

## Special article

## The RECALCAR Project. Healthcare in the Cardiology Units of the Spanish National Health System, 2011 to 2014



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## ABSTRACT

The RECALCAR project (Spanish acronym for Resources and Quality in Cardiology Units) uses 2 data sources: a survey of cardiology units and an analysis of the Minimum Basic Data set of all hospital discharges of the Spanish National Health System. From 2011 to 2014, there was marked stability in all indicators of the availability, utilization, and productivity of cardiology units. There was significant variability between units and between the health services of the autonomous communities. There was poor implementation of process management (only 14% of the units) and scarce development of health care networks (17%). Structured cardiology units tended to have better results, in terms of both quality and efficiency. No significant differences were found between the different types of unit in the mean length of stay ( $5.5 \pm 1.1$  days) or the ratio between successive and first consultations (2:1). The mean discharge rate was 5/1000 inhabitants/y and the mean rate of initial consultations was  $16 \pm 4/1000$  inhabitants/y. No duty or on-call cardiologist was available in 30% of cardiology units with 24 or more beds; of these, no critical care beds were available in 45%. Our findings support the recommendation to regionalize cardiology care and to promote the development of cardiology unit networks.

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### Proyecto RECALCAR. La atención al paciente en las unidades de cardiología del Sistema Nacional de Salud, 2011-2014

## RESUMEN

El proyecto RECALCAR (Recursos y Calidad en Cardiología) realiza una encuesta de las unidades de cardiología y analiza el Conjunto Mínimo Básico de Datos del Sistema Nacional de Salud. Se ha encontrado una notable estabilidad (2011-2014) en todos los indicadores generales, así como una importante variabilidad entre unidades de cardiología y servicios de salud de las comunidades autónomas. La implantación de la gestión por procesos y de redes asistenciales es baja (el 14 y el 17% de las unidades). Las unidades con servicios de cardiología estructurados tienden a tener mejores indicadores de eficiencia y resultados. No se han encontrado diferencias significativas en relación con la estancia media ( $5,5 \pm 1,1$  días) o la razón consultas sucesivas/primeras (2:1) entre los diferentes tipos de unidades. La frecuentación promedio de las unidades es de 5/1.000 habitantes/año y la tasa media de consultas primeras,  $16 \pm 4/1.000$  habitantes/año. No existe guardia de presencia física de cardiología en el 30% de las unidades con 24 o más camas y el 45% de estas no tienen asignadas camas de cuidados críticos. Los hallazgos en la línea de investigación en resultados avalan las recomendaciones de regionalizar los servicios de cardiología y desarrollar redes asistenciales del área del corazón.

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## Palabras clave:

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## Abbreviations

CMS: Centers for Medicare y Medicaid Services  
 CU: cardiology units  
 CVD: cardiovascular diseases  
 MBDS: Minimum Basic Data Set  
 MHSSE: Ministry of Health, Social Services, and Equality  
 NHS: National Health Service  
 RECALCAR: resources and quality in cardiology  
 SEC: Spanish Society of Cardiology

## INTRODUCTION

In developed Western countries, there is a marked trend toward medical professionalism and self-regulation.<sup>1–3</sup> The SEC (Spanish acronym for the Spanish Society of Cardiology) has conducted several studies on cardiovascular disease health care,<sup>4,5</sup> and, in collaboration with the Ministry of Health, Social Services, and Equality (MHSSE) has published the standards and recommendations document for cardiovascular care units.<sup>6</sup> In line with this collaborative effort, the SEC Strategic Plan 2011–2016 included the aim of “Developing a policy of collaboration with Public Administration to promote continuous improvement in the quality of cardiovascular disease health care”. The INCARDIO position paper was published in 2015, with the aim of defining quality markers in cardiology.<sup>7,8</sup> Currently, the SEC is conducting the SEC-Quality project<sup>9</sup> as an institutional strategic plan that encompasses several subprojects for continuous improvement in the quality of cardiovascular disease health care. One of these subprojects is the “sources and Quality in Cardiology” RECALCAR) project, which uses 2 data sources: *a*) the resources, activity, and quality of cardiology units (CU) survey, which comprises the registry of CUs accredited by the MHSSE as of interest to the Spanish National Health Service (NHS); and *b*) an analysis of the Minimum Basic Data Set (MBDS) database of the NHS.

It is increasingly clear that the organizational and administrative aspects of health care are relevant to the quality of health care, patient safety, and efficiency.<sup>10,11</sup> Continuous improvement in any organization, including health services, is based on the systematic recording and careful interpretation of the data obtained.<sup>12–14</sup> It should be mandatory to record the most relevant aspects of health care activity in order to provide a sound basis for improvements. These aspects form the basis of the RECALCAR project.

Health care policy decision-making should be based on evidence-based clinical, organizational, and administrative criteria. However, there is a striking lack of evidence-based scientific data on the actual operation of health services. Recognition of the need to provide evidence for health policy decision-making has led many developed countries to make a significant investment in comparative effectiveness research.<sup>15</sup> Although this is a very challenging situation, there is growing interest in health services outcomes research, especially in the area of health service provision.<sup>16–18</sup> Outcomes research is also used to compare health services<sup>19</sup> and performance between countries.<sup>20</sup> Mortality and readmission are the most widely used outcomes measures, which use risk adjustment methods to ensure that services are comparable. Centers for Medicare and Medicaid Services (CMS) use administrative database outcomes measures to guide center funding and provide patients with the information they need to take informed decisions.<sup>21</sup> RECALCAR uses analysis of data from administrative data sources, such as

the MBDS, and from the association between structure and process (survey) data and outcomes (MBDS) as an outcomes research method in cardiac health care and as a very useful instrument to propose evidence-based policies.

This article summarizes the RECALCAR project and describes its most important findings in relation to NHS cardiac health care outcomes.

## DESCRIPTION OF THE RECALCAR REGISTRY

The RECALCAR registry is based on a survey of NHS CUs (2011 to 2014). The registry included CUs with more than 100 beds in general acute care hospitals. Therefore, hospitals not included in groups 1 to 5 of the MHSSE classification were excluded. Data were collected using an ad hoc questionnaire. Missing information was obtained from the records of the Spanish Cardiac Catheterization and Coronary Intervention Registry<sup>22</sup> and the Spanish Ablation Catheter Registry.<sup>23</sup>

### Types of Units

Based on experience gained from the registry, CUs are classified into 5 groups (Table 1). Type 1 CUs (without a structured cardiology unit) remain within the scope of the registry by providing valuable information on cardiology-related activity in hospitals serving small populations (clusters 1 and 2 of the MHSSE).

Because the RECALCAR survey did not classify all the CUs, MBDS data were used to develop a classification of all hospitals (Table 2).

### The MBDS\_CAR Database

The MHSSE provides the SEC with the MBDS database (MBDS\_CAR) for the RECALCAR project. The MBDS\_CAR comprises hospital discharges coded according to the IDC-9-CM (International Classification of Diseases, Ninth Revision, Clinical Modification) in NHS hospitals with a principal diagnosis of “cardiovascular disease” (CVD).<sup>6</sup> In the absence of this diagnosis, it includes in the process fields coronary interventionists or, in the absence of a principal diagnosis or interventional procedures related to the 2 preceding points, discharges by a cardiology or cardiac surgery unit. The MBDS\_CAR comprises approximately 400 000 hospital discharges per year of which approximately 350 000 have a principal diagnosis of CVD. Between 2007 and 2014, the MBDS\_CAR provided data on 3 183 370 hospital discharges.

**Table 1**  
Classification of Units by Type (RECALCAR Survey)

Typology	Characteristics
1	Units without hospital beds assigned to cardiology
2	Units with hospital beds specifically assigned to cardiology, without a cardiac catheterization laboratory
3	Units with hospital beds assigned to cardiology, with a cardiac catheterization laboratory, without an in-hospital cardiovascular surgery unit
4	Units with hospital beds assigned to cardiology, with an in-hospital cardiac catheterization laboratory and cardiovascular surgery unit
5	Units without beds assigned to cardiology with cardiac catheterization activity and/or cardiovascular surgery

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