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| **Supplementary Table 1** ICD-9 codes used to identify hospitalizations. | | |
| Description | Code | Designation |
| Heart failure | 402.01 | Malignant hypertensive heart disease with HF |
| 402.11 | Benign hypertensive heart disease with HF |
| 402.91 | Unspecified hypertensive heart disease with HF |
| 404.01 | Malignant hypertensive heart disease with HF and chronic kidney disease stage I through stage IV, or unspecified |
| 404.03 | Malignant hypertensive heart disease with HF and chronic kidney disease stage V or end stage renal disease |
| 404.11 | Benign hypertensive heart disease with HF and chronic kidney disease stage I through stage IV, or unspecified |
| 404.13 | Benign hypertensive heart disease with HF and chronic kidney disease stage V or end stage renal disease |
| 404.91 | Unspecified hypertensive heart disease with HF and chronic kidney disease stage I through stage IV, or unspecified |
| 404.93 | Unspecified hypertensive heart disease with HF and chronic kidney disease stage V or end stage renal disease |
| 428.xx | HF |
| Diseases of the circulatory system | 390-459 | Diseases of the circulatory system |
| Cardiac replacement procedures | 37.51 | Heart transplantation |
| 37.52 | Implantation of total internal cardiac biventricular system |
| 37.53 | Replacement or repair of thoracic unit of total replacement system |
| 37.54 | Replacement or repair of other components of total replacement system |
| 37.55 | Removal of total internal cardiac biventricular system |
| Implantation of cardiac and circulatory assist systems | 37.60 | Implantation or placement of external cardiac biventricular assist system |
| 37.61 | Implantation of intra-aortic balloon pump |
| 37.62 | Placement of non-implantable extracorporeal circulatory assist device |
| 37.63 | Repair of heart assist system |
| 37.64 | Removal of external heart assist system or device |
| 37.65 | Implantation of external cardiac single ventricular assist system |
| 37.66 | Placement of implantable heart assist system |
| 37.67 | Implantation of cardiomyostimulation system |
| 37.68 | Placement of implantable extrinsic heart assist system |
| Other cardiovascular procedures | 00.50 | Implantation of total CRT-P system |
| 00.51 | Implantation of total CRT-D system |
| 00.52 | Implantation or replacement of lead |
| 00.53 | Implantation or replacement of CRT-P generator |
| 00.54 | Implantation or replacement of CRT-D generator |
| 00.56 | Placement or replacement of implantable pressure sensor for intracardiac hemodynamic monitoring |
| CRT-D: cardiac resynchronization therapy defibrillator; CRT-P: cardiac resynchronization therapy pacemaker; HF: heart failure; ICD-9: International Classification of Diseases, Ninth Revision, Clinical Modification. | | |

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| **Supplementary Table 2** Estimated costs of heart failure for long-term care teams and the National Network of Long-term Care. | | | |
| Estimated costs of follow-up by long-term care teams (home) | | | |
| Identifier | Variable | Value | Source |
| 1A | LVT RHA proportion of costs on long-term care teams | 30.19% | Annual report on access to health care in NHS facilities and associated entities (2015) |
| 2A | Number of episodes in LVT with a primary diagnosis of heart failure | 54 | LVT RHA (2013), ACSS, 2015\* |
| 3A | Mean length of follow-up | 57.55 days | LVT RHA (2013), ACSS, 2015\* |
| 4A | Unit price | €9.98 | Authors’ estimate based on a convenience sample with microdata from the LVT RHA on the activity of long-term care teams |
| 5A=1A/2A×3A×4A | Total cost of patients in long-term care | €102,747 | Authors’ estimate |
| Estimated costs of follow-up by the National Network of Long-term Care (hospital/residential) | | | |
| Identifier | Variable | Value | Source |
| 1B | Total number of patients in long-term hospital or residential care | 7,160 | Report “Monitoring of the National Network of Long-term Care” (ACSS, 2015) |
| 2B | Proportion of HF patients under long-term care (assumed to be the same in RNCCI facilities) | 3.2% | LVT RHA (2013), ACSS, 20155 |
| 3B | Mean length of follow-up | 82.8 days | Mean follow-up weighted according to distribution by referral for cardiovascular disease by type of hospitalization based on data from the report “Monitoring of the National Network of Long-term Care” (RNCCI 2014, p. 23). ACSS: Department of Health Services and Resources Network Management, Operational Unit of the RNCCI, March 2015. |
| 4B | Unit price | €87.56 | Weighted mean for units: convalescence (€105.46), palliative care (€105.46), intermediate stay and rehabilitation (€87.56) and long-term and maintenance (€60.19); Implementing Order no. 262/20152. Weighted according to distribution by referral for cardiovascular disease by type of hospitalization, based on data from the report “Monitoring of the National Network of Long-term Care” (RNCCI 2014, p. 23). ACSS: Department of Health Services and Resources Network Management, Operational Unit of the RNCCI, March 2015. |
| 5B=1B×2B×3B×4B | Total cost of patients hospitalized in long-term care units of the national network | €1684039 | Authors’ estimate |
| a LVT RHA (2013), ACSS, 2015. These data were used in the study “Carga e custo da fibrilhação auricular em Portugal” by the authors of the present study.  ACSS: Central Administration of the National Health System; LVT RHA: Lisbon and Tagus Valley Regional Health Authority; NHS: National Health System; RNCCI: National Network of Long-term Care. | | | |

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| **Supplementary Table 3** Estimated unit costs of travel. | | | | |
| Means of transport | Proportion | | Price | |
| Non-urgent transport | Urgent transport | Unit price (€) | Source |
| Public transport | 46.5%a | 0.0% | 1.31 | Mean price of single ticket in Coimbra, Lisbon and Porto. |
| Car | 53.5% | 62.5% | 3.60 | The cost per km by own transport was based on the price per km (€0.36) defined by Law no. 66-B/2012, which established the rules governing the reimbursement of expenses when traveling on government business. According to a study of access to primary health care by the Health Regulatory Body, almost all of mainland Portugal is within 30 minutes of a medical center. The population resident in areas not covered represent less than 0.1% of the mainland population (Health Regulatory Body, 2009). It was assumed that 30 minutes would represent a mean distance of 10 km. |
| On foot | 0% | 0% | 0 | Assumption |
| Ambulance | 0% | 37.%a | 35.00 | Analytical accounting, INEM 2012 |
| Mean cost | €5.07 | €30.79 | - | Estimated (return journey) |
| a Mean estimated by an expert panel of seven primary health care physicians.  INEM: Statistics Portugal. | | | | |

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| **Supplementary Table 4** Employment rates and mean daily cost of productivity losses due to heart failure in mainland Portugal in 2014. | | | |
| Employment rate (age 25-64 years) | | | |
|  | Men | Women | Assumptions |
| NYHA II | 73.5% | 64.5% | Assumed to be the same as for the general population24 |
| NYHA III | 39.2% | 16.2% | Assumed to be the same as for patients with MI21 |
| Mean daily cost per worker (age 25-64 years) | | | |
|  | Men | Women | Assumptions |
| Absenteeism due to consultations, complementary diagnostic and therapeutic procedures, and ED visitsa | €93.87 | €73.64 | 50% of ED visits are estimated to occur during working hours |
| Absenteeism due to hospitalizations and convalescence | €59.11 | €46.37 | Convalescence assumed to be the same duration as hospitalization12 |
| Unemployed | €59.11 | €46.37 | Only patients in NYHA class III aged <65. Employment of HF patients is assumed to be the same as for patients with previous MI.21 The unemployment rate is estimated on the basis of the difference between employment rates of the population with and without MI (with the same distribution by gender and age group21) |
| a In the case of absenteeism related to hospitalizations and convalescence, consultations or ED visits, the average annual salary is divided by 365 given that these events may occur on any day of the week. Other estimates were based on 230 working days a year.  ED: emergency department; HF: heart failure; MI: myocardial infarction; NYHA: New York Heart Association functional class.  Source: estimated by the authors on the basis of the 2014 National Health Survey21 and on the Statistical Bulletin of August 2015 published by the Strategy and Planning Office of the Ministry of Labor, Solidarity and Social Security.23 | | | |

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| **Supplementary Table 5** Distribution of heart failure prevalence rates by gender and age group in mainland Portugal in 2014. | | | | | | |
| Age group, years | Men | | Women | | Total | |
| n | Rate | n | Rate | n | Rate |
| 25-49 | 29254 | 1.8% | 16889 | 1.0% | 46143 | 1.4% |
| 50-59 | 14473 | 2.2% | 25954 | 3.6% | 40427 | 2.9% |
| 60-69 | 44522 | 8.1% | 45945 | 7.2% | 90468 | 7.6% |
| 70-79 | 55008 | 14.3% | 58118 | 11.5% | 113126 | 12.7% |
| ≥80 | 29552 | 14.4% | 63328 | 17.0% | 92880 | 16.1% |
| Total (age ≥25 years) | 172809 | 5.0% | 210235 | 5.3% | 383043 | 5.2% |
| Source: Authors’ estimates based on microdata from the EPICA study11 and the resident population in 2014.24 | | | | | | |

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| **Supplementary Table 6** Distribution of heart failure prevalence by age group and New York Heart Association functional class in mainland Portugal in 2014. | | | | |
|  | NYHA classa | | | |
| Age group, years | I | II | III | IV |
| 25-49 | 38.3% | 35.1% | 26.5% | 0.0% |
| 50-59 | 38.3% | 35.1% | 26.5% | 0.0% |
| 60-69 | 50.0% | 28.5% | 17.8% | 3.8% |
| 70-79 | 35.4% | 29.4% | 25.8% | 9.5% |
| ≥80 | 21.6% | 36.9% | 31.5% | 9.9% |
| Total | 36.1% | 32.3% | 25.5% | 6.1% |
| a Since no significant differences were found in the gender distribution of NYHA class, and given the low number of observations in some demographic categories, it was decided to analyze individuals of both sexes together by age group. Cases with no NYHA class originally attributed in the microdata of the EPICA study were redistributed in such a way as to maintain the same proportion between classes.  NYHA: New York Heart Association.  Source: Authors’ estimate based on microdata from the EPICA study.12 | | | | |

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| **Supplementary Table 7** Indirect costs arising from absenteeism due to consultations, complementary diagnostic and therapeutic procedures, ED visits without admission, and hospitalizations and convalescence. | | | |
| Age group, years | Costs due to absenteeism (€) | | |
| Men | Women | Total |
| 25-44 | 2627264 | 597277 | 3224541 |
| 45-65 | 9352846 | 4550780 | 13903626 |
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| **Supplementary Table 8** Indirect costs arising from inability to work due to heart failure. | | | | |
| Age group, years | Men | | Women | |
| Patients (n) | Total cost (€) | Patients (n) | Total cost (€) |
| 25-44 | 0 | 0 | 0 | 0 |
| 45-65 | 1771 | 38229756 | 3011 | 50989582 |
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