

Influence of hospital choices of competitive drugs on the pharmaceutical consumption in the community

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French context

- Pharmaceutical expenditures in 2009
 - 36 billion euros
 - 75% reimbursed
- European comparisons
 - Highest quantities
 - Highest cost per capita
 - Low prices
 - Distortion of the market in favour of new drugs

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Two separate compartments

	Ambulatory care setting	Hospital setting
Market	80% Stabilizing	20% Increasing
Drugs available	Any with market authorization (efficacy)	Listed on the formulary (price)
Prices	Fixed (improvement in medical care)	Free determination (competition)
	Decreasing with the age of drug	Increasing with the age of drug
Regulation	Many (i.e. Incentives to generics)	None (apart from exceptions)

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What we observe in hospitals

- Hospital price of drugs << fixed price in ambulatory care
- Free drugs or almost free drugs for on-patent principles of competitive classes
 - i.e. atorvastatin in 2008 (one 40 mg tablet)
 - Mean price in university hospitals = 0.0003 €
 - Fixed price in the community = 1.41 €
- Supposed firms' strategies
 - To sell really cheap to hospitals
 - In order to get their product selected in the hospital formulary
 - To gain market shares in the community on the long-term
 - Through direct or indirect influences

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Review of the literature

- Strategies are widely acknowledged
- BUT
- Rare empiric published data to support this knowledge
- Only 1 quantitative study of good quality
 - Pryce et al. BMJ 1996
 - Focus on 1 product: glyceryl trinitrate buccal tablets
 - To investigate differences in its use between counties
 - GPs' prescription belonging to the same hospital influence's area explained 30% of the variability

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Objective

- To test and quantify the influence of hospital consumption of drugs on the pharmaceutical market in the ambulatory care setting

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Materials and methods

- Quasi-experimental study, year 2008
- 6 competitive drug classes and 25 university hospitals
- Drug consumptions (DDD/1000 inhabitants-day)
 - For the university hospital
 - National survey about hospital drug consumption (DREES)
 - For 2 geographic areas centred on the hospital
 - Reimbursed quantities from 3 main schemes (around 90% of the population)
- Analysis of the relationship hospital-community
 - Linear regression with instrumental variables (double least square estimation)
 - To take into account the community-hospital influence

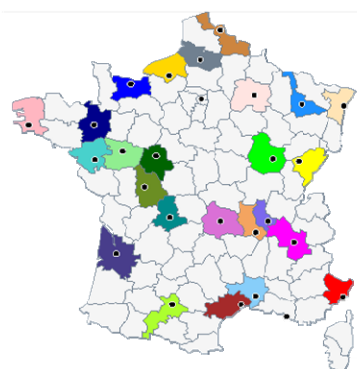
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Competitive classes

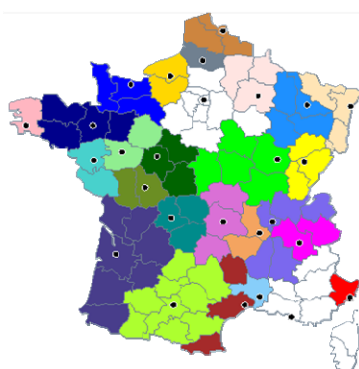
Pharmacological classes	Drug agents	Brands
Proton pump inhibitors (PPI)	5	10
Angiotensin conversion enzyme (ACE) inhibitors	13	27
Angiotensin receptor blockers (ARB)	7	12
Statins (STA)	5	14
Alpha-adrenoreceptor antagonists (AAA)	4	12
Selective serotonin reuptake inhibitors (SSRI)	6	12

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Geographical areas



Départements



Catchment areas

PPRI Conference – Vienna September 2011 10

Results – for the 6 classes

- Hospital – outpatient sector effect
 - 13.6 at the département scale ($p < 10^{-4}$)
 - 21.8 at the catchment's area scale ($p < 10^{-4}$)
- An increase of 1 day of treatment in the university hospital was associated with an increase of 22 days of treatment with the same brand in the catchment area
 - For one patient hospitalized ?
 - For various patients, some non-hospitalized (indirect influences) ?
- Mean duration of stay = 7 days

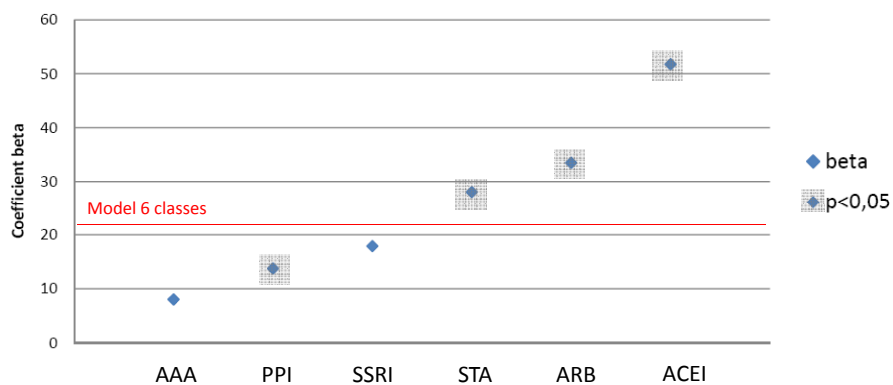


154 days in the community

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Results – according to classes

- Results for the hospital's catchment area
 - Vary from 10 to 50



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Discussion - Conclusion

- **Main limitations & strength**
 - Non exhaustive study , Causality?
 - Influence community-hospital is taken into account
- **Influence hospital - outpatient sector is significant for competitive pharmacological classes**
 - Effect varies across classes
 - Significant spillovers
 - ACE inhibitors class: additional 7 day-stay in the hospital with one brand is associated with one more year with the same brand in the community
- **Extra-cost is to be expected**
 - Selection of the most expensive drugs in the hospitals (Gallini et al. BJCP 2011)

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