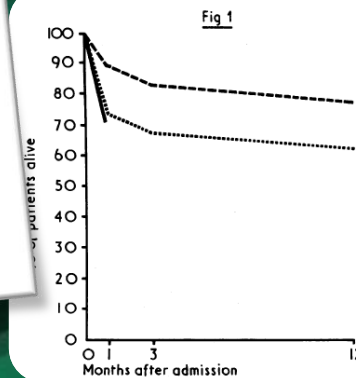
DAVID HUNT, GRAEME SLOMAN, DAVID CHRISTIE, CHRISTINA PENINGTON

Summary

Three groups of patients who had been admitted to a coronary care unit with infarction at different periods since 1963 were reviewed to assess whether the outcome in such patients had improved over 12 years. There was a significant reduction in mortality among consecutive patients with mild or severe infarction between 1969-70 and 1974-5. Classifying the patients in all three groups according to their risk factors showed that for each risk factor mortality had decreased since 1963. The incidence of arrhythmias and conduction defects decreased between 1969-70 and 1974-5, and mortality among patients with each arrhythmia also fell. The reduction in mortality may reflect a changing pattern in the natural history of the disease as a benefit of improved treatment.

TABLE III—History and risk factors. Mortality (%) at 28 days is shown in parentheses

History	Group 1	Group 2	Group 3
Myocardial infarction	75 (33)	89 (37)	75 (16)
Angina	166 (34)	147 (37)	118 (15)
Neither infarct nor angina	108 (18)	131 (16)	158 (7)
Hypertension	39 (26)	53 (26)	100 (10)
Diabetes	10 (40)	14 (43)	27 (11)
Pulmonary disease	27 (41)	16 (31)	16 (6)
Smoking	Unknown	183 (22)	154 (9)





1967: Niguarda, 1° UCIC in Italia

L'INFARTO DEL MIOCARDIO NELLA FASE INIZIALE

Atti del Corso Superiore di Aggiornamento
tenuto a Milano il 26-28 Settembre 1968
(Divisione Cardiologica dell'Ospedale Maggiore «Ca' Granda»)

diretto da
F. ROVELLI

PICCIN EDITORE - PADOVA

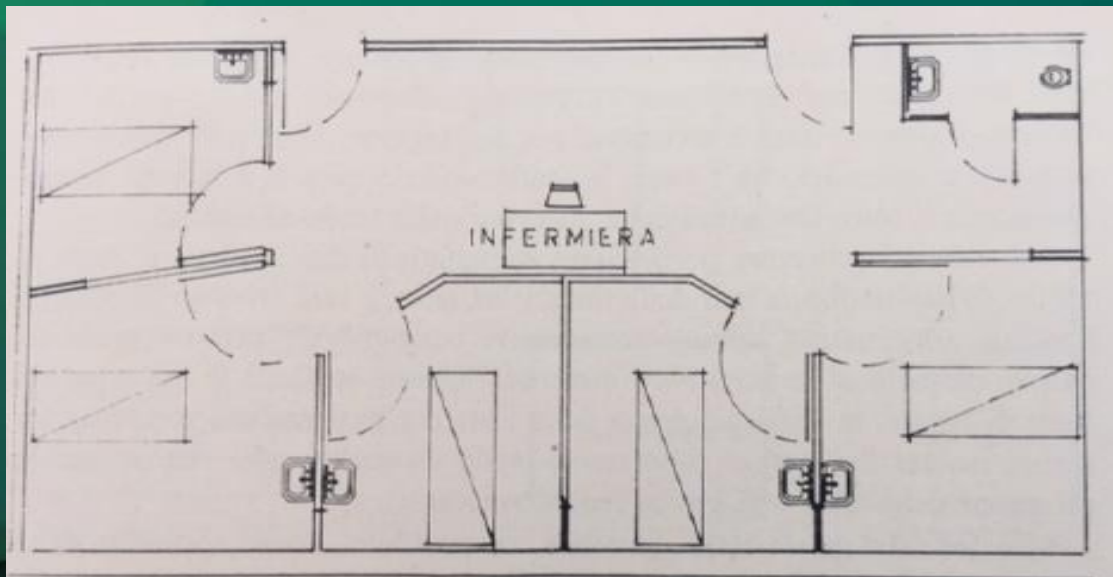


Fig. 1

TAB. I Pazienti ricoverati nell'unità di cura intensiva coronarica
dell'Ospedale Maggiore «Ca' Granda» Milano

(dal 1° Ottobre 1967 al 31 Agosto 1968)

– Infarti	123
– Ischemie miocardiche	15
– Blocchi atrioventricolari totali	162
– Fibrillazioni ventricolari e tachicardie ventricolari	19
– Altre gravi aritmie	41
– Shock e scompensi acuti	9
Totale pazienti ricoverati	369





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Regione
Lombardia

Volume 330, No. 8564, p871-874, 17 October 1987



LONG-TERM EFFECTS OF INTRAVENOUS THROMBOLYSIS IN ACUTE MYOCARDIAL INFARCTION: FINAL REPORT OF THE GISSI STUDY

Gruppo italiano per lo studio della streptochi-nasi nell'infarto miocardico (GISSI) ¹

Abstract

Long-term follow-up of 98.3% of the 11 712 patients recruited in the GISSI trial of intravenous streptokinase (SK) in acute myocardial infarction has shown persistence of the beneficial effect observed during the hospital phase. At 12 months a significant difference in mortality was seen in the whole population (17.2% in SK group versus 19.0% in controls, $p = 0.008$, relative risk 0.90), and in the 0-3 and 3-6 h groups (relative risks 0.89 and 0.87, respectively). For most of the other strata according to which the trial population has been analysed, the magnitude and the direction of the effects were also substantially the same as those recorded in the hospital phase. SK thrombolysis should be considered among the recommended treatments of the acute phase, at least up to 6 h from onset of myocardial infarction.



THE LANCET



Ospedale Niguarda

Sistema Socio Sanitario



Regione
Lombardia



Dipartimento Cardiologico «A. De Gasperis»
Ospedale Niguarda Ca' Granda
Milano

Centro A. De Gasperis

Settembre 1989

Infarto Miocardico Acuto

SCHEMA DI CURA PER I PAZIENTI RICOVERATI
ENTRO 12 ORE DALL'INIZIO DELLA SINTOMATOLOGIA

Primario della I Divisione: C. De Vita
A cura di: F. Mauri
P. Merlini
M. Oppizzi

FARMACO	DOSAGGI	STUDIO
STREPTOCHINASI	1.500.000 UI in 1 ora	GISSI1 (Lancet 1986; i:397) ISIS-2 (Lancet 1988; ii:349)
rtPA	10 mg in bolo+ 50 mg in 1 ora+ 40 mg in 2 ore	ASSET (Lancet 1988;ii:525)
APSAC	bolo 30 mg in 5'	AIMS (Lancet 1988;i:545)
UROCHINASI	1.000.000 UI in bolo+ 1.000.000 UI in 1 ora	(Am.J.Cardiol. 55:878,1985)

Controlli

- ECG ogni 4 ore
- MB CPK ogni 3 ore
- PTT ogni 8 ore
- Fibrinogeno 24 ore dopo la somministrazione

**Infarto
Miocardico
Acuto**SCHEMA DI CURA PER I PAZIENTI RICOVERATI
ENTRO 12 ORE DALL'INIZIO DELLA SINTOMATOLOGIAPrimo della Divisione: C. De Vita
A cura di: F. Mastroratti
P. Medda
M. Oppizzi**INDICE****Misure generali****1. Controlli all'ingresso del paziente**

- 1.1 Anamnesi
- 1.2 Elettrocardiogramma
- 1.3 Esame clinico
- 1.4 Monitorizzazione ECG
- 1.5 Incannulazione vena centrale
- 1.6 Esami urgenti
- 1.7 Temperatura
- 1.8 Rx torace al letto

2. Controlli successivi

- 2.1 Esami di routine
- 2.2 ECG

3. Altri provvedimenti a carattere generale

- 3.1 Psicologici
- 3.2 Mobilitazione
- 3.3 Mantenimento accesso venoso
- 3.4 Norme dietetiche
- 3.5 Alvo e diuresi
- 3.6 Trasferimento reparto subintensivo

Terapia di base**1. Terapia antalgica****2. Terapia antitrombotica**

- 2.1 Terapia trombolitica
- 2.2 Terapia antiaggregante
- 2.3 Terapia anticoagulante

3. Protezione del miocardio

- 3.1 Betabloccanti
- 3.2 Nitroderivati
- 3.3 Nitroprussiato
- 3.4 Calcio-antagonisti

Inquadramento prognostico precoce

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MISURE
GENERALITERAPIA
DI BASEINQUADRAMENTO
PRECOCECLASSI CLINICO-
EMODINAMICHETERAPIA DELLE
COMPLICANZEINQUADRAMENTO
PRE-DIMENSIONE**Classi clinico-emodinamiche:
Inquadramento Emodinamico**

- 1. IMA non complicato
- 2. Scompenso ventricolare sinistro
- 3. Ipovolemia
- 4. Shock cardiogeno
- 5. Scompenso acuto ventricolare destro
 - 5.1 Infarto ventricolare destro
 - 5.2 Embolia polmonare
- 6. Tamponamento cardiaco
- 7. Collasso cardiocircolatorio secondario

Terapia delle complicanze

- 1. Complicanze ischemiche
 - 1.1 Minaccia d'estensione e recidiva di infarto
 - 1.2 Angina postinfartuale precoce
- 2. Complicanze meccaniche
 - 2.1 Insufficienza mitralica acuta
 - 2.2 Rottura di setto interventricolare
 - 2.3 Rottura di cuore
- 3. Complicanze aritmiche
 - 3.1 Aritmie ipercinetiche sopraventricolari
 - 3.2 Aritmie ipercinetiche ventricolari
 - 3.3 Tachicardia ventricolare
 - 3.4 Fibrillazione ventricolare
 - 3.5 Aritmie ipocinetiche
 - 3.6 Asistolia

Inquadramento prognostico pre-dimissione

- 1. Pazienti non complicati
- 2. Pazienti con ischemia residua
- 3. Pazienti con disfunzione ventricolare sinistra
 - 3.1 Asintomatici
 - 3.2 Sintomatici
- 4. Pazienti con aritmie ventricolari
 - 4.1 Aritmie ventricolari maligne sintomatiche
 - 4.2 Aritmie ventricolari maligne asintomatiche
- 5. Pazienti con IMA non-Q
- 6. Pazienti anziani

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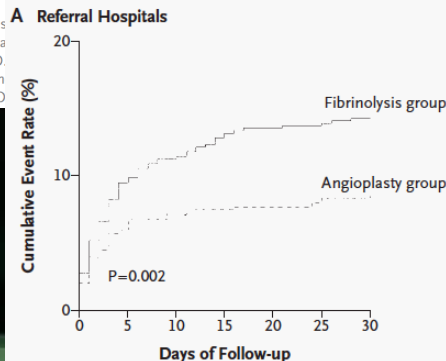
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ASA , PCI and Stenting

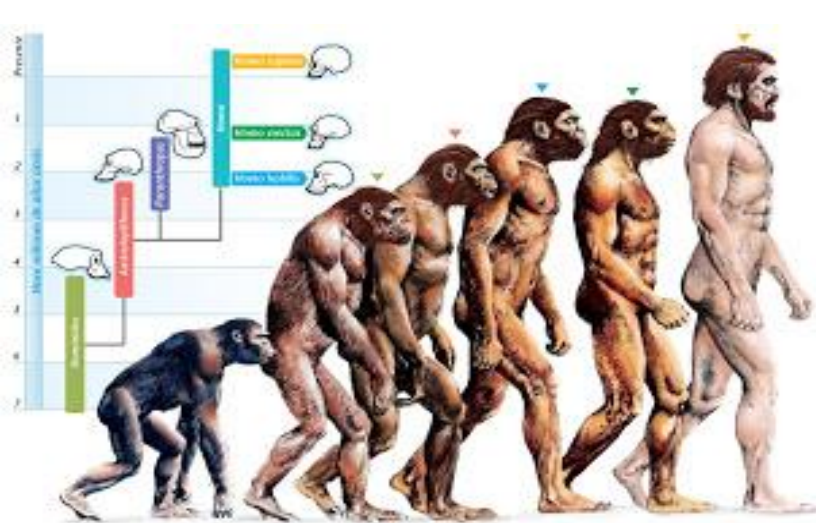
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SHED IN 1812 AUGUST 21, 2003 VOL. 349 NO. 8

dersen, M.D., Torsten T. Nielsen, M.D., Klaus
baek, M.D., Per Thayssen, M.D., Ulrik Abildga
Peer Grande, M.D., Anton B. Villadsen, M.D.
nholt, M.D., Steen E. Husted, M.D., Else Vigh
and Leif Spange Mortensen, M.Sc., for the D



L'evoluzione dell'UTIC....



Rev Esp Cardiol. 2011;64(6):453-455

Editorial

The Changing Role of the Coronary Care Unit Cardiologist

El nuevo papel del cardiólogo en la unidad coronaria

Susanna Price*

Table 1
Stages in the History of the Coronary Care Unit

Years	Phase	Comments
1912	Clinical observation	Herrick's classic description of AMI published Infarcted heart considered a wounded organ Main treatment rest In-hospital mortality 30%
1961	Coronary care unit	Julian's first description of the coronary care unit Dedicated areas with continuous ECG monitoring, defibrillators and resuscitation-trained staff Halved in-hospital mortality
1970s-80s	Technology	Pulmonary artery catheterisation Coronary angiography Beta blockade Thrombolysis Primary PCI
1980s-90s	Evidence-based	Randomised trials as basis for treatment Guidelines from national/international societies
2003-	Critical care	Formation of ESC WG ACC Recognition of requirement for validated intensive care knowledge, skills and behaviours for cardiologists (CoBaTrICE) Sub-specialisation in acute cardiac care



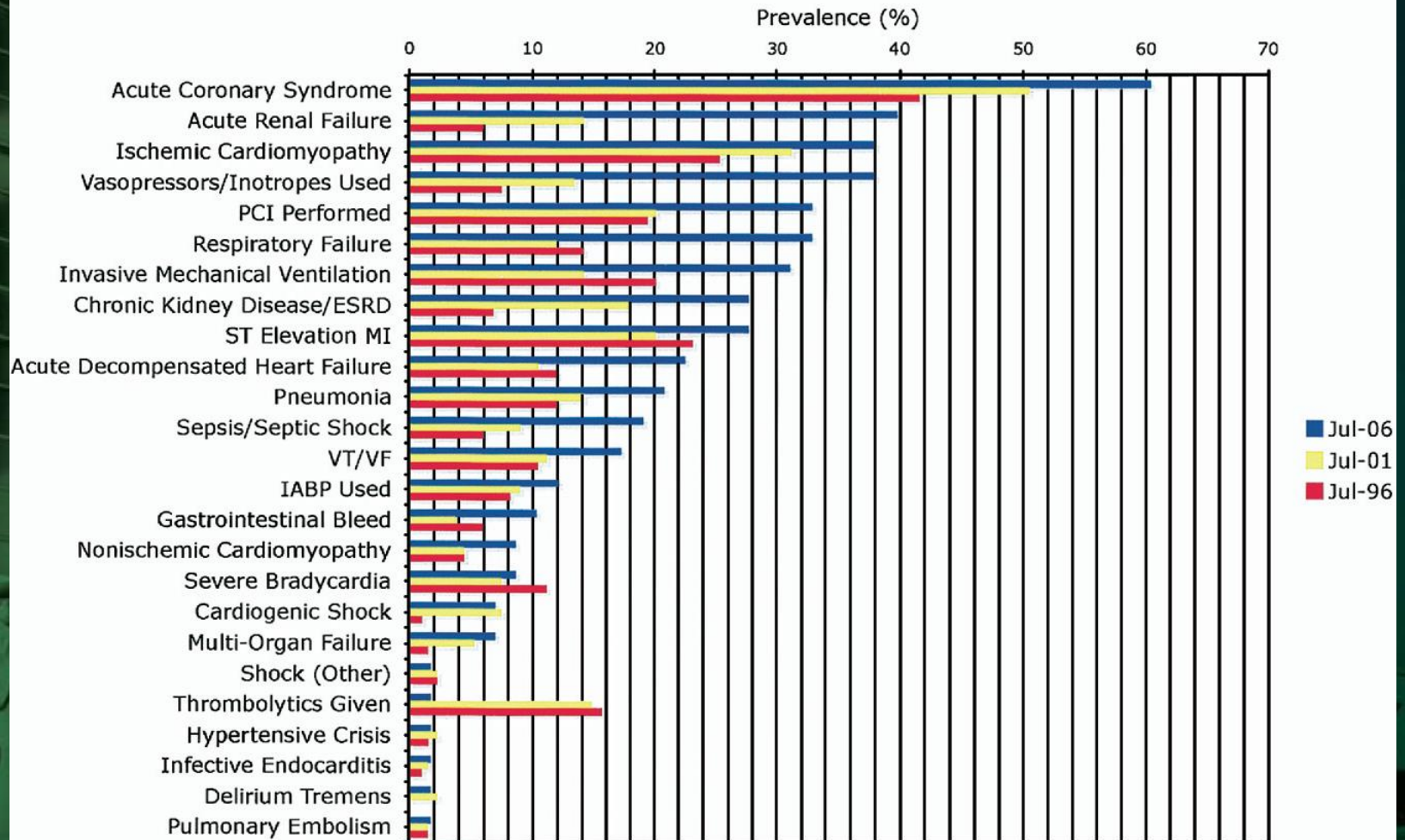
1987:

The future of Coronary Care Units ?

- **Coronary care or cardiac Care ?**
- **Should CCU be part of Intensive Care ?**
- **Should CCU be linked to Cardiac Catheterisation facilities ?**
- **How can the benefit of CCU be maximezed and its costs minimized ?**

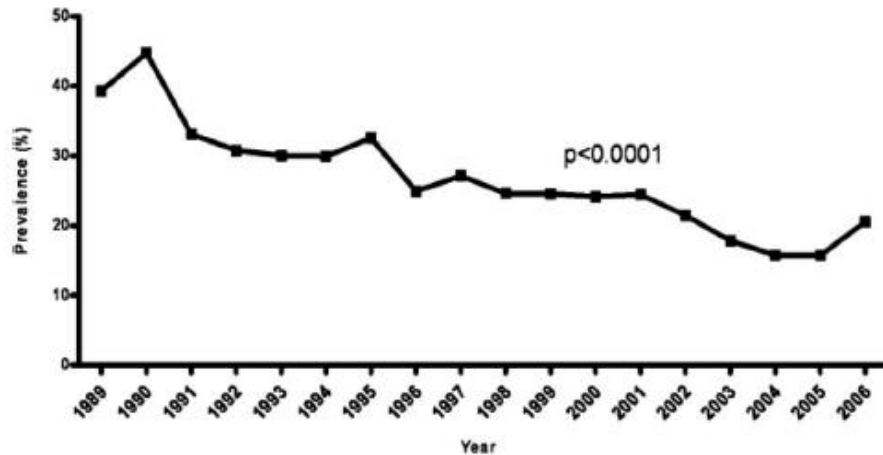
Landscape of CCU has changed

Trends in CCU Comorbidities and Therapies - 1996 to 2006

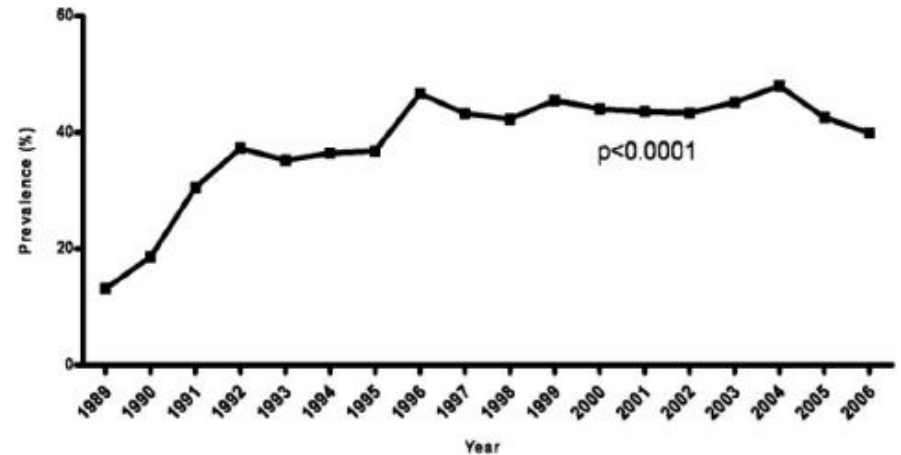


Landscape of CCU has changed

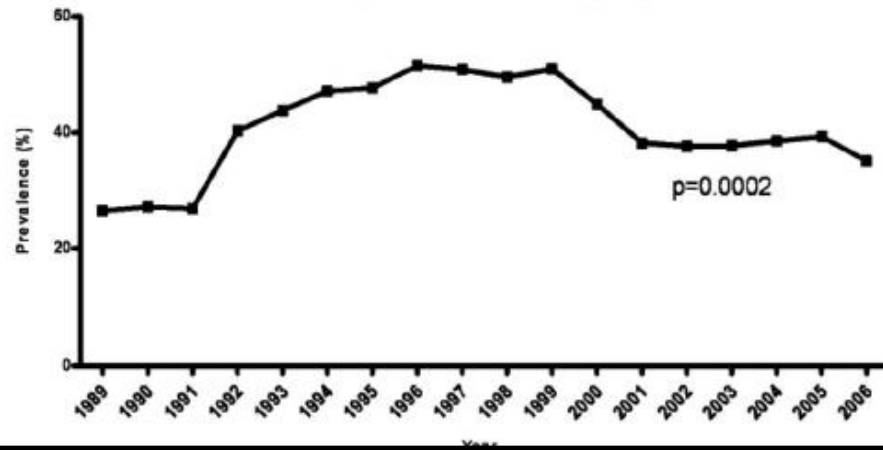
ST-Elevation Myocardial Infarction (STEMI)



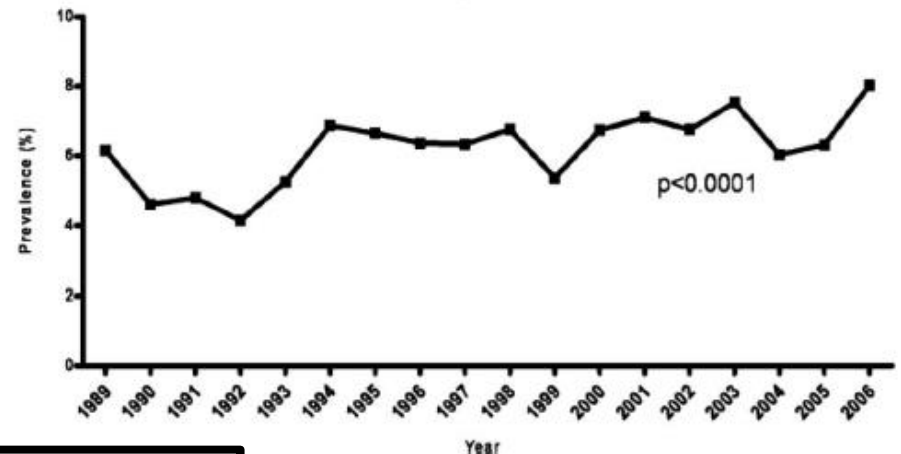
Non ST-Elevation Myocardial Infarction (NSTEMI)



Congestive Heart Failure (CHF)



Cardiogenic Shock

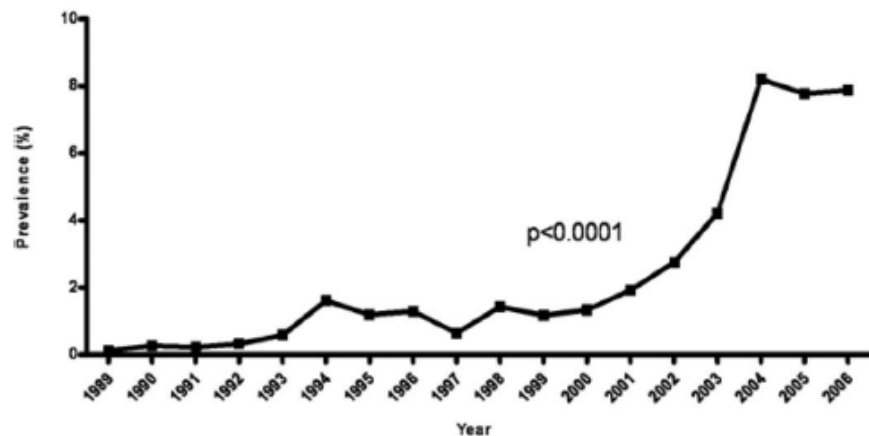


Patients: A total of 29,275 patients admitted from January 1, 1989 through December 31, 2006.

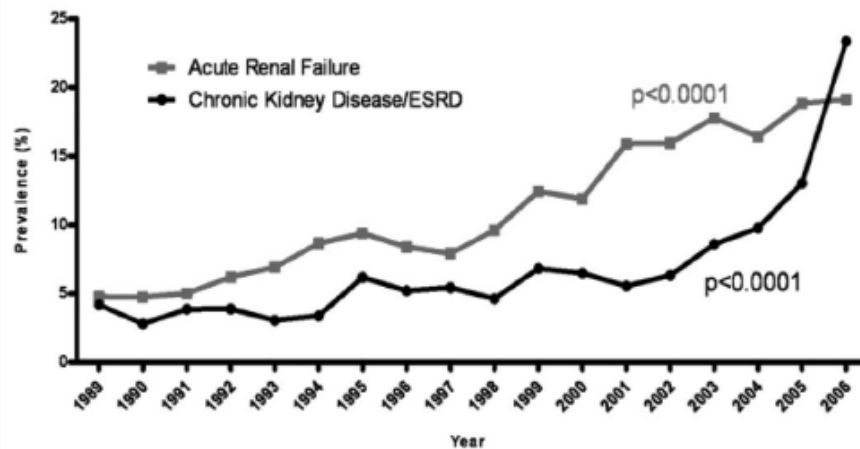


Landscape of CCU has changed

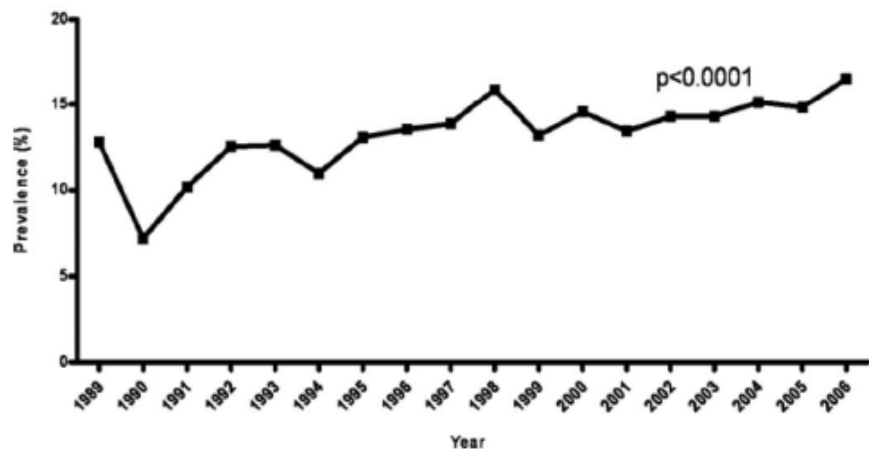
Sepsis/Septic Shock



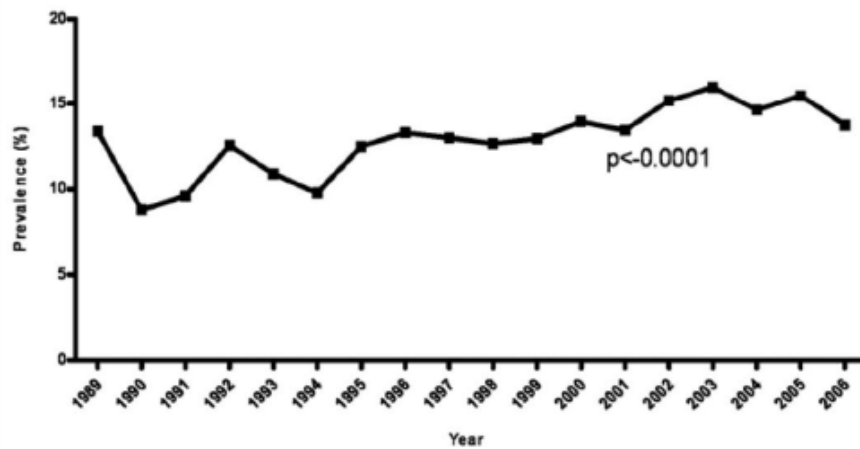
Renal Diseases



Acute Respiratory Failure



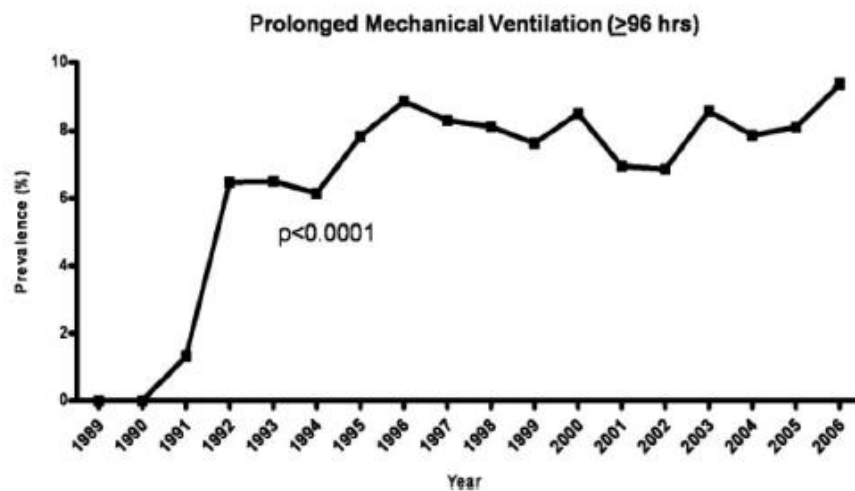
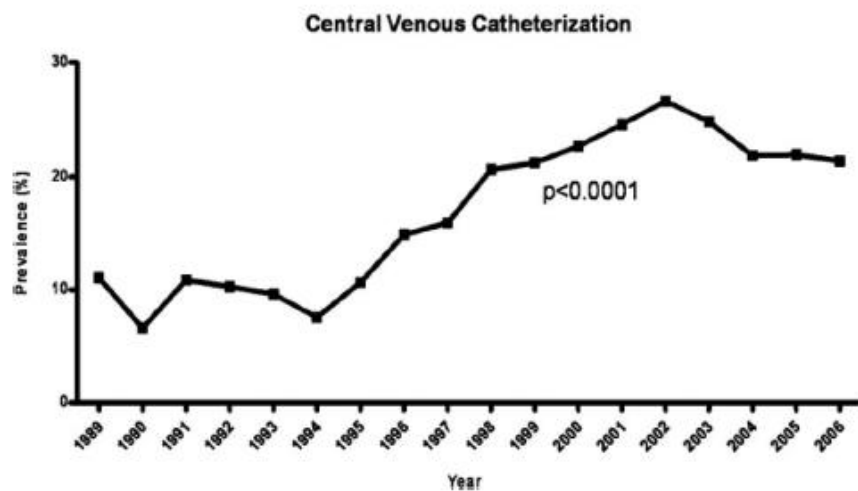
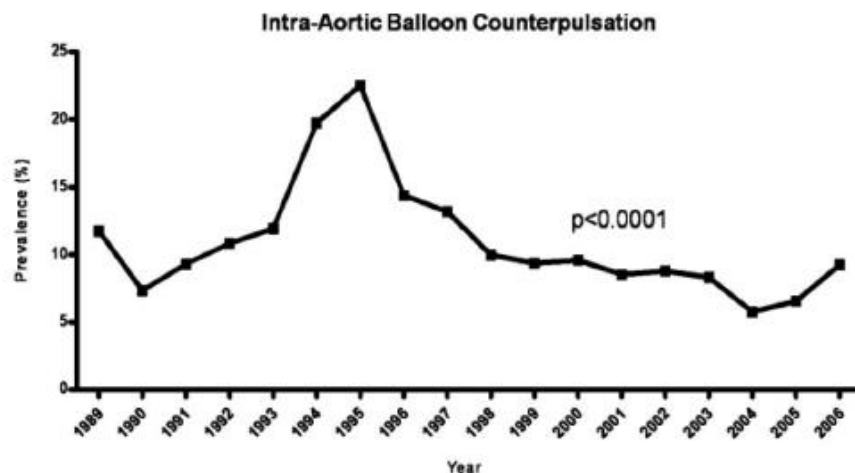
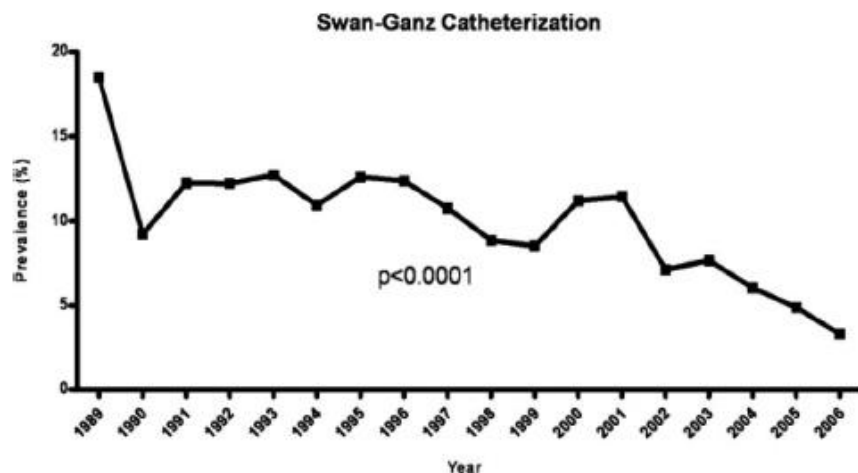
Pneumonia/Pneumonitis



Patients: A total of 29,275 patients admitted from January 1, 1989 through December 31, 2006.



Landscape of CCU has changed



Patients: A total of 29,275 patients admitted from January 1, 1989 through December 31, 2006.



Landscape of CCU has changed

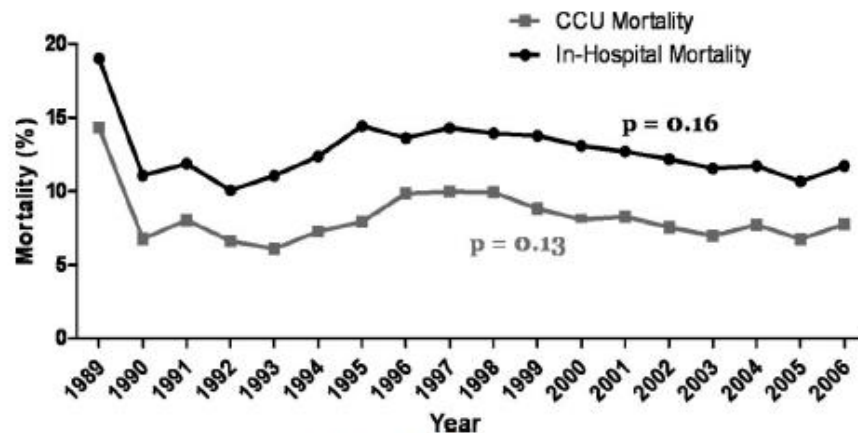
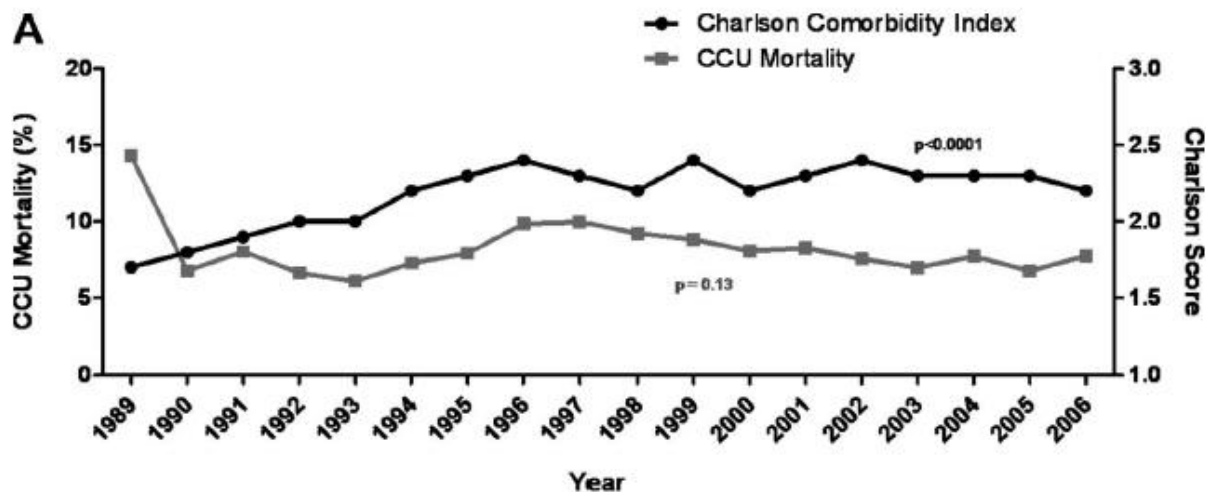
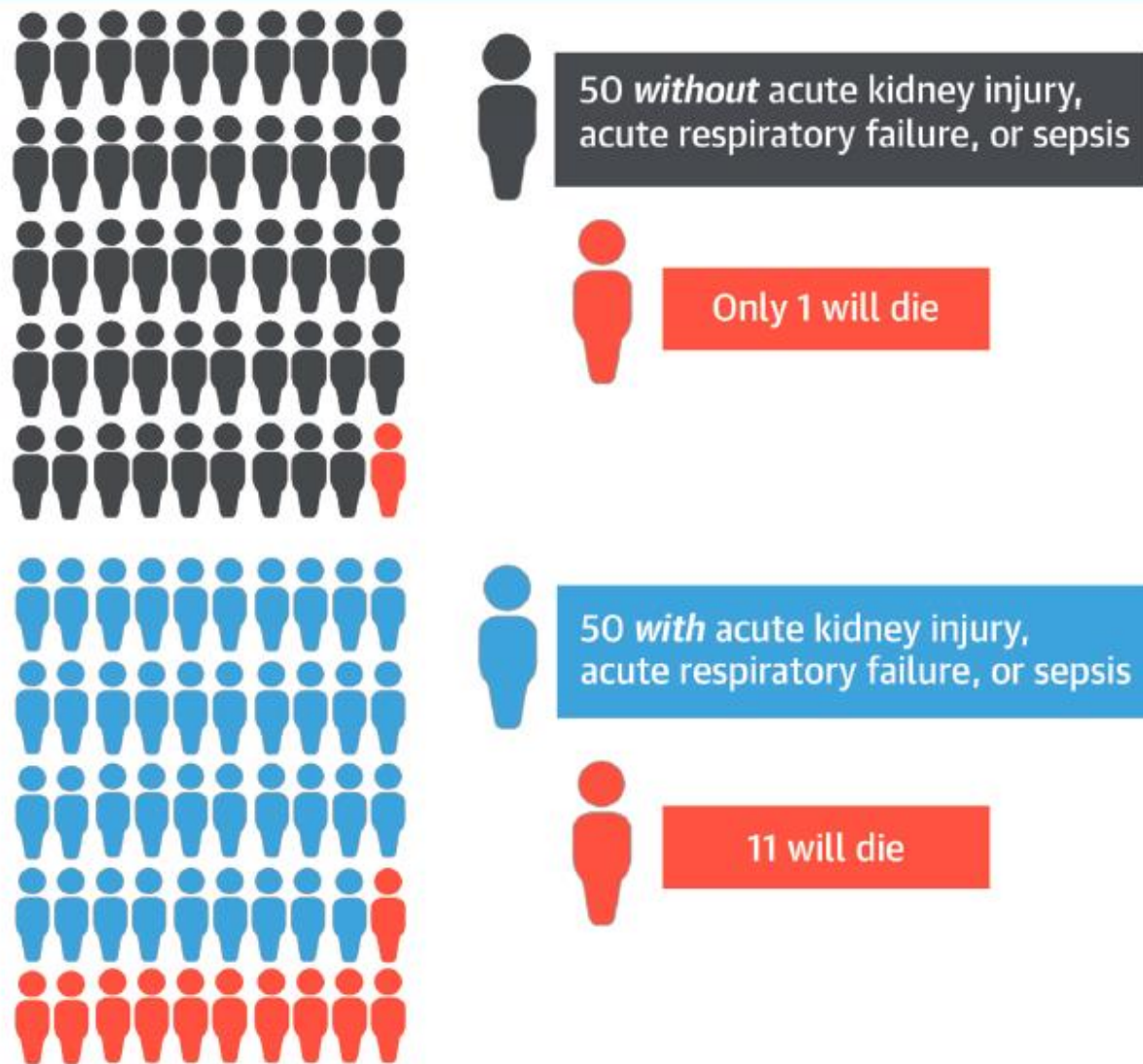


Figure 4. Unadjusted coronary care unit (CCU) and in-hospital mortality over time.



Patients: A total of 29,275 patients admitted from January 1, 1989 through December 31, 2006.

Su 100 pz UCIC: impatto delle patologie non cardiovascolari



- Technology improvement
- More friendly and welcoming for patients and family
- Infections prevention and therapy
- Collaborative groups and networks
- Evidenced Based Medicine (EBM):
 - Blood transfusion triggers could be reduced ($< 10\text{g/dl Hb}$)¹
 - High tidal volumes detrimental ²
 - Low dose dopamine = no benefit ³
 - PAC no routine benefit ⁴
 - Excess sedation = worse outcomes ⁵

1. Hebert PC NEJM 1999
2. ARDS Network NEJM 2000
3. Bellomo R Lancet 2000
4. Wheeler AP NEJM 2006
5. Girard TD Lancet 2008

Executive Summary: Heart Disease and Stroke Statistics—2014 Update

A Report From the American Heart Association

(2). In concert with these findings, more than 1 in 3 U.S. adults have cardiovascular disease, with a projected incidence reaching 44% by 2030 (4). Collec-

- Total number of inpatient CVD operations/procedures increased 28% 2000-2010
- Total direct and indirect cost of CVD and stroke US in 2010 \$ 315,4 billion
- Estimated cost of all cancer and benign neoplasm \$ 201,5 billion



National Growth in Intensive Care Unit Admissions From Emergency Departments in the United States from 2002 to 2009

Peter M. Mullins, MA, Munish Goyal, MD, and Jesse M. Pines, MD, MBA, MSCE

Methods: This was an observational study using data from the National Hospital Ambulatory Care Survey, a nationally representative, weighted sample of U.S. hospital-based EDs from 2002 through 2009. The sample comprised a total of 4,267 patients aged 18 years or older admitted to the ICU from the ED, which represent over 14.5 million ED encounters from 2002 through 2009.

Results: Over the study period, ICU admissions from EDs increased from 2.79 million in 2002/2003, to 4.14 million in 2008/2009, an absolute increase of 48.8% and a mean biennial increase of 14.2%. By comparison, overall ED visits increased a mean of 5.8% per biennial period. The three most common diagnoses for ICU admissions were unspecified chest pain, congestive heart failure, and pneumonia. Utilization rates of most tests and services delivered to patients admitted to the ICU from the ED increased, with the largest increase occurring in computed tomography (CT) and magnetic resonance imaging (MRI), which increased from 16.8% in 2002/2003 to 37.4% in 2008/2009, a 6.9% mean biennial increase. Across all years, mean ED length of stay (LOS) for ICU admissions was 304 minutes (95% confidence interval [CI] = 286 to 323 minutes), and mean hospital LOS was 6.6 days (95% CI = 6.2 to 7.0 days). There was no significant change in either mean ED or hospital LOS over the study period.



Critical care medicine in the United States 2000–2005: An analysis of bed use

Neil A. ...

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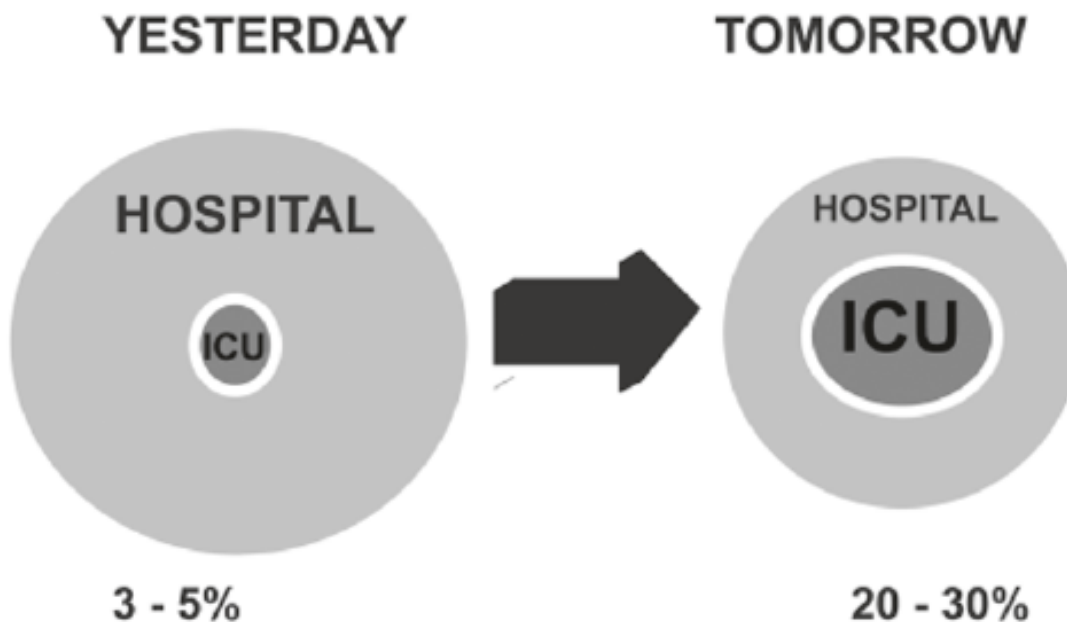


Figure 1. Changing place of the ICU within the hospital.

Schematic to demonstrate the increasingly large place that the ICU of tomorrow will occupy within the hospital system compared with the past, with ICU beds representing a much larger percentage of total hospital beds.

Jean-Louis Vincent*

Critical Care 2013, 17(Suppl 1):S2

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Do Cardiologist Staffing Patterns Influence Outcome ?

The association between older age and receipt of care and outcomes in patients with acute coronary syndromes: a cohort study of the Myocardial Ischaemia National Audit Project (MINAP)

Table 1 Baseline characteristics of whole MINAP cohort

	<65	65–74	75–84	>85	P-trend
<i>n</i>	59 994	37 014	38 637	20 173	
Sociodemographics					
Age, years (mean, SD)	54.4 (7.6)	70.0 (2.9)	79.8 (2.9)	88.9 (3.3)	–
Previous revascularization	7001 (11.7)	6156 (16.6)	5724 (14.8)	1287 (6.4)	<0.001
Percutaneous coronary intervention	5683 (9.5)	4070 (11.0)	3368 (8.7)	779 (3.9)	<0.001
Coronary bypass surgery	2010 (3.4)	3035 (8.2)	3168 (8.2)	652 (3.2)	<0.001
Under cardiologist care	35 440 (59.1)	19 406 (52.4)	16 863 (43.6)	6648 (33.0)	<0.001
Discharge medications					
Aspirin	52 054 (86.8)	30 738 (83.0)	30 309 (78.5)	15 192 (75.3)	<0.001
Statin	52 155 (86.9)	31 323 (84.6)	31 196 (80.7)	14 603 (72.4)	<0.001
B-blocker	47 054 (78.4)	26 087 (70.5)	24 920 (64.5)	11 774 (58.4)	<0.001
ACE inhibitor	48 232 (80.4)	28 338 (76.6)	27 001 (69.9)	11 879 (58.9)	<0.001

The association between older age and receipt of care and outcomes in patients with acute coronary syndromes: a cohort study of the Myocardial Ischaemia National Audit Project (MINAP)

Do Cardiologist Staffing Patterns Influence Outcome ?

Table 3 Effect of a conservative management strategy compared with receipt of angiography on risk of all-cause death by age group for NSTEMI patients

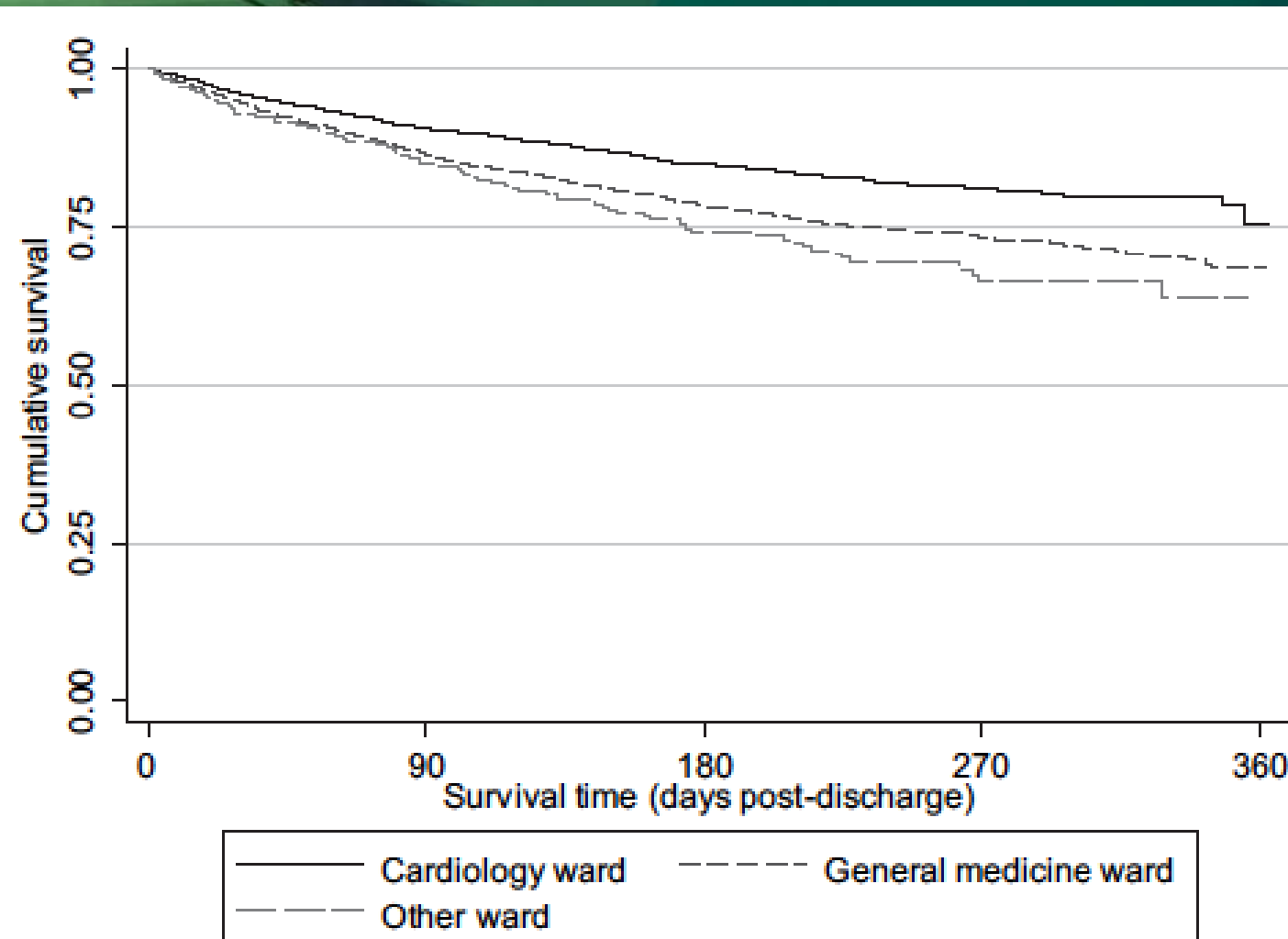
Age	Cases, n	Deaths, n (%)	HR (95%CI) ^a	P-value	HR (95%CI) ^b	P-value	HR (95%CI) ^c	P-value
18 to <65								
Conservative	4473	909 (20.3)	4.38 (4.00, 4.78)	<0.001	3.38 (3.07, 3.71)	<0.001	4.37 (4.00, 4.78)	<0.001
Angiography	21 918	1032 (4.7)	1.00		1.00		1.00	
65–74								
Conservative	6364	2739 (43.0)	3.98 (3.75, 4.23)	<0.001	3.43 (3.22, 3.65)	<0.001	3.76 (3.54, 3.99)	<0.001
Angiography	14 367	1797 (12.5)	1.00		1.00		1.00	
75–84								
Conservative	14 381	7994 (55.6)	2.75 (2.64, 2.87)	<0.001	2.82 (2.69, 2.95)	<0.001	2.79 (2.67, 2.91)	<0.001
Angiography	11 342	2724 (24.0)	1.00		1.00		1.00	
≥ 85 years								
Conservative	12 816	8486 (66.2)	1.92 (1.79, 2.06)	<0.001	2.04 (1.90, 2.19)	<0.001	1.90 (1.77, 2.04)	<0.001
Angiography	2132	869 (40.8)	1.00		1.00		1.00	

We found an incremental reduction in the use of evidence-based therapies with increasing age using a national ACS registry cohort. While survival benefit from more intensive management reduced with older age, better survival was associated with intensive management at all ages highlighting the requirement to improve standard of care in older patients with ACS.

Do Cardiologist Staffing Patterns Influence Outcome ?

Impact of the type of centre on management of AF patients: surprising evidence for differences in antithrombotic therapy decisions.

than DH (55.1%) or GP (52.0%, $p < 0.001$ between groups). Upon multivariate analysis, enrolment by TCC or OC was associated with a 1.60 (1.20-2.12, $p = 0.001$) fold chance for adequate antithrombotic treatment. This difference between centre types was consistent irrespective of the type of stroke risk estimation (ESC 2001 guidelines, CHADS2 score), and also consistent when the recently suggested CHA2DS2-VASc score was used to estimate stroke risk. In conclusion, management decisions in AF are influenced by the education and clinical background of treating physicians in Germany. Inpatients receive more rhythm control therapy. Adequate antithrombotic therapy is more often administered in specialist (cardiologist) centres.



Le UTIC in Italia

Caratteristiche	Modello per specificità e gradualità di cura (Dipartimento Cardiovascolare)	Modello per Intensità di cura
Principi	Specificità, Gradualità, Continuità Assistenziale	Omogeneizzazione degli interventi per intensità e complessità assistenziale
Finalità	Prevenzione, Cura e Riabilitazione	Frammentazione assistenziale legata al singolo episodio assistenziale
Attori	Equipe rigorosamente specialistica	Equipe non necessariamente specialistica
Specificità Intervento	Sempre Assicurato	Non sempre assicurato
Ambiente	Legato alla Disciplina	Legato alla Complessità degli Interventi
Modello Organizzativo	Sperimentato e testato	In sperimentazione, non testato
Implementazione	Consolidata, da perfezionare	Iniziale
Compatibilità con l'organizzazione "a rete"	Totale	Da verificare
Risultati	Provati	Non provati

**Coinvolgimento/
organizzazione**

Tutte le UTIC

UTIC Hub
Rete Hub/Spoke

Intensità di cura



“Cardio-errori”

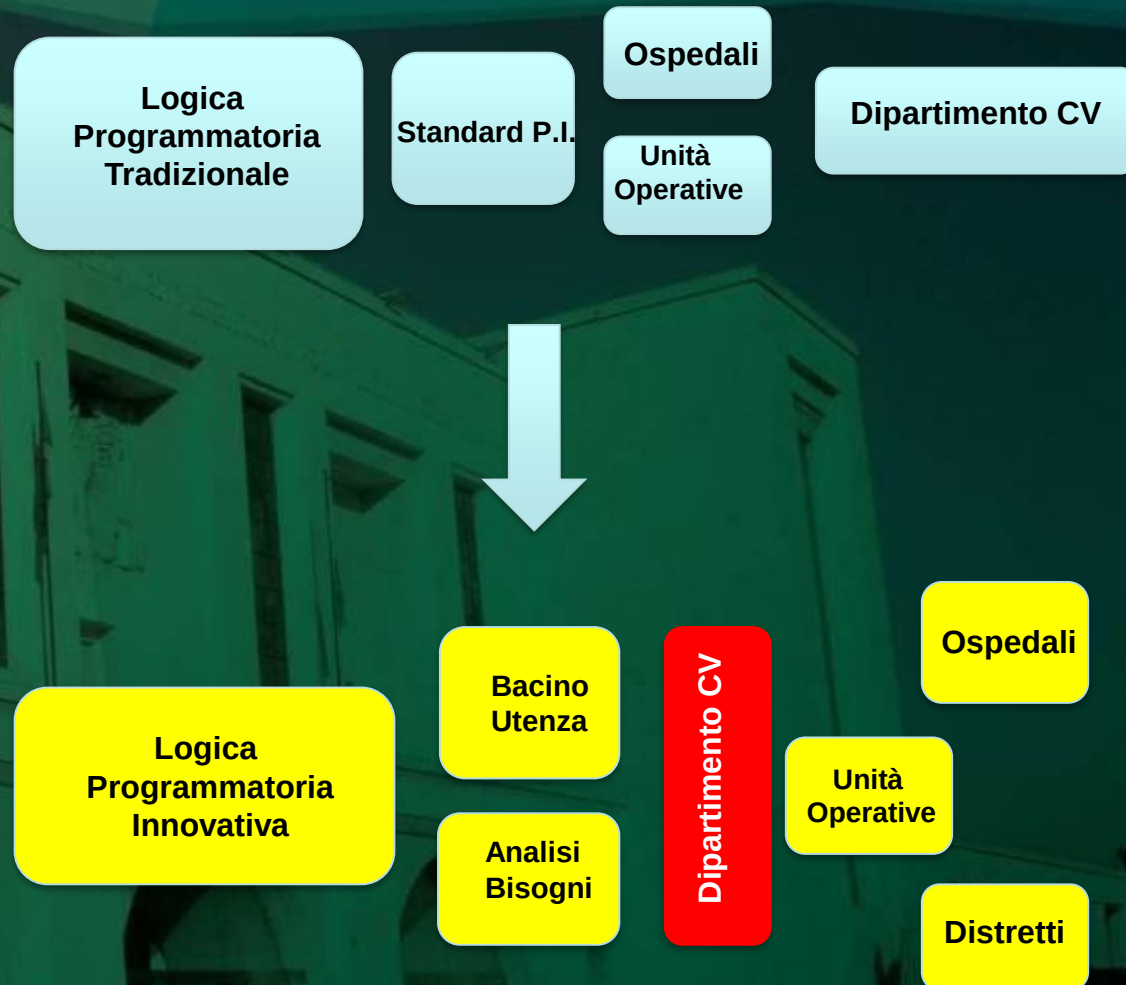
- Tendenza del Cardiologo ospedaliero ad isolarsi (“sofisticazione delle superspecializzazioni”/ produzione di prestazioni)
- Non evoluzione delle UTIC
- Scarsa capacità di collaborazione tra cardiologie vicine
- Non proposte di soluzioni/modelli alternativi

Dipartimento Cardiovascolare e Programmazione Sanitaria



F. Rovelli, Appunti 1968

(Da M. Frigerio Cardiologia negli Ospedali 2016)



“Correttivi”

*Colmare il gap
tra i livelli tecnico/super-specialistico e clinico*

- Aggiornamento permanente
- Discussione collegiale
- Compartecipazione alla ricerca clinica e sorveglianza post-marketing
- Aprire le UTIC a nuove categorie di pazienti

Cardiologia con UTIC vs Cardiologia senza UTIC

Mortalità per infarto miocardico in rapporto ai tempi/modi di intervento nelle Aziende Sanitarie del FVG nell'anno 2014

INDICATORE	UTIC					No UTIC				
	ASL Isontina					ASL Bassa Friulana				
	N	% GREZZA	% ADJ	RR ADJ	P	N	% GREZZA	% ADJ	RR ADJ	P
IMA: mortalità a 30 giorni	249	12,45	8.22	0,89	0,566	174	12,07	9.57	1,04	0,865
IMA senza esecuzione di PTCA: mortalità a 30 giorni	191	16,23	13.55	0,8	0,225	114	18,42	16.80	0,99	0,977
STEMI: mortalità a 30 giorni (grezzi)	94	20,21	-	-	-	74	12,16	-	-	-
STEMI: proporzione di trattati con PTCA entro 2 giorni (grezzi)	94	21,28	-	-	-	74	21,62	-	-	-

Mod. da PNE, Agenas ed. 2015

**Dati PNE in una AS FVG,
Hrovatin et Al, Cardiologia negli Ospedali 2015**

Cardiologia con UTIC vs Cardiologia senza UTIC

Mortalità per infarto miocardico in rapporto ai tempi/modi di intervento nelle Aziende Sanitarie del FVG nell'anno 2014

INDICATORE	UTIC					No UTIC				
	ASL Isontina					ASL Bassa Friulana				
	N	% GREZZA	% ADJ	RR ADJ	P	N	% GREZZA	% ADJ	RR ADJ	P
IMA: mortalità a 30 giorni	249	12,45	8.22	0,89	0,566	174	12,07	9.57	1,04	0,865
IMA senza esecuzione di PTCA: mortalità a 30 giorni	191	16,23	13.55	0,8	0,225	114	18,42	16.80	0,99	0,977
STEMI: mortalità a 30 giorni (grezzi)	94	20,21	-	-	-	74	12,16	-	-	-
STEMI: proporzione di trattati con PTCA entro 2 giorni (grezzi)	94	21,28	-	-	-	74	21,62	-	-	-

Mod. da PNE, Agenas ed. 2015

Dati PNE in una AS FVG,
 Hrovatin et Al, Cardiologia negli Ospedali 2015



Cardiologia con UTIC vs Cardiologia senza UTIC

Mortalità a 30 giorni dal ricovero per NSTEMI nelle ex ASS 2 «Isontina» e ASS 5 «Bassa Friulana» nel 2014

N-STEMI:mortalità a 30 giorni(grezzi)						
ASL	REGIONE	N	% GREZZA	% ADJ	RR	P
Italia		46656	6,08	-	-	-
ASL Bassa Friulana	Friuli Venezia Giulia	88	9,09	-	-	-
ASL Isontina	Friuli Venezia Giulia	149	6,71	-	-	-

Mortalità e riammissione ospedaliera a 30 giorni per scompenso cardiaco congestizio nelle ex ASS 2 «Isontina» e ASS 5 «Bassa friulana» nel 2014

Mod. da PNE, Agenas ed. 2015

Scompenso cardiaco congestizio: mortalità a 30 giorni						
ASL	REGIONE	N	% GREZZA	% ADJ	RR	P
Italia		146813	10,3	-	-	-
ASL Bassa Friulana	Friuli Venezia Giulia	335	12,24	11.11	1,08	0,624
ASL Isontina	Friuli Venezia Giulia	437	6,18	6.07	0,59	0,006

Scompenso cardiaco congestizio: riammissioni ospedaliere a 30gg						
ASL	REGIONE	N	% GREZZA	% ADJ	RR	P
Italia		105947	14,79	-	-	-
ASL Bassa Friulana	Friuli Venezia Giulia	228	15,79	15.64	1,06	0,717
ASL Isontina	Friuli Venezia Giulia	328	15,24	15.24	1,03	0,818

Mod. da PNE, Agenas ed. 2015

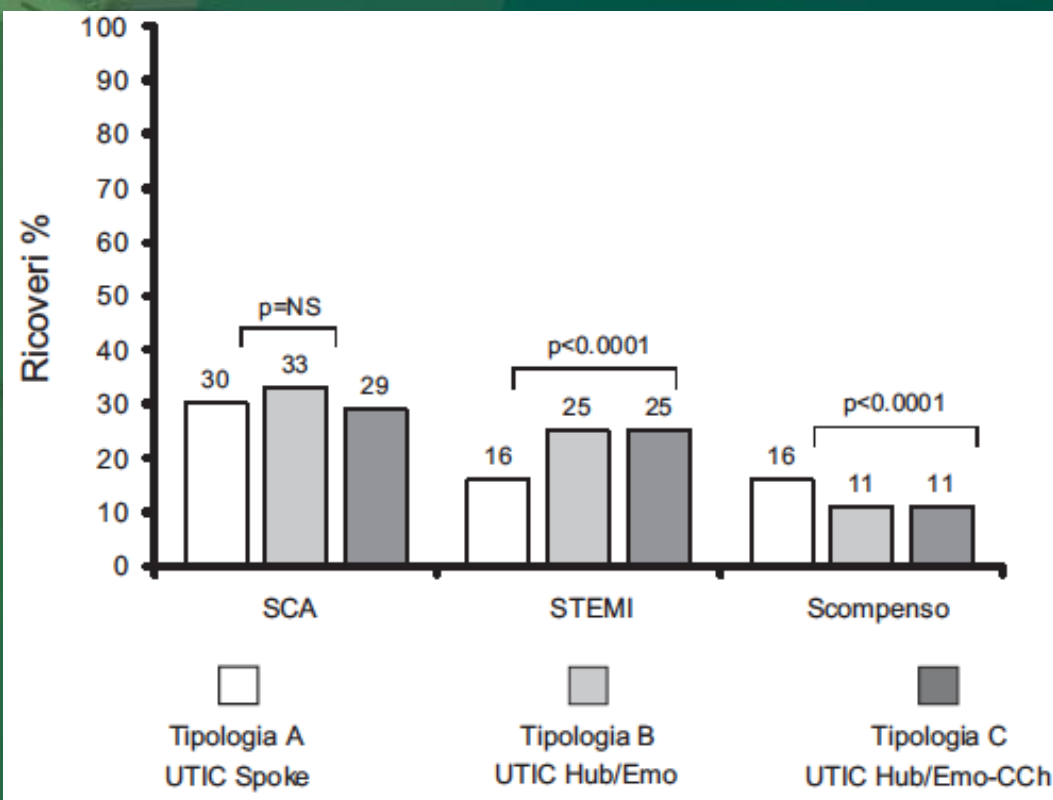
**Dati PNE in una AS FVG,
Hrovatin et Al, Cardiologia negli Ospedali 2015**

Cardiologia con UTIC vs Cardiologia senza UTIC

- **STEMI** : ruolo della professionalità e organizzazione delle Aree di Emergenza + organizzazione in RETE = omogeneità di cura e accesso alla riperfusione coronarica
- **NSTEMI** e **SCOMPENSO ACUTO** : ruolo della specificità di approccio cardiologico. Preservare nel rispetto di bacini e flussi le strutture esistenti, favorendo interazioni multiprofessionali.



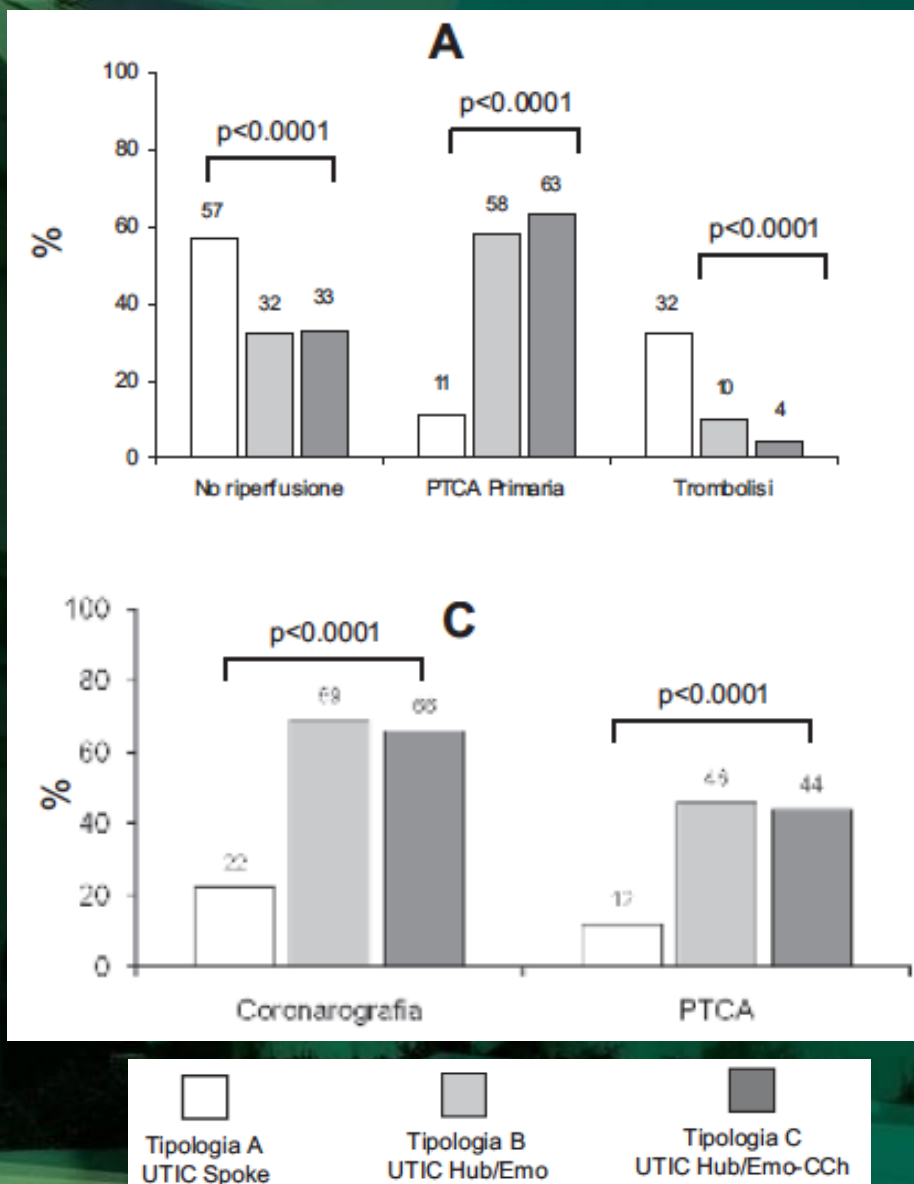
BLITZ-3



	Tipologia A UTIC Spoke	Tipologia B UTIC Hub/ Emo	Tipologia C UTIC Hub/ Emo-CCh	p
Età (anni)	71±13	70±13	69±13	<0.0001
>75 anni	42%	38%	35%	<0.0001
Sesso femminile	39%	35%	34%	0.002
≥2 comorbidità	43%	37%	40%	<0.0001

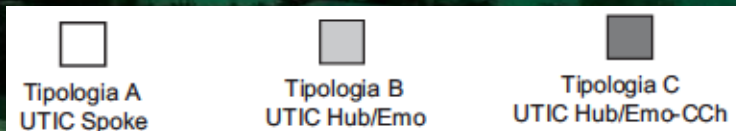
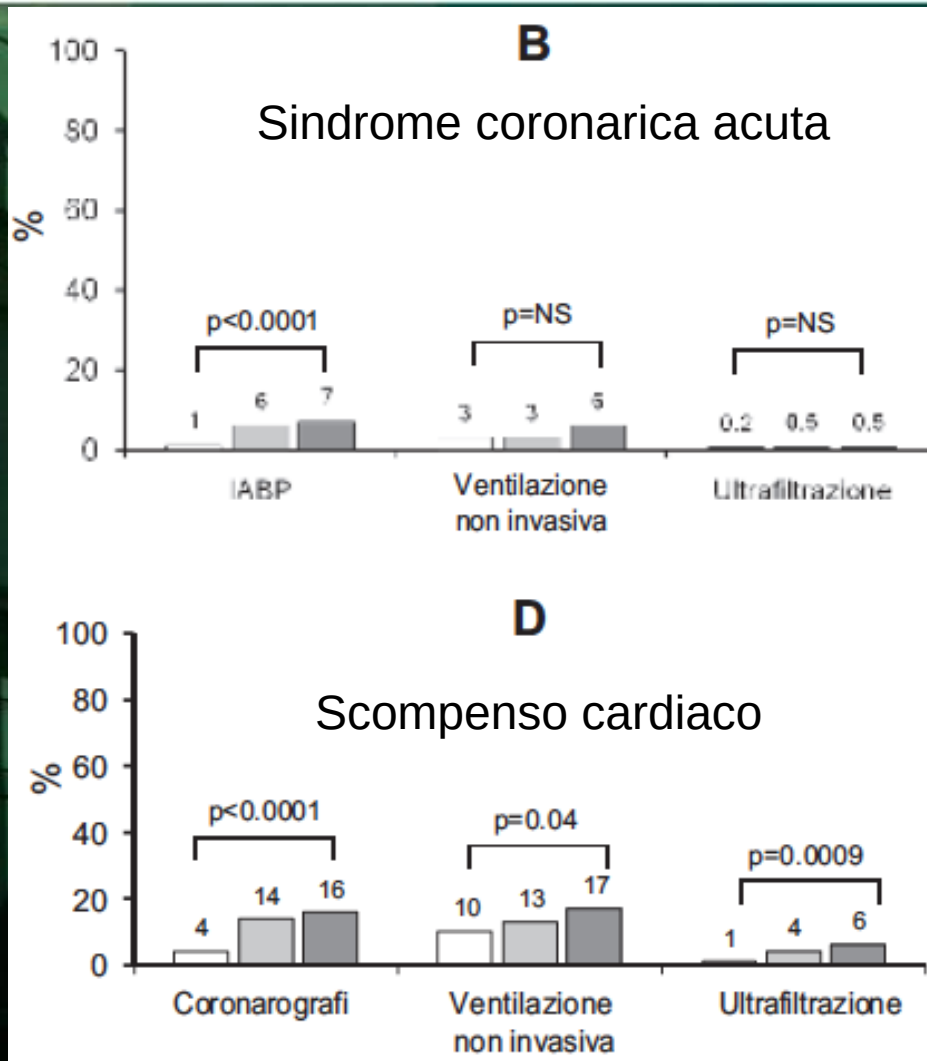


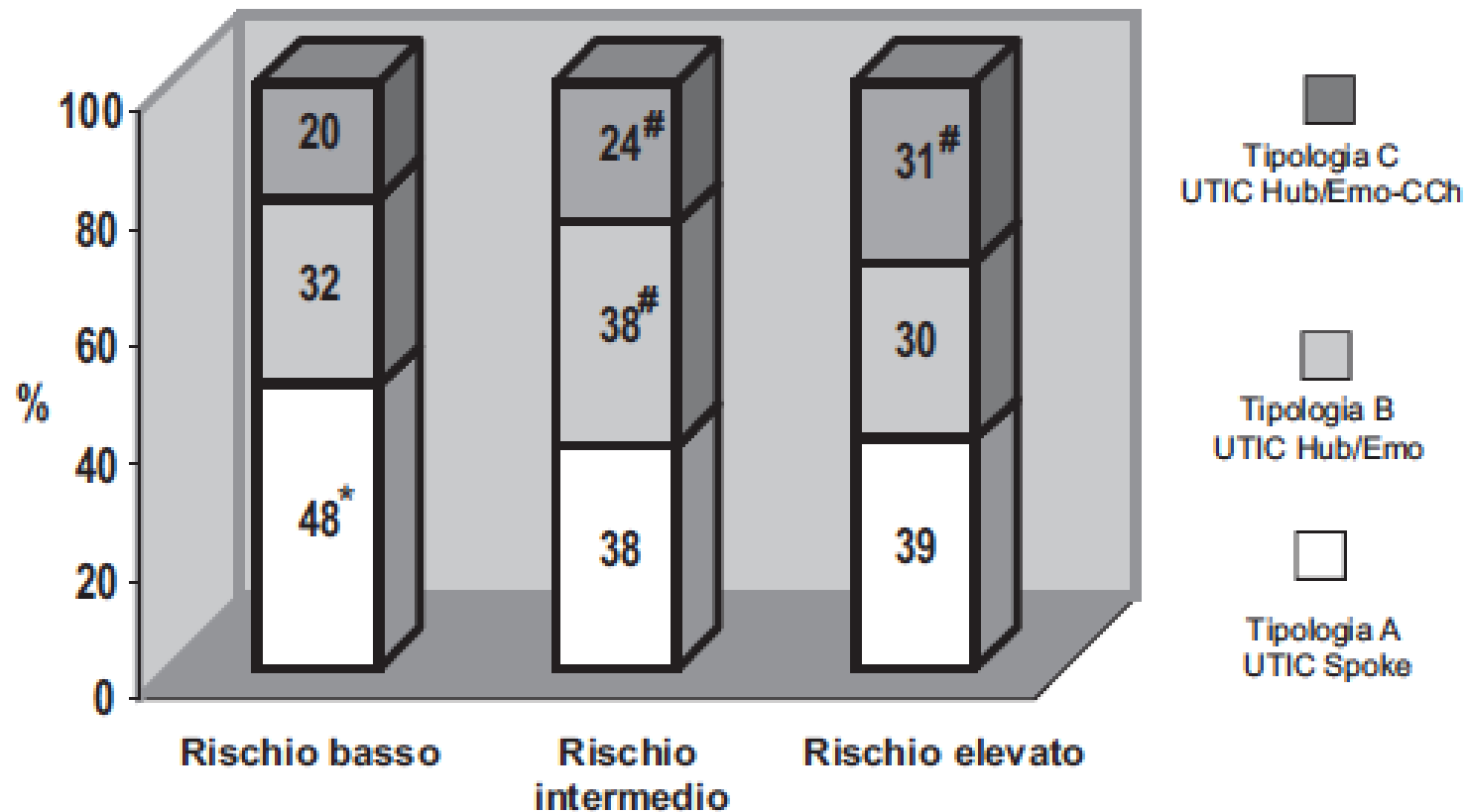
BLITZ-3

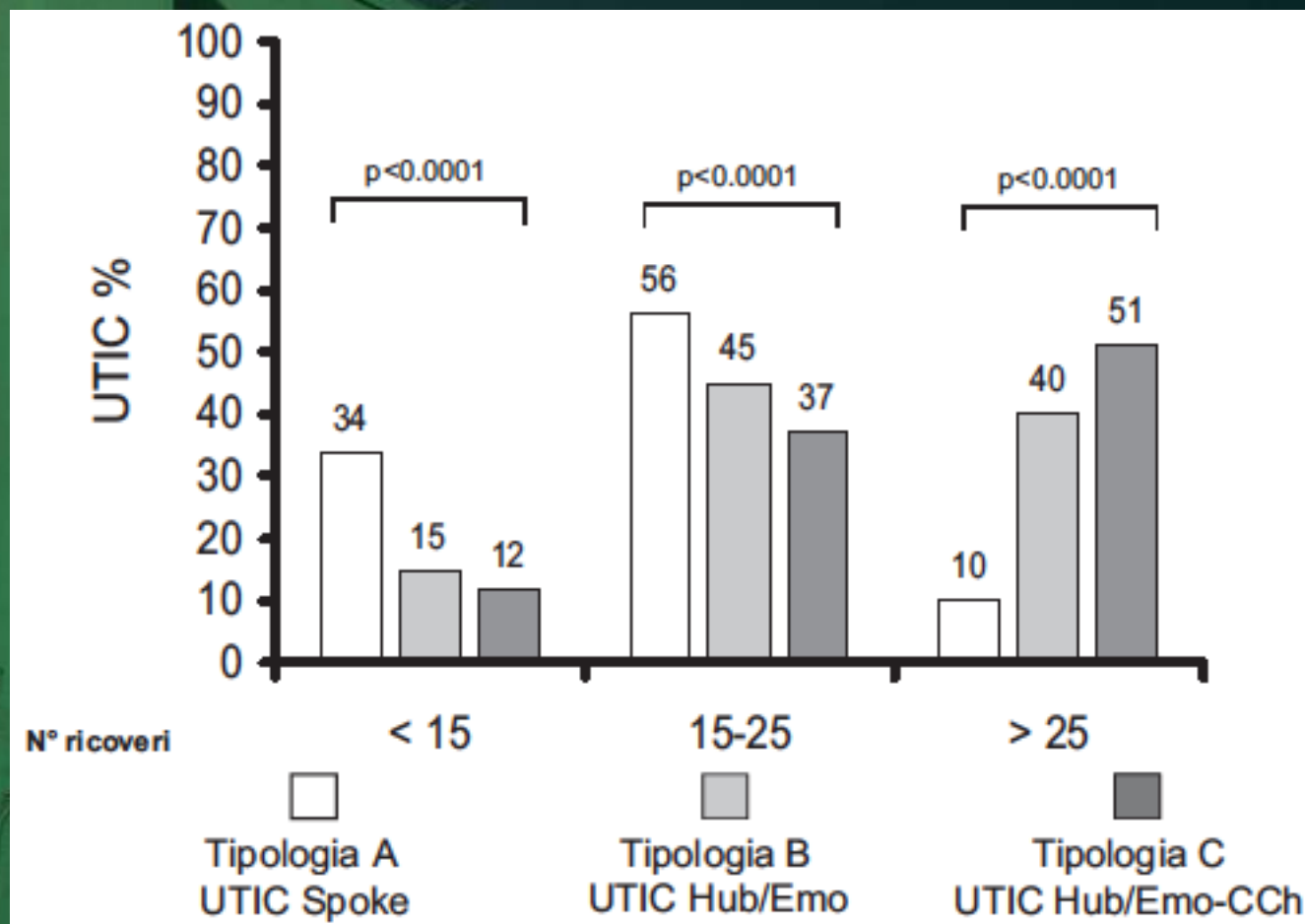




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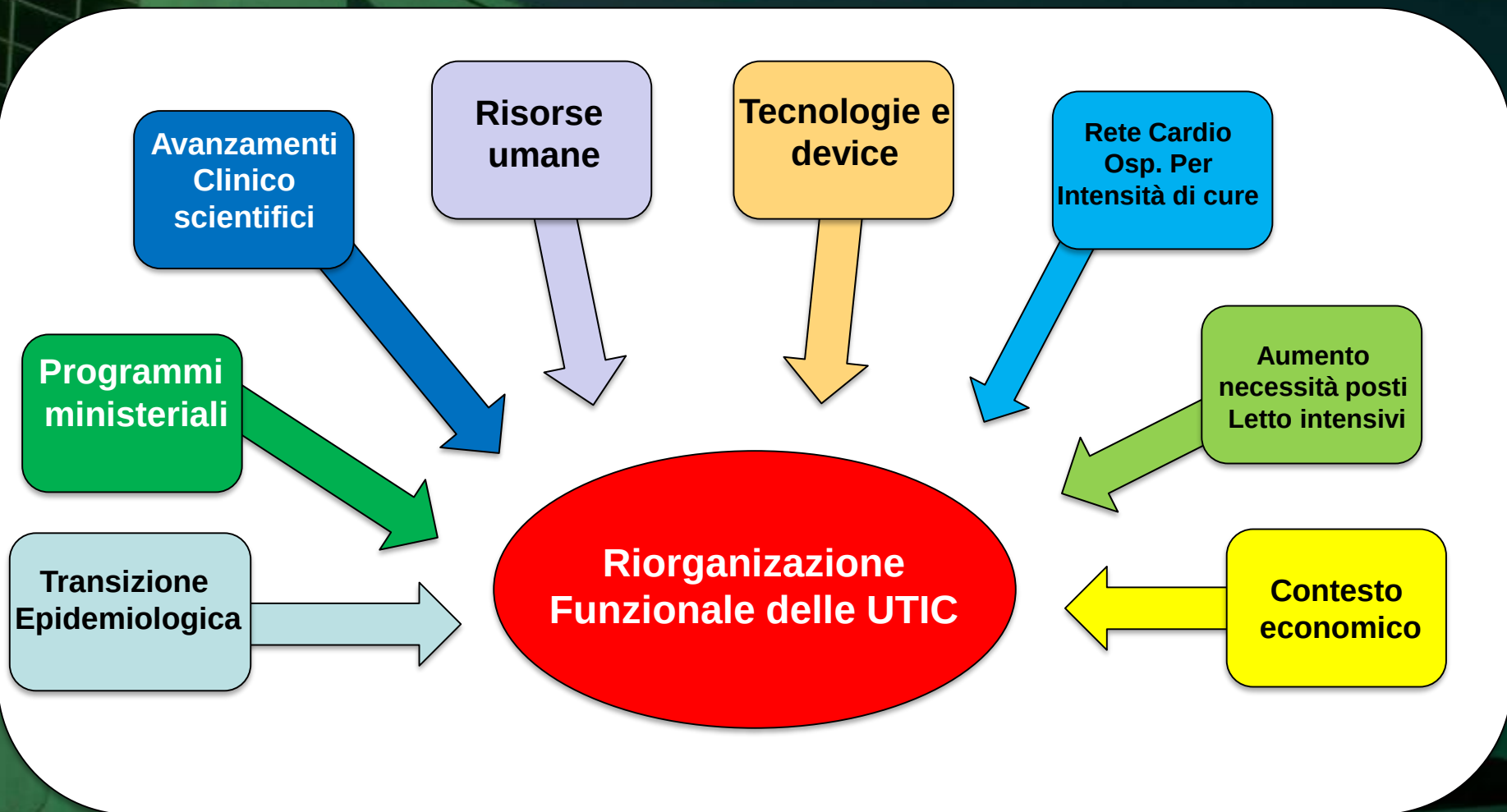








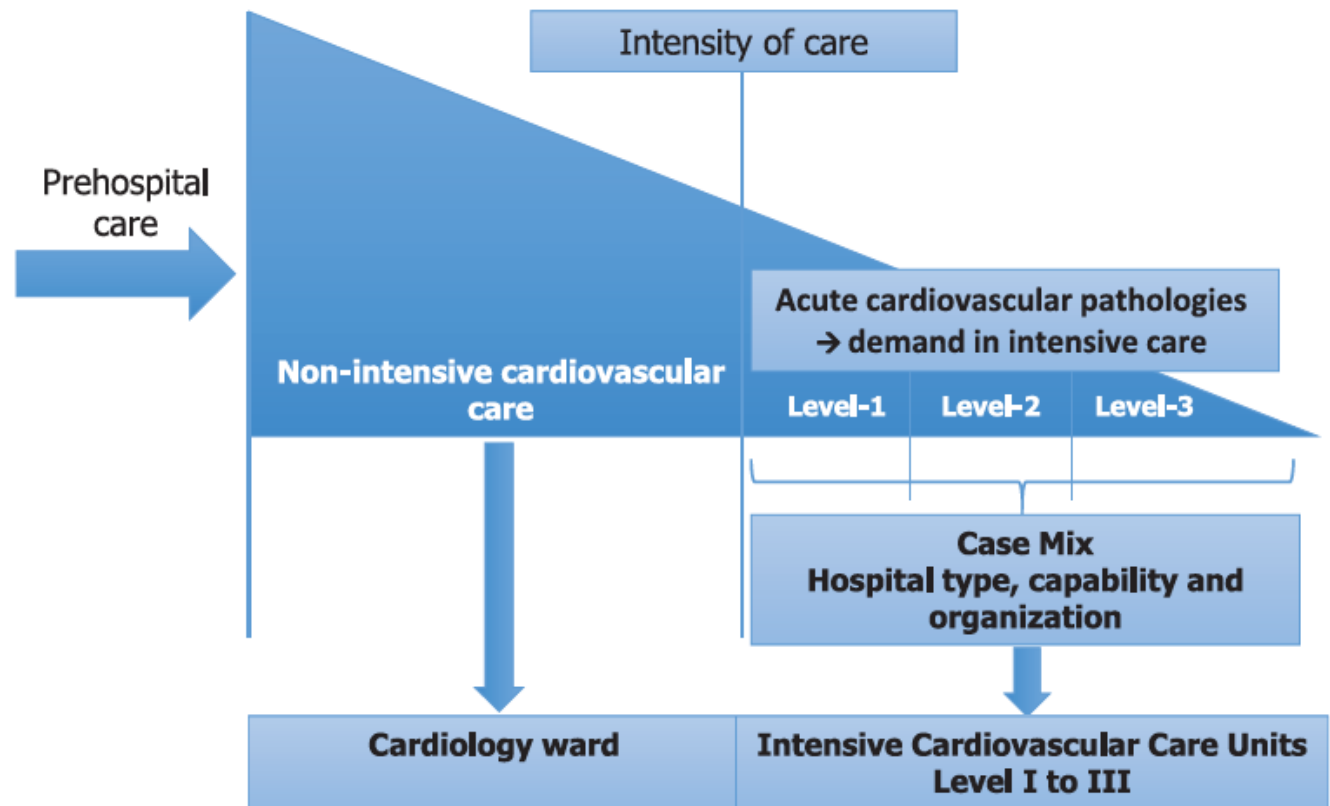
Riorganizzare le UTIC



Acute Cardiovascular Care Association Position Paper on Intensive Cardiovascular Care Units: An update on their definition, structure, organisation and function

Eric Bonnefoy-Cudraz,¹ Hector Bueno,² Gianni Casella,³ Elia De Maria,⁴ Donna Fitzsimons,⁵ Sigrun Halvorsen,⁶ Christian Hassager,⁷ Zaza Iakobishvili,⁸ Ahmed Magdy,⁹ Toomas Marandi,¹⁰ Jorge Mimoso,¹¹ Alexander Parkhomenko,¹² Susana Price,¹³ Richard Rokyta,¹⁴ Francois Roubille,¹⁵ Pranas Serpytis,¹⁶ Avi Shimony,¹⁷ Janina Stepinska,¹⁸ Diana Tint,¹⁹ Elina Trendafilova,²⁰ Marco Tubaro,²¹ Christiaan Vrints,²² David Walker,²³ Doron Zahger,²⁴ Endre Zima,²⁵ Robert Zuckerman²⁶ and Maddalena Lettino²⁷

Acute Cardiac Care



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Table 4. Levels of intensive cardiovascular care units (ICCUs). Technical capacities and expertise of the ICCU and of its hospital.

Technical capacities and expertise of the ICCU

Level I ICCU Basic cardiovascular intensive care	Level II ICCU Advanced cardiovascular intensive care	Level III ICCU Cardiovascular critical care
• All non-invasive clinical parameters monitoring • 24/7 Echocardiography and thoracic ultrasound • Direct cardiac output measurement • No invasive monitoring • Trauma resuscitation • Chest physiotherapy • Nursing • Physiotherapy in ward	As in level I ICCU plus • Ultrasound-guided central venous line insertion • Pericardiocentesis	As in level II ICCU plus • Extracorporeal life support • Mechanical circulatory support expertise (LVAD, Bi-VAD)

➤ *Scelta del modello più appropriato secondo volumi di attività, case mix di patologie cardiovascolari acute e logistica delle strutture esistenti*



CURRICULUM FOR TRAINING IN INTENSIVE, ACUTE CARDIAC CARE IN EUROPE

“Currently, there is no formal training in acute cardiac care and to the best of our knowledge none of the National Cardiac Societies in Europe has developed any training programme with these objectives. Therefore, the ESC WG ACC has recognised the need for better training of the cardiologists working in ICCUs.”

Accreditation in Acute Cardiac Care: an initiative of the Working Group on Acute - Working Group Headlines March 2008

- Cardiologist diploma/title (copy)
- Detailed Curriculum Vitae
- ICCU directors letter
- ACCA Procedures logbook
- ACCA Educational Training Record (ETR)
- ICCU Director confirmation letter

levels of **Competencies** are explained below:

- **Level I:** experience of selecting the appropriate diagnostic or therapeutic modality and interpreting results or choosing an appropriate treatment. This level of competency does not include performing a technique, but participation in procedures during training may be valuable;
- **Level II:** goes beyond Level I. in addition to Level I requirements, the trainee should acquire practical experience but not as an independent operator. They should have assisted in or performed a particular technique or procedure under the guidance of a trainer. This level also applies to circumstances in which the trainee needs to acquire the skills to perform the technique independently, but only for routine indications in uncomplicated cases;
- **Level III:** goes beyond the requirements for Level I and Level II. The trainee must be able independently to recognise the indication, perform the technique or procedure, interpret the data and manage the complications, invasive and non-invasive.

Acute Cardiovascular Care Association



CERTIFICATION PROGRAMME - LEVEL 2 CERTIFICATION – LOGBOOK TABLE OF COMPETENCIES

Technique	Description of competence	Level of competence	Minimum numbers
Cardiopulmonary Resuscitation	Competent in all aspects	Level III	
Post Resuscitation Care	Competent in all aspects	Level III	
Pericardiocentesis	Competent in all aspects	Level III	
Temporary Pacemaker Insertion	Competent in all aspects	Level III	
Pacemaker Optimisation	Competent in all aspects	Level III	
Central Venous Access	Competent in all aspects	Level III	
Arterial Line Insertion	Competent in all aspects	Level III	
Vascath Insertion	Competent in all aspects	Level III	
Right Heart Catheterisation	Competent in all aspects	Level III	
Cardiac Output Monitoring+	Competent in all aspects	Level III	
Intra-Aortic Balloon Pump	Competent in all aspects	Level III	
Haemofiltration	Competent in all aspects	Level III	
Non-Invasive Ventilation	Competent in all aspects	Level III	
Vascular Ultrasound For Venous Access	Competent in all aspects	Level III	
Trans-Thoracic Echocardiography	Competent in all aspects	Level III	
Trans-Oesophageal Echocardiography	Competent in all aspects	Level III	
Endotracheal Intubation	Able to perform independently in routine cases	Level II	
Mechanical Ventilation	Able to perform independently in routine cases	Level II	
Primary Angioplasty	Some practical experience (50)	Level II	
Advanced Extracorporeal Support	Some practical experience (5)	Level II	
Thoracic Ultrasound	Some practical experience (20)	Level II	
Chest Tube Insertion	Some practical experience (10)	Level II	

SAVE THE DATE!

A partire **dal maggio 2018** verrà avviato, a cura dell'UCIC del "De Gasperis" Cardio Center, il corso di perfezionamento universitario "Cardiologia Intensivistica". Al corso sarà ammesso un numero massimo di 15 partecipanti. Per partecipare al bando è necessario possedere specializzazione in Cardiologia o Medicina d'Urgenza.

 Ospedale Niguarda
"De Gasperis" Cardio Center



Il progetto verrà attuato grazie a convenzione con la Scuola di Specializzazione di Malattie Cardiovascolari dell'Università Bicocca di Milano: per iscrizioni al bando di partecipazione consultare **www.unimib.it** corsi di perfezionamento area medico-sanitaria. **Domande entro il 10 marzo 2018.**



Competenze *tecniche* del cardiologo UTIC

- Rianimazione cardiopolmonare avanzata
- Ecocardiografia transtoracica
- Cardioversione elettrica
- Elettrostimolazione temporanea
- Posizionamento CVC e monitoraggio emodinamico
- Interpretazione e gestione referto coronarografia e cateterismo cardio destro

Necessarie

- Eco TE
- Pericardiocentesi
- IABP
- CVVH
- Terapia farmacologica non cardiovascolare

Auspiciabili



Competenze *aggiuntive* del cardiologo UTIC

- Partecipazione a studi clinici (trial, registri, survey, studi di appropriatezza e costo-efficacia)
- Gestione del rischio clinico
- Competenze organizzativo-manageriali (turnover dei pazienti, interazioni con DEA, 118, altri reparti e ospedali)
- Dimensione affettiva, morale e comunicativa

Problemi

- Contenimento dei costi
- Tentativo di “ospedali per intensità di cura”
- UTIC spoke non sempre adeguate/superate

Convergenza, fusione , scomparsa UTIC
all'interno di Terapie Intensive Generaliste



Perdita della competenza
del Dipartimento d'organo



Soluzioni

- **Trasformazione**
 - Unità coronariche > UTIC
 - UTIC spoke senza Emodinamica ?
 - valutare reali esigenze nel contesto di rete
 - Cura dell'acuzie cardiologica in toto
 - Cardiologo > Intensivista cardiologo
 - Dipartimento cardiovascolare
- **Valutazione efficacia**
 - Esiti globali della qualità delle cure (breve/medio periodo), non solo conto economico degli ospedali

When I want to understand what is happening today
or try to decide what will happen tomorrow,
I look back.

Omar Khayyam

