The global burden of heart failure

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Declaration of Interests

• Received research funding and consultancy/speaking fees from ResMed, Servier, St Jude Medical, Medtronic, Boston Scientific, Novartis, Pfizer, Alere, Roche Diagnostics, Bayer
Heart failure, a worldwide burden

26 million

Number of heart failure patients worldwide.¹

1-2%

Health care expenditure attributed to heart failure in Europe and North America.²

74%

Heart failure patients suffering from at least 1 comorbidity: more likely to worsen the patient’s overall health status.³

Prevalence of HF

North America
- Canada: 1.5%
- USA: 1.9%

Europe
- ~1–2%
- France: 2.2%
- UK: 1.3%

Asia
- China: 1.3%
- Japan: ~1%
- Malaysia: 6.7%
- Singapore: 4.5%

Middle East
- Oman: 0.5%

Australasia
- Australia: 1.3%
The cost of heart failure is driven by hospitalisation

Total cost > GBP 980 million (1% of annual NHS budget)

British Heart Foundation, 2002 (updated to 2014)
Number and proportion of HF hospitalisations

Europe (22 countries)
- France (2010): 1.46% (159,143)
- Germany (2011): 1.54% (306,250)
- Poland (2010): 3.73% (229,328)
- UK (2011): 0.88% (73,790)
- Other 18 countries surveyed: 626,185

North America
- Canada (2011)*: 1.76% (49,629)
- USA (2010): 3.04% (1,179,151)

Latin America
- Brazil (2013): 2.11% (235,692)
- Chile (2010): 1.70% (27,607)
- Mexico (2011): 1.64% (90,695)

Asia
- Japan (2011): 1.24% (174,957)
- Korea (2011): 0.78% (57,147)
- Singapore (2011): No data

Australasia
- Australia (2012)*: 1.38% (53,035)
- New Zealand (2011): 1.53% (9,876)

Africa
- South Africa (2006): 0.65% (No data)

Middle East
- Israel (2010): 1.31% (19,707)
Heart failure accounts for 1–3% of all US and European hospital admissions

- USA (2007) 2.9% LOS 5.3d
- Sweden (2011) 2.2% LOS 6.4d
- Norway (2008) 1.1%
- Netherlands (2010) 1.5%
- Poland (2010) 1.9% LOS 8d
- Germany (2007) 2.0%
- England (2011–12) 0.4% LOS 7d
- France (2008) 1.1% LOS 9.9d
- Switzerland (2011) 1.1%
- Spain (2011) 1.8% LOS 7.5d
- Austria (2010) 1.0% LOS 7.3d
Length of stay for AHF

<table>
<thead>
<tr>
<th>Study</th>
<th>Average Length of Stay (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare³⁸ (USA)</td>
<td>5</td>
</tr>
<tr>
<td>ADHERE³⁹ (USA)</td>
<td>6</td>
</tr>
<tr>
<td>OPTIMIZE-HF⁴⁰ (USA)</td>
<td>7</td>
</tr>
<tr>
<td>Worcester HF⁹ (USA)</td>
<td>8</td>
</tr>
<tr>
<td>Medicare⁷ (USA)</td>
<td>9</td>
</tr>
<tr>
<td>NDCHealth⁴¹ (USA)</td>
<td>9</td>
</tr>
<tr>
<td>FINN-AKVA⁴² (Finland)</td>
<td>12</td>
</tr>
<tr>
<td>ESC-HF Pilot⁸ (Europe)</td>
<td>12</td>
</tr>
<tr>
<td>NICOR³ (England/Wales)</td>
<td>13</td>
</tr>
<tr>
<td>EHFS II⁴³ (Europe)</td>
<td>13</td>
</tr>
<tr>
<td>IN-HF Outcome⁴⁴ (Italy)</td>
<td>14</td>
</tr>
<tr>
<td>EHFS I¹⁰ (Europe)⁹</td>
<td>14</td>
</tr>
<tr>
<td>OFICA²³,⁴⁵ (France)</td>
<td>15</td>
</tr>
</tbody>
</table>
## Trends in HF hospitalisation

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage change in number of hospitalizations</th>
<th>Time period</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>−13.1</td>
<td>2001–02 to 2011–12</td>
<td>HSCIC\textsuperscript{22}</td>
</tr>
<tr>
<td>France\textsuperscript{a}</td>
<td>14.4</td>
<td>2002 to 2008</td>
<td>Pérel \textit{et al.}\textsuperscript{23}</td>
</tr>
<tr>
<td>Germany</td>
<td>39.8</td>
<td>2000 to 2007</td>
<td>Neumann \textit{et al.}\textsuperscript{24}</td>
</tr>
<tr>
<td>Netherlands</td>
<td>21.0</td>
<td>2000 to 2010</td>
<td>Statistics Netherlands\textsuperscript{25}</td>
</tr>
<tr>
<td>Norway</td>
<td>2.4</td>
<td>1999 to 2008</td>
<td>Statistics Norway\textsuperscript{26}</td>
</tr>
<tr>
<td>Spain</td>
<td>22.3</td>
<td>2000 to 2011</td>
<td>Sistema Nacional de Salud\textsuperscript{27}</td>
</tr>
<tr>
<td>Sweden</td>
<td>11.4</td>
<td>2001 to 2011</td>
<td>Socialstyrelsen\textsuperscript{28}</td>
</tr>
<tr>
<td>USA (Medicare)</td>
<td>−19.3</td>
<td>1999–2000 to 2007–08</td>
<td>Chen \textit{et al.}\textsuperscript{33}</td>
</tr>
</tbody>
</table>

Data based on total number of hospital admissions (emergency and planned) for a primary diagnosis of heart failure (except for France\textsuperscript{a}).

\textsuperscript{a}Primary diagnosis, or secondary diagnosis with a primary diagnosis of either hypertensive heart disease or heart and renal disease with heart failure, or pulmonary oedema, or chronic passive congestion of liver.

HSCIC, Health and Social Care Information Centre.
**High hospital readmission rates**

<table>
<thead>
<tr>
<th>Study</th>
<th>Country/region</th>
<th>Rehospitalization rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare$^{49}$</td>
<td>USA</td>
<td>30-day 24.8</td>
</tr>
<tr>
<td>Medicare$^{51}$</td>
<td>USA</td>
<td>30-day 26.9</td>
</tr>
<tr>
<td>VA health care system$^{52}$</td>
<td>USA</td>
<td>30-day 22.5</td>
</tr>
<tr>
<td>ADHERE$^8$</td>
<td>USA</td>
<td>30-day 22.1</td>
</tr>
<tr>
<td>Medicare$^{50}$</td>
<td>USA</td>
<td>30-day 22.7</td>
</tr>
<tr>
<td>Medicare$^{38}$</td>
<td>USA</td>
<td>6–9-month 60</td>
</tr>
<tr>
<td>EHFS I$^{10}$</td>
<td>Europe</td>
<td>12-week 24.2</td>
</tr>
<tr>
<td>ESC-HF Pilot$^4$</td>
<td>Europe</td>
<td>1-year$^a$ 43.9</td>
</tr>
<tr>
<td>EAHFE$^{48}$</td>
<td>Spain</td>
<td>1-year 27.2</td>
</tr>
<tr>
<td>CCU$^{47}$</td>
<td>Italy</td>
<td>6-month 38.1</td>
</tr>
<tr>
<td>IN-HF Outcome$^{46}$</td>
<td>Italy</td>
<td>1-year 30.7</td>
</tr>
</tbody>
</table>
Main challenges: heart failure hospitalization

- Annual hospitalizations in both the United States and Europe: >1 million
- Heart failure hospitalizations as a percentage of total hospital admissions: 1-4%
- Up to 9/10 patients hospitalized due to worsening chronic heart failure as compared with de novo heart failure.
- Average length of hospital stay: 5-10 days
- Almost 1 out of 4 hospitalized patients (24%) are rehospitalized for heart failure within the 30-day post discharge period.
- Nearly 1 out of 2 patients (46%) are rehospitalized for heart failure within the 60-day post discharge period.

Co-morbidity is universal

Figure 4.1  Co-morbidity among Chronic Conditions for Medicare FFS Beneficiaries: 2010

DATA HIGHLIGHTS:
Six percent of beneficiaries with high blood pressure had no other condition present, while 23% had 5 or more additional conditions.
Stoke and heart failure were highly co-morbid conditions with about 55% of beneficiaries with these conditions having 5 or more additional chronic health conditions.

Figure 3.2  Distribution of Medicare FFS Beneficiaries by Number of Chronic Conditions and Total Medicare Spending: 2010

- 0 to 1 Condition: 14%
- 2 to 3 Conditions: 23%
- 4 to 5 Conditions: 32%
- 6+ Conditions: 32%

Percent of Beneficiaries

Figure 2.7  Distribution of Medicare FFS Beneficiaries by Number of Chronic Conditions and Total Medicare Hospital Readmissions: 2010

- 0 to 1 Condition: 14%
- 2 to 3 Conditions: 23%
- 4 to 5 Conditions: 32%
- 6+ Conditions: 70%

Percent of Total Medicare Spending

Figure 2.6a  Percentage of Hospital Admissions with a Readmission within 30 days by Number of Chronic Conditions and Age: 2010

- All FFS Beneficiaries: 32%
- Less than 65 years: 25%
- 65 years and older: 24%

Percent of Beneficiaries

DATA HIGHLIGHTS:

There were 1.9 million Medicare hospital readmissions in 2010. Medicare beneficiaries with two or more chronic conditions accounted for almost all (98%) of these readmissions.

Beneficiaries with 6 or more chronic conditions accounted for a disproportionate share of these readmissions, with the 14% of these beneficiaries accounting for 70% of all Medicare readmissions.
Japan, Ireland and Cyprus face the largest jump in ageing costs over the next decade.

In 2050 one person in three will be over 65 and one person in ten will be over 80.

2012 - 11% of the world’s 6.9bn people are over 60.

2050 - 22% of the world’s 9bn people will be over 60.

Between now and 2050 the fiscal burden of the crisis will be 10% of the ageing-related costs. The other 90% will be extra spending on pensions, health and long-term care.
The runaway train.....
Move towards the Chronic Care Model, with multidisciplinary integrated care, and patients stratified by need, with most complex patients being ‘case managed’
We will have to do things differently...
‘Burden’

● **Patient perspective**
  “I’m not depressed... not really depressed... it’s just a low feeling and it’s not a happy feeling, and you just never feel your life’s worth anything at times.”

● **Caregiver perspectives**
  “At night, when he’s lying in bed and I don’t hear him breathe for a while, it gives me the nerves. Then I start counting. And suddenly I hear him breathing again. Then I think, oh dear, one morning I will wake up and then he’s gone.”

Eight policy recommendations

Improving care and preventing deaths of patients with acute heart failure
Policy-makers urged to act on eight recommendations

- Promote acute heart failure prevention
- Optimize care transitions
- Improve end-of-life care
- Provide equity of care for all patients
- Appoint experts to lead heart failure across disciplines
- Develop and implement better measures of care quality
- Improve patient education and support
- Stimulate research into new therapies

www.oxfordhealthpolicyforum.org/AHFreport
www.escardio.org/communities/HFA/Pages/global-heart-failure-awareness-programme.aspx