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REES France

Modeling Antipsychotic Treatment Patterns Evolution in Schizophrenia

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REES France (Health Economics Evaluation Network)

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Model Objectives

- French guidelines recommend the use of atypical antipsychotics as a first line treatment for new onset schizophrenia*.
- Typical antipsychotics cost less (generic forms available) but have more side effects (extrapyramidal symptoms).
- What is the economical burden of antipsychotic prescription for schizophrenia and how his it supposed to evolve?

* French Federation of Psychiatrics. Consensus conference, 23/24 January 2004.

METHODS

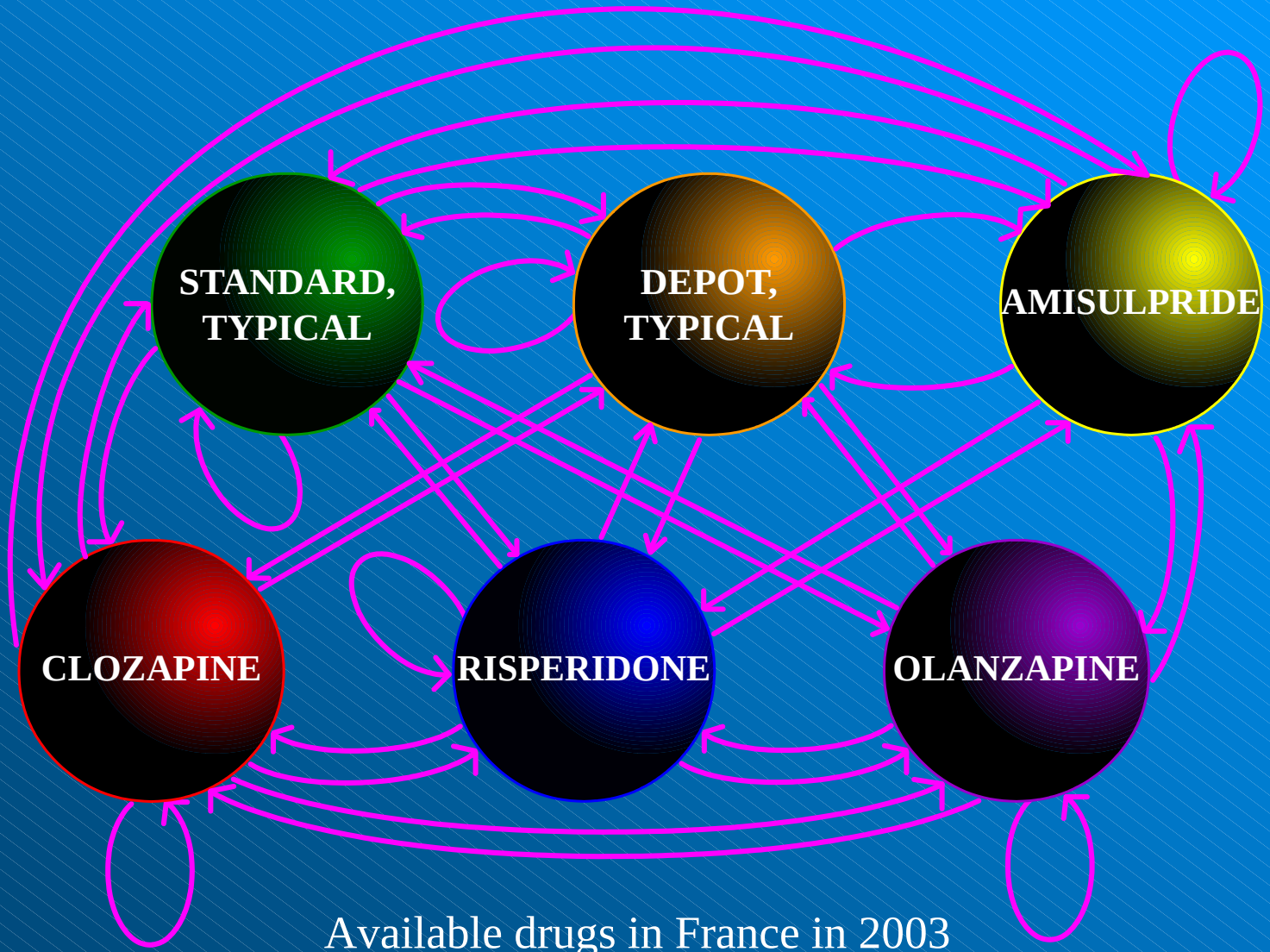
Data Sources: "EpiSurvey"

- Cross-sectional epidemiological survey;
- Representative sample of ambulatory schizophrenic patients;
- 177 psychiatrists surveyed:
  - 116 in private practice;
  - 61 in hospital consultations (out-patients).
- Two-level survey:
  - Patient registry: 2732 patients → Treatment patterns
  - Detailed survey: 1855 patients → Treatment switches

General Markov Model

- 6 classes of antipsychotics can be prescribed as the principal treatment;
- Patients can switch between these six treatments (or remain under their treatment);
- 6*6 = 36 transition probabilities;
- 3 one-year cycles simulated.

General Markov Model



Available drugs in France in 2003

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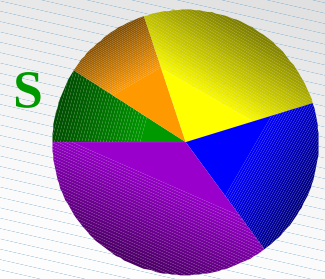
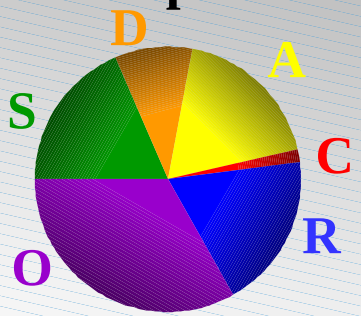
Differing Prescription Patterns

Ambulatory Schizophrenic patients

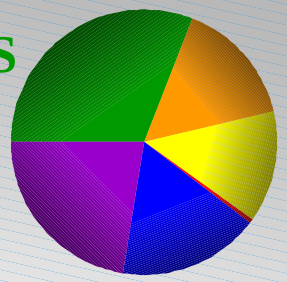
Private practice



Diagnosis < 1 year

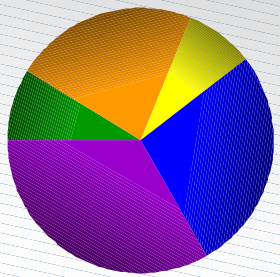


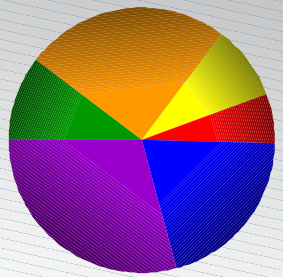
Age < 42 in 2003



Age ≥ 42 in 2003

Hospital out-patients





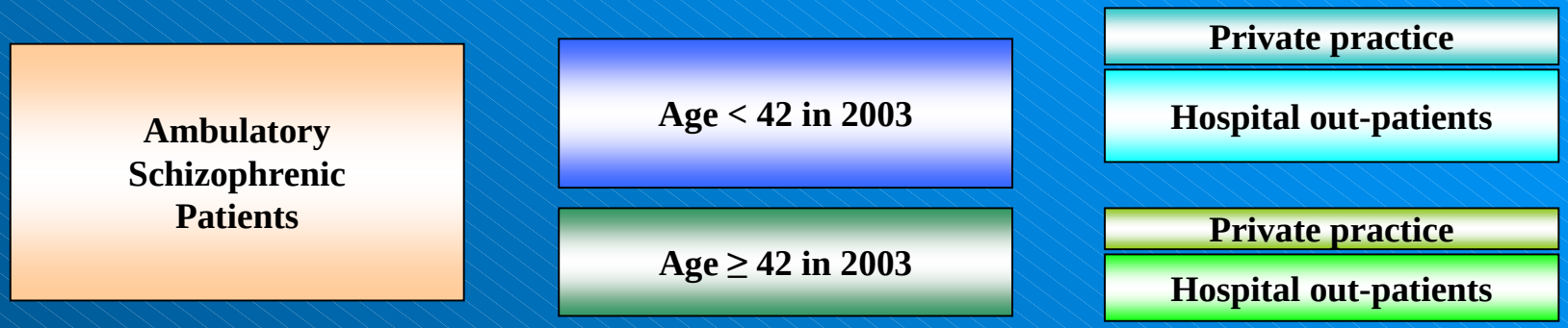
Legend

Standard, typical – **D**epot, typical – **A**misulpride

Olanzapine **R**isperidone – **C**lozapine

4 Markov Models

- Patients stratified according to age in 2003 and prescription settings (hospital/private practice).



- Differing transition probabilities.
- Every year, patients:
  - Enter the "Age < 42" models;
  - Leave the "Age ≥ 42" models;
  - Total entry proportion = total exit proportion (stable prevalence in France).

Transition Probabilities Example

Private practice patients, Age < 42 in 2003

From \ To	St typical	Dp typical	Amis.	Cloz.	Risp.	Olan.
St typical	**69.27%**	5.36%	5.90%	0.00%	9.89%	9.58%
Dp typical	0.95%	**90.81%**	0.47%	0.78%	2.96%	4.03%
Amis.	0.36%	5.13%	**75.84%**	1.05%	7.54%	10.08%
Cloz.	2.82%	0.00%	0.00%	**94.14%**	0.00%	3.04%
Risp.	2.04%	4.45%	2.71%	0.90%	**83.61%**	6.29%
Olan.	2.14%	3.09%	2.97%	0.54%	6.35%	**84.91%**

85% of the patients with olanzapine as their principal treatment will remain under this treatment the next year (no switch).

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Sensitivity Analysis

→ 50,000 samples of each distribution:

Variables	Distribution	Source
Transition probabilities	Dirichlet	Detailed survey
Initial market shares		Registry
Age < 42 in 2003	Beta	
Private practice prescription		
New onset schizophrenia		Detailed survey
Mean daily treatment costs	Normal	

→ Model recalculation for each sample vector.

RESULTS

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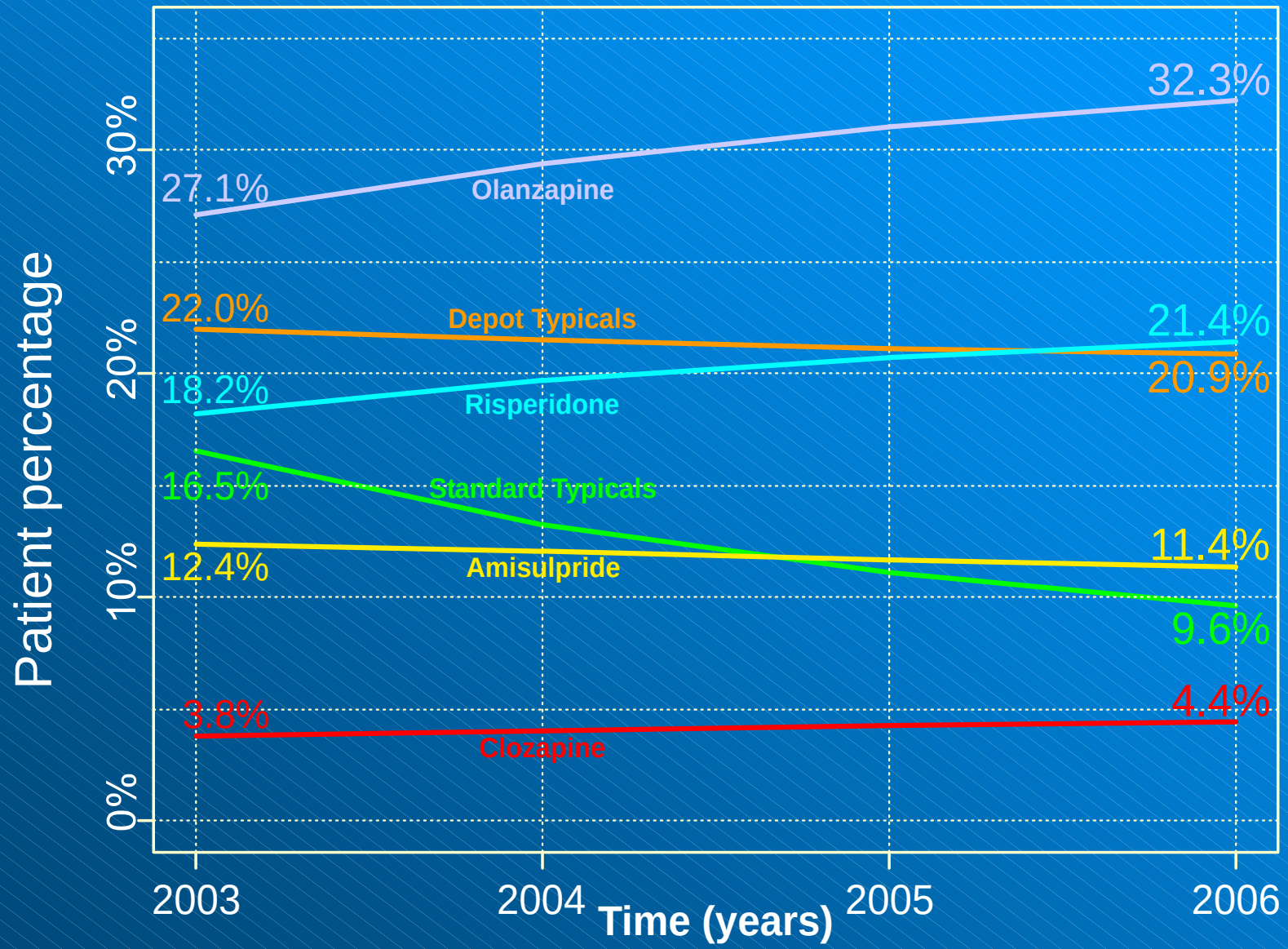
Simulation Results



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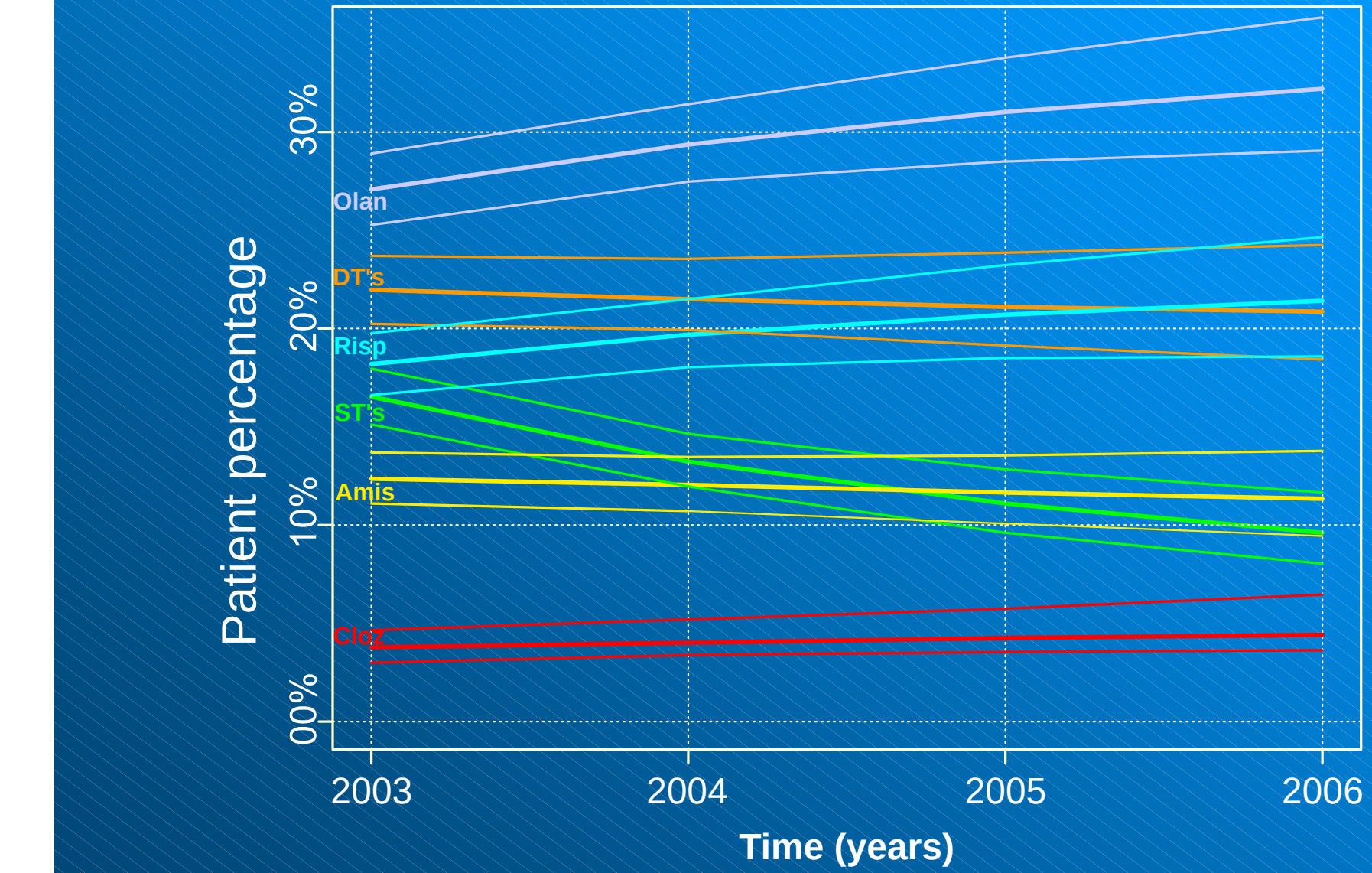
Sensitivity Analysis



Antipsychotics Daily Treatment Cost

Weighted average DTC, ex-factory price

Year	DTC (€/day)	Estimated $CI_{95\%}$
2003	2.25	[2.149 – 2.352]
2004	2.38	[2.281 – 2.496]
2005	2.47	[2.363 – 2.606]
2006	2.53	[2.413 – 2.689]

Cost of principal antipsychotic taken (cost of co-prescriptions not included).

- Budget increase from 2003 to 2006: +12.3%
- Estimated confidence interval: [8.3% - 18.6%]

CONCLUSION

Schizophrenia treatment patterns are not stationary;

Simple Markov-based models can help understand the evolution of prescriptions;

Average daily treatment cost is expected to increase in the next years.