

# Chief Complaints, Procedures, Outcomes and Discharge Treatment Plan of 54000 Patients Admitted to Cardiovascular Care Units in Argentina After Six Years of the Epi-Cardio Registry

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## ABSTRACT

### Background

Epi-Cardio is a multicenter registry of cardiovascular care unit discharge summaries in Argentina, focused on evaluating clinical epidemiology.

### Objective

To identify chief complaints, treatment strategies, procedures and outcomes using the Coronary Care Unit discharge summaries created with the Epi-Cardio software.

### Methods

The registry included 54055 patients admitted to 54 cardiovascular care units which use the Epi-Cardio software as a medical care tool to create discharge summaries and generate an accurate registry of the activity.

### Results

Mean age was 64.9 years, and 63.9% were men. The most common chief complaints included acute coronary syndromes in 24.9% of the patients, heart failure in 11.7% and elective cardiac catheterization procedures in 10.5%. General mortality was of 2.62% (1417 patients).

Patients with non-ST segment elevation acute coronary syndrome underwent coronary angiography in 51.8% of cases and 26.3% underwent percutaneous coronary intervention. Discharge treatment plan included aspirin in 93.8% of cases, beta-blockers in 82.5%, statins in 85.2% and clopidogrel in 59.8%. Mortality rate was 1.61%.

In patients with ST-segment elevation acute coronary syndrome, a reperfusion strategy was indicated in 64.7% of cases. Treatment at discharge included aspirin in 98.4% of cases, beta-blockers in 86.9%, statins in 93.2% and enalapril in 69.6%. Mortality rate was 5.4%.

### Conclusions

Epi-Cardio has generated the largest prospective and permanent registry in Latin America, including more than 50000 consecutive patients. This software has allowed the description of current outcomes of multiple conditions during hospitalization and the clinical practices applied in a wide network. With a simple tool, such as a discharge summary integrated to medical and administrative practice, the registry should be considered as a valuable strategy to improve clinical practice in cardiovascular care units.

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## BACKGROUND

Cardiovascular diseases are currently the leading cause of death around the world. The World Health Organization has reported that 17 million people die of cardiovascular diseases each year, specially due to acute cardiovascular conditions or cerebrovascular accidents.<sup>(1)</sup> In our country, cardiovascular disease remains as the leading cause of death and more than 40000 hospitalizations per year due to ST-segment elevation acute myocardial infarction have been estimated. <sup>(2, 3)</sup>

The outcome and survival of patients with acute cardiovascular events improved in the sixties with the advent of coronary care units, advances in pharmacological interventions and the use of technology applied to health sciences.

Nowadays, randomized clinical trials constitute the best source of information for evidence based medicine. However, the results of these trials differ from those of surveys conducted in different scenarios of "real world" medical practice. Commonly, patients are less monitored in daily practice compared to patients included in clinical trials. In addition, the use of diagnostic and treatment strategies with proven evidence of effectiveness is lower in real practice. <sup>(4, 5)</sup>

Some scientific societies have had the initiative of conducting specific multicenter registries of acute cardiovascular conditions, as myocardial infarction, heart failure or arrhythmias, over short periods of time (1 or 2 months). <sup>(6-10)</sup>

Most of these registries are voluntary, last short periods of time and are conducted at tertiary care centers which may not represent the broad spectrum of institutions involved in medical care of these diseases.

Argentina and the rest of Latin American countries have not developed registration systems to keep updated national or regional statistics regarding acute cardiovascular conditions. The high costs of these systems and the low availability of resources have been identified as the main reasons why these systems are restricted to a few academic centers.

The development and maintenance of an independent, multicenter registry of acute cardiovascular conditions may provide valuable information to improve the quality of care, an open challenge for our community.

The target of the Epi-Cardio project is to elaborate a prospective registry based on a tool integrated to routine medical and administrative practice. In our country and in the rest of Latin America, physicians are in charge of writing the discharge summaries, which have an administrative function and also communicate the information to patients and relatives. A discharge summary should be complete and easy to read in order to provide the patient and his primary care physician the outcome and treatments used during hospitalization.

The project is based on software that, requiring the same time needed to elaborate a traditional discharge

summary, generates an electronic version that is easy to read, with the possibility of obtaining several copies of the report. In addition, it creates a database that allows the analysis of conditions and medical behaviors.

The goal of the Epi-Cardio Registry was to create a permanent multicenter network of voluntary medical institutions using a free tool for the registration of cardiovascular diseases.

As a consequence of the progressive concentration of information, the target of the registry is to evaluate diagnostic and therapeutic strategies from a clinical epidemiology point of view. The detection of problems or deviations might, in turn, help with self-management education interventions in the network in order to correct these issues and then evaluate the level of benefit.

The goal of this publication is to present the evolution of the project and the general information obtained in the most prevalent conditions by characterizing the chief complaints at admission, the treatments used, and the procedures and clinical outcome of patients hospitalized in cardiovascular care units in Argentina, after six years of development and growth of the Epi-Cardio Registry.

## METHODS

### Software and multicenter network

The Epi-Cardio software, developed by the GEDIC group, is a permanently updated system. Employing user-friendly screens, the software generates an ".mdb" file which has two roles:

- Keeps a database of all the patients admitted to intensive care units.
- Generates an automatic discharge summary written in colloquial language.

The Epi-Cardio Registry started in 2005, with a pilot phase in four institutions to correct the initial running. Once the application was consolidated, the institutions with cardiovascular care units were invited to participate in the multicenter network and the Epi-Cardio software was distributed. Initially, the software was included in a CD which was distributed during the scientific meetings of the Argentine Society of Cardiology in 2005. A website ([www.epi-cardio.com.ar](http://www.epi-cardio.com.ar)) was then developed and specially created to allow those institutions interested in the project to register and download the free license software.

The participating centers have full access to their own information as data are not encrypted; thus, they can look up hospitalization data and elaborate their own statistics. The Epi-Cardio project implies the commitment of sending the database to the coordinator center (GEDIC) periodically. The information is sent via e-mail without reporting patients' particulars and medical coverage, which are eliminated by the software. An identification number (ID) is used for the analysis. The coordinator center unifies the dataset, makes the corresponding examination and generates a common analysis and individual reports for each institution. The participating institutions receive all the information, and have the possibility of comparing their own statistics with the global data of the registry. The database is available to all the participating centers for the elaboration of scientific analysis projects, allowing the use of general information, but preserving the privacy of each particular center data.

### Database contents

Database contents include software record particulars (which are not sent to the coordinator center), personal history, risk factors, treatments at admission, tests performed during hospitalization, outcome, procedures, diagnosis at discharge and treatment plan. The definitions of diagnosis and end points are those accepted by specific guidelines for each condition. Specific conditions (ST-segment elevation myocardial infarction, heart failure, syncope, cardiovascular surgery) have additional sections. The electronic appendix 1 shows an example of the discharge summary generated, and the electronic appendix 2 shows a few examples of the Epi-Cardio screens.

In the average patient, the form is completed in 5 minutes according to the evaluation of different groups. Discharge summary is colloquial and user-friendly for patients and administrators.

### Current analysis

All the patients incorporated in the registry from August 2005 to January 2011 were included in the analysis. The full dataset corresponds to the total population, and the information about particular diseases, as ST-segment elevation myocardial infarction, non ST-segment elevation acute coronary syndromes and heart failure was obtained from the specific sections with complete data.

### Statistical Analysis

Categorical variables are expressed as numbers, percentages, and confidence intervals, if applicable. Continuous variables with normal or non gaussian distribution are presented as mean and standard deviation, or median and interquartile range, respectively.

Continuous variables were compared using Student's t test or non parametric tests according to their distribution. The categorical variables were compared using contingency tables for the chi-square test with Yates correction or Fisher's exact test and chi-square test for trend, as applicable. A two-tailed p value < 0.05 was considered statistically significant for all the comparisons. All calculations were performed using Epi-Info 2000 3.5.1 and Statistix 7.0 software packages.

## RESULTS

Fifty four cardiovascular care units distributed in 14 provinces were incorporated. The full dataset included 54055 patients. The epidemiological characteristics of the population are described in Table 1.

The most common discharge diagnoses were: acute coronary syndromes present in 13469 patients (24.9%); heart failure in 6333 patients (11.7%); elective interventional procedures (coronary angiography y percutaneous coronary intervention) in 5644 patients (10.5%); tachyarrhythmia in 4898 patients (9.1%); cardiovascular surgery in 2263 patients (4.2%); device implantation (pacemaker, implantable cardioverter defibrillator) in 2285 patients (4.2%); non-cardiac chest pain in 2068 patients (3.8%); syncope in 1652 patients (3.1%); bradyarrhythmia in 1477 patients (2.7%); acute aortic syndromes in 653 patients (1.2%); and others in 13313 patients (24.6%) (Table 2).

Complex procedures included implantation of Swan-Ganz catheter in 576 patients (1.07%), mechan-

ical ventilation in 1727 (3.19%), intraaortic balloon pump in 188 (0.35%) and transient pacemaker in 483 patients (0.89%).

Overall mortality was 2.62% (95% CI 2.49-2.76) (1417 patients). Cardiogenic shock (18.6%) (95% CI 16.7-20.7) and sepsis (10.4%) (95% CI 8.9-12.1) were the most common causes of death.

The analysis of each specific condition included only those patients in whom the corresponding form was completed, as previously mentioned in the methods section.

### ST-segment elevation myocardial infarction

A total of 2855 patients with diagnosis of ST-segment elevation acute myocardial infarction were analyzed. Mean age was  $60.8 \pm 13$  years. The characteristics of this group of patients are described in Table 3.

Reperfusion therapy was used in 64.7% of the patients. The most common causes of lack of use of this strategy were prolonged window to reperfusion at admission (evolved phase of infarction) in 46% of cases and spontaneous reperfusion in 11.7%.

Total mortality of patients with infarction was 5.4%. Mortality rate of patients according to the Killip and Kimbal (KK) classification was: class A: 4.1%, class B: 12%, class C: 45% and class D: 40% (p for trend < 0.0001).

### Non-ST segment elevation acute coronary syndromes

The number of patients included with diagnosis of unstable angina or non Q-wave myocardial infarction was 4667. The characteristics of these patients are summarized in Table 4. Coronary angiography was indicated in 2418 patients (51.8%), percutaneous coronary interventions in 1224 (26.3%) and coronary artery bypass graft surgery in 182 (3.9%). During hospitalization, 7.5% of the patients developed recurrent or refractory angina, and mortality was 1.6%.

**Table 1.** Epidemiological characteristics of the population incorporated in the Epi-Cardio Registry.

Variable	n	64.9 ± 14.7 % (95% CI)
Age, years (mean ± SD)		
Male gender	34588	64.0 (63.6-64.4)
Cardiovascular risk factors		
Hypertension	30642	56.7 (56.3-57.1)
Current smoking	9401	17.4 (17.1-17.7)
Former smokers	11478	21.2 (20.9-21.6)
Diabetes mellitus	9307	17.2 (16.9-17.5)
Dyslipidemia	18583	34.4 (34-34.8)
History of coronary artery disease		
Previous myocardial infarction	6918	12.8 (12.5-13.1)
History of coronary artery bypass graft surgery	3057	5.7 (5.5-5.8)
Previous angioplasty	4882	9.0 (8.8-9.3)
Stable chronic angina	2770	5.1 (4.9-5.3)

**Heart failure**

A total of 3430 patients with diagnosis of heart failure was analyzed. The clinical characteristics and treatments used are summarized in Table 5. Total mortality of patients with heart failure was 5.57%.

**Cardiovascular surgery**

Table 6 describes the types of surgery performed and their outcomes. Coronary artery bypass graft surgery (either revascularization surgery or combined procedure) was performed using the left internal mammary artery in 86.4% of the patients, the radial artery in 11% and the saphenous vein in 78.2%. Total mortality was 4.9%.

**DISCUSSION**

The configuration of a collaborative and independent network of institutions sharing electronic discharge summaries developed by the Epi-Cardio software

has allowed the permanent incorporation of information of all the patients discharged from coronary care units, with the analysis of their outcomes and therapeutic behaviors. (9, 10) The tool has been easily implemented and accepted, and has been incorporated to routine care and administrative activity.

Voluntary registries, which are not incorporated to medical practice, require completing forms or electronic registries after discharge, costly structures and technical staff, and are rarely continued over time. The possibility of taking advantage of the time usually dedicated to create discharge summaries in the generation of an electronic report which keeps the dataset ready to be analyzed is a valid alternative.

Since the Epi-Cardio project began the number of patients and institutions incorporated has increased. The availability of this information is helpful to understand the reality of our medical practice and the current management of patients hospitalized in criti-

**Table 2.** Most common discharge diagnoses in the Epi-Cardio Registry

Diagnosis	n	% (95% CI)
Acute coronary syndromes	13469	24.9 (24.6-25.3)
Heart failure	6333	11.7 (11.4-12)
Elective interventional procedures (coronary angiography and percutaneous coronary intervention)	5644	10.5 (10.2-10.7)
Tachyarrhythmia	4898	9.1 (8.8-9.3)
Cardiovascular surgery	2263	4.2 (4-4.4)
Device implantation (pacemaker, implantable cardioverter defibrillator)	2285	4.2 (4.1-4.4)
Non-cardiac chest pain	2068	3.8 (3.7-4)
Syncope	1652	3.1 (2.9-3.2)
Bradyarrhythmia	1477	2.7 (2.6-2.8)
Acute aortic syndromes	653	1.2 (1.1-1.3)
Diagnosis of non-cardiovascular disease from polyvalent intensive care units or other diagnoses	13313	24.6 (25-25.7)

**Table 3.** Clinical characteristics and treatments used in patients with ST-segment elevation acute coronary syndrome

Age (mean ± SD)		60.8 ± 13	
		n	% (95% CI)
Killip and Kimbal Class	A	2390	83.7 (82.3-85)
	B	316	11.1 (10-12.3)
	C	77	2.7 (2.2-3.3)
	D	71	2.5 (2-3.1)
Reperfusion	Total	1847	64.7 (62.9-66.4)
	Primary PCI	1093	38.3 (36.5-40.1)
	FBL	548	19.2 (17.8-20.1)
	FBL + rescue PCI	206	7.2 (6.3-8.2)
	Not reperfused	1008	35.3 (33.6-37.1)
Mortality		154	5.4 (4.6-6.3)
Discharge treatment plan	Aspirin	2658	98.4 (97.9-98.8)
	Beta blockers	2347	86.9 (85.6-88.1)
	Statins	2517	93.2 (92.2-94.1)
	ACEI	1880	69.6 (67.8-71.3)

PCI: Percutaneous coronary intervention. FBL: Fibrinolysis. ACEI: Angiotensin-converting enzyme inhibitor.

cal care units in Argentina.

The registry included medical centers from 14 Argentine provinces with different levels of complexity. However, as our network has a selection bias towards large urban centers, the information provided cannot be completely extrapolated to the reality of health care in the country. Despite these limitations, we con-

sider that the analysis of the dataset shows information which is close to the reality of large urban centers, supported by data obtained from comparing this registry with other local registries about myocardial infarction and unstable angina developed by the Argentine Society of Cardiology. (8, 9)

Although handwritten discharge summaries some-

Age (mean ± SD)		63.5 ± 12.3	
		n	% (95% CI)
ST-T changes	Transient ST elevation	257	5.5 (4.9-6.2)
	ST-depression	980	21 (2-2.2)
	T-wave changes	980	21 (2-2.2)
	Other changes	891	19.1 (18-20.2)
	Absence of changes	1559	33.4 (32.1-34.8)
Increased biomarkers	Troponin	1745	37.4 (36-38.8)
	CK	499	10.7 (8.8-11.6)
CA during hospital stay		2418	51.8 (50.4-53.2)
PCI during hospital stay		1224	26.3 (25-27.5)
CABGS during hospital stay		182	3.9 (3.4-4.5)
Recurrent or refractory angina		348	7.5 (6.7-8.2)
Mortality		75	1.6 (1.3-2)
Discharge treatment plan	Aspirin	4307	59.8 (58.4-61.2)
	Clopidogrel	2746	85.2 (84.1-86.2)
	Statins	3912	82.5 (81.3-83.5)
	Beta blockers	3784	5.5 (4.9-6.2)

CK: Creatine kinase. CA: Coronary angiography. PCI: Percutaneous coronary intervention. CABGS: Coronary artery bypass graft surgery.

**Table 4.** Clinical characteristics and treatments used in patients with non ST-segment elevation acute coronary syndrome

Age (mean ± SD)		70.8 ± 13.5	
		n	% (95% CI)
Signs and symptoms at admission	Progressive CHF	2487	72.5 (71-74)
	Hypertensive APE	521	15.2 (14-16.4)
	Ischemic APE	79	2.3 (1.8-2.9)
	Cardiogenic shock	96	2.8 (2.3-3.4)
	Stable	141	4.1 (3.5-4.8)
	Other	106	3.1 (2.6-3.7)
Cause of decompensation	Progression of disease	1005	29.3 (2.8-3.1)
	Dietary transgression	508	14.8 (13.7-16)
	Infection	408	11.9 (10.8-13)
	Arrhythmia	350	10.2 (9.2-11.3)
	Drug discontinuation	264	7.7 (6.8-8.6)
	Other	895	26.1 (25-27.9)
Infusion of inotropic agents		679	19.8 (18.5-21.2)
Continuous infusion of diuretics		827	24.1 (22.7-25.6)
NIV		110	3.2 (2.7-3.8)
MV		233	6.8 (6-7.7)
Swan-Ganz catheter		137	4 (3.4-4.7)
Mortality		192	5.6 (4.9-6.4)

CHF: Chronic heart failure. APE: Acute pulmonary edema. NIV: Noninvasive ventilation. MV: Mechanical ventilation.

**Table 5.** Clinical features and treatments used in patients with heart failure



times have higher quality, free text items such as the summary of the patient's progress are less likely to be omitted in electronic summaries (11) and hence, the volume of information for subsequent analysis is greater. (12, 13) Possible causes for deficiencies in creating discharge summaries include: insufficient training; insufficient education and awareness of physicians regarding the importance of accurate, complete discharge summaries; inadequate user interaction design, and insufficient integration into routine work processes. All these factors suggest that not enough care is taken when physicians create discharge summaries, which is independent of the type of method used (handwritten or electronic). (11)

Using an electronic system will allow more efficient completion of discharge summaries, and improve their quality and timelines of delivery (12) to the family physician. Electronic discharge summaries provide information to primary care physicians about complications and adverse events not detected by other methods, helping in the use of corrective measures which prevent subsequent adverse events. (13, 14)

The possibility of sharing the collaborative network information creates a large volume of data to generate clinical research projects. The goal of clinical research networks is to promote and rapidly expand high-quality studies to answer multiple investigation questions. Therefore, specific data is necessary for clinical care and clinical research requirements. Common and widespread terminology should be developed to define clinical data; thus, network infrastructure and maintenance is needed for data collection in order to improve long-term efficiency. (15)

#### Study limitations

The participating institutions had to fulfill minimal requirements of hardware and software to be incorporated; however, a few institutions could not take part in the registry due to lack of resources.

It is possible that patients who died during hospitalization may have been under-reported. As the software was designed to generate a discharge summary (with its subsequent inclusion in the registry),

data from patients who died during hospital stay may not have been included in the registry. In these cases, under-reporting might be due to the fact that death summaries depend more on administrative function than on medical practice. Another limitation is that registries were not audited to establish the magnitude of under-reporting and evaluate their quality. A preliminary evaluation of three participating institutions determined that 93% of patients discharged had their corresponding discharge summaries.

The sections corresponding to specific conditions were not complete. When this information was compared with the discharge diagnosis, between 5% and 40% of the corresponding sections were incomplete. Some of this difference might be explained by the fact that certain specific forms (as those corresponding to heart failure and cardiovascular surgery) were incorporated later in the development of the project and were not available when the registry started.

#### CONCLUSIONS

The Epi-Cardio Registry has consolidated after six years of evolution and development and has included more than 54000 patients. The registry has enabled the compilation of epidemiological data from patients hospitalized in cardiovascular care units, diagnostic and therapeutic procedures, and the outcome of the most relevant conditions in the "real world" hospital stay. An electronic registry designed to be part of routine care and administrative activity, which can be used to more easily create hospital discharge summaries, has gained increasing acceptance in Argentina. This tool has provided the institutions with the possibility of obtaining their own detailed statistics of the activity and, in turn, has contributed to generate a multicenter and consecutive database of medical practice in acute cardiovascular diseases.

Epi-Cardio is a powerful national epidemiological tool. This free software is easy to complete and useful for the institutions, physicians and patients.

#### Conflicts of interest

None declared

**Table 6.** Clinical characteristics and treatments used in patients undergoing cardiovascular surgery

	n	% (95% CI)
CABGS	1302	58.6 (56.5-60.3)
Type of surgery		
Heart valve surgery	533	24 (22.3-25.8)
Combined surgery	200	9 (7.9-10.3)
Other	187	8.4 (7.3-9.6)
General mortality	109	4.9 (4.1-5.9)
CABGS-related mortality	48	3.7 (2.8-4.8)
Heart valve surgery-related mortality	43	8.1 (6-10.7)
Combined surgery-related mortality	26	13 (9-18.4)

CABGS: Coronary Artery Bypass Graft Surgery

Institution	City	Province	Investigator
CEMIC	C. A. de Buenos Aires	C.A.B.A.	Dr. Javier Guetta
Clínica 25 de Mayo	Mar del Plata	Buenos Aires	Dr. Jorge Tévez
Clínica Bazterrica	C. A. de Buenos Aires	C.A.B.A.	Dr. Adrián Charask
Clínica Colón	Mar del Plata	Buenos Aires	Dr. Miguel García
Clínica Constituyentes	Morón	Buenos Aires	Dr. Daniel Nul
Clínica de Nefrología y Cirugía Cardiovascular	Santa Fe	Santa Fe	Dr. Guillermo Heredia
Clínica del Sol	C. A. de Buenos Aires	C.A.B.A.	Dr. Juan Gagliardi
Clínica Independencia	Vicente López	Buenos Aires	Dr. Horacio Pomés Iparraguirre
Clínica Santa Isabel	C. A. de Buenos Aires	C.A.B.A.	Dr. Yanina Costa
HIGA Dr. Luis Güemes	Haedo	Buenos Aires	Dr. Silvia Ferreira
HIGA San Martín de La Plata	La Plata	Buenos Aires	Dr. Juan Pablo Ricart
Hospital Álvarez	C. A. de Buenos Aires	C.A.B.A.	Dr. Karina Palacios
Hospital Berazategui	Berazategui	Buenos Aires	Dr. Néstor Gorini
Hospital Horacio Cestino	Ensenada	Buenos Aires	Dr. Adrián Lamarque
Hospital Cosme Argerich	C. A. de Buenos Aires	C.A.B.A.	Dr. Alfredo Piombo
Hospital Español de Buenos Aires	C. A. de Buenos Aires	C.A.B.A.	Dr. Liliana Nicolosi
Hospital Español de La Plata	La Plata	Buenos Aires	Dr. Daniel de Sagastizábal
Hospital Fernández	C. A. de Buenos Aires	C.A.B.A.	Dr. Patricia Gitelman
Hospital Lucio Molas	Santa Rosa	La Pampa	Dr. Mario Kohan
Hospital Masvernat	Concordia	Entre Ríos	Dr. Carlos Pedroza
Hospital Regional de Río Grande	Río Grande	Tierra del Fuego	Dr. Raúl Maltéz
Hospital Santojanni	C. A. de Buenos Aires	C.A.B.A.	Dr. José Suárez
INCOR	La Rioja	La Rioja	Dr. Pablo Santander
Instituto Alexander Fleming	C. A. de Buenos Aires	C.A.B.A.	Dr. Daniel Santos
Instituto Cardiovascular de San Luis	San Luis	San Luis	Dr. Juan Albisu
ITEC	S. M. de Tucumán	Tucumán	Dr. Esteban Ávila
Sanatorio Belgrano	Mar del Plata	Buenos Aires	Dr. Héctor Moreno
Sanatorio Boratti	Posadas	Misiones	Dr. Mariela Fontana
Sanatorio de la Mujer	Rosario	Santa Fe	Dr. Pablo Milanesio
Sanatorio de la Providencia	C. A. de Buenos Aires	C.A.B.A.	Dr. Esteban Carfagna
Sanatorio El Carmen - Cordis	Salta	Salta	Dr. Edmundo Falú
Sanatorio Franchín	C. A. de Buenos Aires	C.A.B.A.	Dr. Rafael DiZeo
Sanatorio Garat	Concordia	Entre Ríos	Dr. Ezequiel Forte
Sanatorio Mitre	C. A. de Buenos Aires	C.A.B.A.	Dr. Carlos Pellegrini
Sanatorio Julio Méndez	C. A. de Buenos Aires	C.A.B.A.	Dr. Eda Abad Monetti
Sanatorio Otamendi	C. A. de Buenos Aires	C.A.B.A.	Dr. Carlos Rodríguez Pagani
Sanatorio San Carlos	Bariloche	Río Negro	Dr. Mariano Trevisán
Sanatorio Las Lomas	C. A. de Buenos Aires	C.A.B.A.	Dr. Raúl Etchepare
Hospital Vélez Sarsfield	C. A. de Buenos Aires	C.A.B.A.	Dr. Lucas Corradi
Sanatorio Güemes	C. A. de Buenos Aires	C.A.B.A.	Dr. Ricardo Villarreal
Policlínico Rafaela	Rafaela	Santa Fe	Dr. Eduardo Marzioni
Sanatorio Dupuytren	C. A. de Buenos Aires	C.A.B.A.	Dr. Paula Pérez Terns
Sanatorio Anchorena	C. A. de Buenos Aires	C.A.B.A.	Dr. Miguel González
Hospital Penna de Bahía Blanca	Bahía Blanca	Buenos Aires	Dr. Gustavo Carrasco
Hospital Dr. Felipe Glasman	Bahía Blanca	Buenos Aires	Dr. Fernando Sierra
Fundación Médica de Río Negro	Río Negro	Río Negro	Dr. Iván Martin
HIGA Eva Perón de San Martín	C. A. de Buenos Aires	C.A.B.A.	Dr. Diego Mantilla

(Continue)

(Continuation)

Institution	City	Province	Investigator
Milstein	C. A. de Buenos Aires	C.A.B.A.	Dr. Rafael DiZeo
Hospital Castro Rendon	Neuquén	Neuquén	Dr. Mariana Gutiérrez
Hospital Escuela de Corrientes	Corrientes	Corrientes	Dr. Julio Ibáñez
Hospital El Cruce	Florencio Varela	Buenos Aires	Dr. Gabriel González Villamonte
Hospital de Clínicas	C. A. de Buenos Aires	C.A.B.A.	Dr. Federico Cintora
Instituto Médico Central	Ituzaingó	Buenos Aires	Dr. Mariano Ferrer
Centro Gallego	C. A. de Buenos Aires	C.A.B.A.	Dr. Patricia Surc

## RESUMEN

### Motivos de ingreso, procedimientos, evolución y terapéuticas al alta de 54.000 pacientes ingresados a unidades de cuidados intensivos cardiovasculares en la Argentina. Seis años del Registro Epi-Cardio

#### Introducción

Epi-Cardio es un registro multicéntrico de las epicrisis de unidades de cuidados cardiovasculares en la Argentina, orientado a la evaluación epidemiológica clínica.

#### Objetivo

Caracterizar los motivos de admisión, usos terapéuticos, procedimientos y evolución mediante la utilización de la epicrisis de Unidad Coronaria Epi-Cardio.

#### Material y métodos

Ingresaron al registro 54.055 pacientes en 54 unidades de cuidados intensivos cardiovasculares que utilizan como herramienta asistencial el programa Epi-Cardio para redactar las altas y generar un registro riguroso de la actividad.

#### Resultados

La edad promedio de los pacientes fue de 64,9 años, el 63,9% de sexo masculino. Los motivos de admisión más frecuentes fueron síndromes coronarios agudos 24,9%, insuficiencia cardíaca 11,7% y procedimientos programados de hemodinamia 10,5%. La mortalidad general fue del 2,62% (1.417 pacientes).

Entre los pacientes con síndrome coronario agudo sin elevación del segmento ST se realizó cinecoronariografía en el 51,8% y angioplastia en el 26,3%; se indicaron al alta aspirina en el 93,8%, betabloqueantes en el 82,5%, estatinas en el 85,2% y clopidogrel en el 59,8%. La mortalidad fue del 1,61%.

Entre los pacientes con síndrome coronario agudo con ST elevado se indicó reperfusión en el 64,7% y recibieron al alta aspirina el 98,4%, betabloqueantes el 86,9%, estatinas el 93,2% y enalapril el 69,6%. La mortalidad fue del 5,4%.

#### Conclusiones

Epi-Cardio ha generado el registro prospectivo permanente más grande de América Latina, con la inclusión consecutiva de más de 50.000 pacientes. Ha permitido describir la evolución actual de múltiples patologías durante la etapa hospitalaria y las prácticas clínicas aplicadas en una red amplia. Con una herramienta simple, una epicrisis integrada a la práctica asistencial-administrativa, el registro debe considerarse una estrategia valiosa para evaluar y mejorar la práctica clínica en la unidad coronaria.

**Palabras clave** > Registros médicos - Epidemiología - Estadística

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