Population Stratification in Spanish National Health System

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NHS in Spain

17 Autonomous Communities
2 Autonomous cities
**Competences transferred** to Regional governments
Population size: **46.4 millions**
Population over 65: **19%**

**Major causes of death:**
Cerebrovascular disease
Breast and colon cancer
Ischaemic heart disease
Lung and colon cancer

Infant mortality rate: **2.9 per 1000 live births**

Health expenditure: **9.3% of GNP**
Per capita expenditure: **2,152 €/habitant**
The Strategy for addressing Chronicity in the Spanish NHS (2012)

GUIDING PRINCIPLES

- People at the centre of the healthcare system
- Life cycle perspective and social determinants of health
- All chronic conditions
- Primary care: core of the healthcare system
- Continuity of care
- Patient’s empowerment
IMPLEMENTATION PLAN

- Stratification of the Population
- Chronic Diseases Management
- Pain Management
- Health Promotion and Disease Prevention Strategy
- Network of Health Schools for Citizens
- Best Practices in the NHS
Population Stratification
Adjusted Morbidity Groups (GMA)

38M people stratified
### Adjusted Morbidity Groups (GMA)

#### Determination of the complexity
- visits in primary health care
- hospitalization
- expenditure in pharmacy
- mortality

<table>
<thead>
<tr>
<th>Classification of multimorbidity</th>
<th>Complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active cancer</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Chronic disease in 4 or more systems</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Chronic disease in 2-3 systems</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Chronic disease 1 system</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Acute disease</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Pregnancy and labour</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Healthy population</td>
<td>1</td>
</tr>
</tbody>
</table>
Stratification pyramid based on complexity index

- **High-risk population**: people with an individual complexity value greater than that of the 95th percentile of the population with chronic disease.
- **Moderate-risk population**: people with an individual complexity value between the 80th and 95th percentiles of that of the population with chronic disease.
- **Low-risk population**: people with an individual complexity value lower than that of the 80th percentile of the population with chronic disease.

**Population with no chronic disease**
Population distribution by morbidity group: One example in one region

Fig. 2. Population distribution by morbidity group

<table>
<thead>
<tr>
<th>Morbidity groups</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy population</td>
<td>13.4</td>
</tr>
<tr>
<td>Pregnancy and labour</td>
<td>1.1</td>
</tr>
<tr>
<td>Acute disease</td>
<td>16.1</td>
</tr>
<tr>
<td>Chronic disease in one system</td>
<td>24</td>
</tr>
<tr>
<td>Chronic disease in two or three systems</td>
<td>29.2</td>
</tr>
<tr>
<td>Chronic disease in four or more systems</td>
<td>14.9</td>
</tr>
<tr>
<td>Active cancer</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Source: Ministerio de Sanidad, Servicios Sociales e Igualdad, 2018
Mortality and resource use by risk stratum
One example in one region

<table>
<thead>
<tr>
<th>Population (%)</th>
<th>Mortality rate (x 100)</th>
<th>Visits to primary care (mean)</th>
<th>Emergency admission rate (x 100)</th>
<th>Emergency visit rate (x 100)</th>
<th>Dispensed drugs (mean)</th>
<th>Health care expenditure (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>16.6</td>
<td>22.2</td>
<td>58.1</td>
<td>160.8</td>
<td>13.4</td>
<td>7067€</td>
</tr>
<tr>
<td>15</td>
<td>1.1</td>
<td>12.4</td>
<td>7.5</td>
<td>72.5</td>
<td>8.0</td>
<td>2121€</td>
</tr>
<tr>
<td>30</td>
<td>0.2</td>
<td>7.0</td>
<td>2.9</td>
<td>51.9</td>
<td>3.6</td>
<td>779€</td>
</tr>
<tr>
<td>50</td>
<td>0.1</td>
<td>2.0</td>
<td>0.6</td>
<td>17.3</td>
<td>1.0</td>
<td>164€</td>
</tr>
</tbody>
</table>

Source: Ministerio de Sanidad, Servicios Sociales e Igualdad, 2018
Population distribution by age, sex and risk stratum
One example in one region

Fig. 4. Population distribution by age, sex and risk stratum

Source: Ministerio de Sanidad, Servicios Sociales e Igualdad, 2018
Patient centered Healthcare
Impact and uses

1. Population health management and case finding
2. Proactive case management of high-risk patients in primary care
3. Resources planning
4. Strategic purchasing
5. Health workforce planning
6. Research and decision making in public health
7. Performance assessment

Future challenges

1. Evolve AMGs to a predictive health risk tool
2. Include social data
3. Improve accuracy including other data sources
Conclusions

1. The information provided by risk stratification tools such as the AMG can assist health systems in progressing from disease-centred to patient-centred care.

2. The AMG can be used to estimate current and future risks for mortality, morbidity and various indicators of health service utilization.

3. The AMG are particularly relevant for addressing patients with chronic comorbid conditions.

4. The AMG have proved to be flexible and transferable among regions.