Hospital variation in day surgery –
the role of hospital management

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Day surgery (ambulatory surgery) ....

- The term “day surgery”, or “ambulatory surgery”, refers to the practice of admitting into hospital on the day of surgery, carefully-selected and prepared patients for a planned, non-emergency surgical procedure and their discharge within hours of that surgery (less than 24 hours) (WHO, 2007)
Motivation

• Evidence on the **cost-effectiveness** of day surgery (WHO, 2007)
  
  “hospital costs are from 25 to 68% lower for day surgery than for the same procedures on an inpatient basis”

• Evidence on **well-being gains** for the patients (WHO, 2007)
  
  “a number of studies have reported high levels of patient [...] satisfaction with day surgery”

• Evidence of significant positive effects of day surgery on **technical efficiency** (Martinussen and Midttun, 2004)
Motivation

• There might be a role for financial incentives in determining the proportion of day surgery activity (Lemos, 2012)

• There was a specific public investment in Portugal on day surgery facilities in 2009 (Despacho nº3673/2009, de 29/01)

• There has been an effort to close the gap on the funding allocated to the day and inpatient surgical procedures (Portaria n.º 132/2009 de 30 de Janeiro de 2009)

• There have been several programs implemented aiming at reducing day surgery waiting-lists (Comissão Nacional para o Desenvolvimento da Cirugia de Ambulatório, 2008)
Motivation

• Courtemanche and Plotzke (2011): **profitability** influences, in a positive way, the probability of a surgery being performed at an ambulatory surgery centres compared to a hospital (USA)

• There is evidence of **efficiency gains** associate with **PPP** (Neves, 2015, Oliveira, 2015)
Aim

- To assert the importance of hospital management on day surgery dissemination in the public sector
Hospital management in the NHS

- SPA hospitals: under the direct control of central administration
- EPE hospitals: corporatized hospitals; remain public property but with administrative and financial autonomy
- Public-Private Partnerships (PPP)
  SPA residual and lack of data
Institutional Framework

- National Health Service (NHS):
  - Universal – for all citizens
  - General – all services for all citizens
  - (almost) Free of charge (at the point of service)
- Private and public mix in terms of Funding and Delivery
- Public sector
  - Local health units
  - General Hospitals
  - Hospitals (University Hospitals/Specialized hospitals)
- Patients are subjected to referencing rules
- Financing based of DRGs
  - Contract Programs with the hospitals
  - Portaria n.º 132/2009 de 30 de Janeiro de 2009 (and subsequent)
Day surgery: Portugal vs OECD

• In the last 15 years there has been a huge increase in the number of day cases of some particular surgeries compared to other OECD countries
• Despite the growth observed for the whole country, there are significant differences across hospitals and regions (and types of procedures)
• In some specific cases, there is still potential for extra growth (and savings)
Data

• Monthly data reported by hospitals (public and ppp – public private partnerships) and organized by ACSS/ Ministry of Health.
• Period: 2013-2016
• Data available at:
  http://benchmarking.acss.min-saude.pt/
  https://transparencia.sns.gov.pt/explore/
Day surgery*, per hospital

Source: https://transparencia.sns.gov.pt/explore/

* DS/TotalS
Day surgery*, per hospital

Source: http://benchmarking.acss.min-saude.pt/

* DS/potential DS
The empirical model(s)

- proportion of monthly DS = f(totals, type of hospital, region, ppp)

  - LnTotal: Ln number of total surgeries
  - Type of hospital: General hospital; Specialized hospital; Local health unit
  - Region: Alentejo; Algarve; Centro; Lisbon (and the Tagus Valley); North
  - PPP: Private management: dummy variable that takes value 1 if the hospital is a PPP

- Alternative models included:
  - Alternative measures of % DS: total DS/total potential DS (based on DRG); total DS/total surgeries
  - Alternative hospital classifications
    - Benchmarking: 5 groups based on a cluster analysis of standard cost profiles
  - Alternative time controls
    - Year dummies: 2013-2016
    - Year + month dummies: seasonality

- Models were estimated using fractional logit techniques (Papke and Wooldridge, 1996)
### Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
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<td>.1014</td>
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<td>PPP</td>
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<td>.0976</td>
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<td>LnTotal</td>
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<td>.6614</td>
<td>4.9767</td>
<td>8.4334</td>
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</table>
Determinants of day surgery – the role of hospital management

- Dependent variable: proportion of DS
- N= 1938

<table>
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<tr>
<th>Variable</th>
<th>dy/dx</th>
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<td>.007</td>
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<tr>
<td>ppp</td>
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<td>Specialized H</td>
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<tr>
<td>Centre</td>
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<td>Lisbon</td>
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<td>North</td>
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Final remarks

• The determinants of day surgery
  Generally, the results obtained are in line with those found in the literature
  Important differences across regions and health units
  Increase throughout time
  No clear evidence of seasonality: some signs of a decrease in August and of an increase in the last quarter of the year

• The role of hospital management
  Private management increases the proportion of day surgery
  The dimension of the impact may be sensitive to the grouping of hospitals

• Extensions... more and better data...
  Policy implications
  Role of financial incentives (2009)
  Contracts/Programs and implications for micro/macro management
  Role of technological/capital innovation
Thank you!

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