FACULTY OF BIOSCIENCE ENGINEERING

DEPARTMENT OF SUSTAINABLE ORGANIC CHEMISTRY AND TECHNOLOGY
RESEARCH GROUP ENVOC

Human Health benefits and burdens of the schizophrenia health care pathway in Belgium: a holistic approach towards paliperidone palmitate long-acting injectable antipsychotic

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Session: Using LCM to create shared value through healthcare and pharmaceutical supply chains

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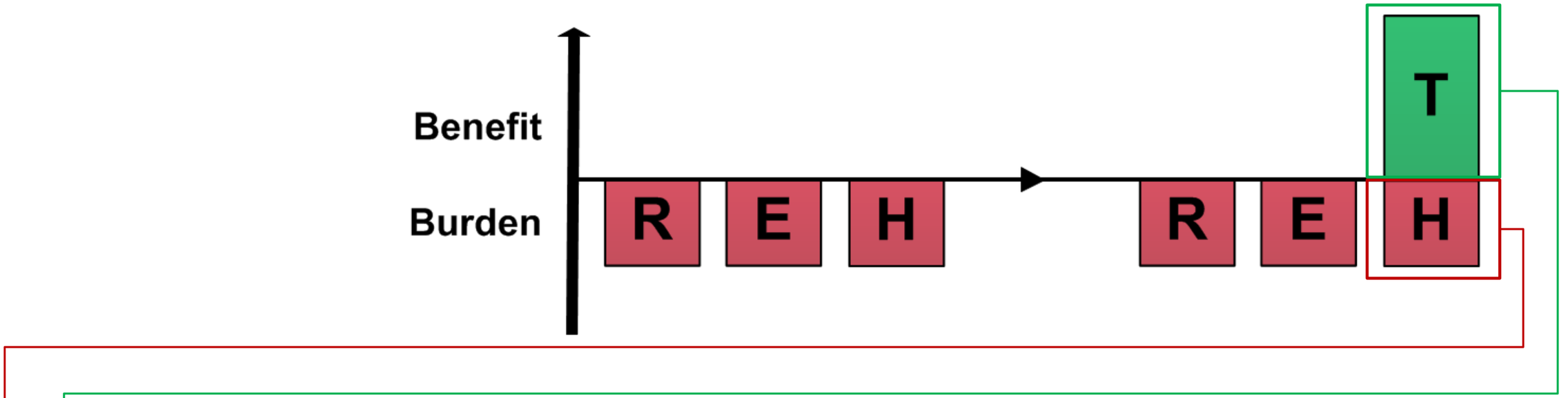
Including the benefit of a health care pathway



- Benefit in Disability-Adjusted Life Years (DALYs) or Quality-Adjusted Life Years (QALYs)
- Burden in DALYs

-> We choose DALYs, same units

R = Resources
E = Ecosystems
H = Human Health
T = Treatment

Case study: long-acting injectable antipsychotics

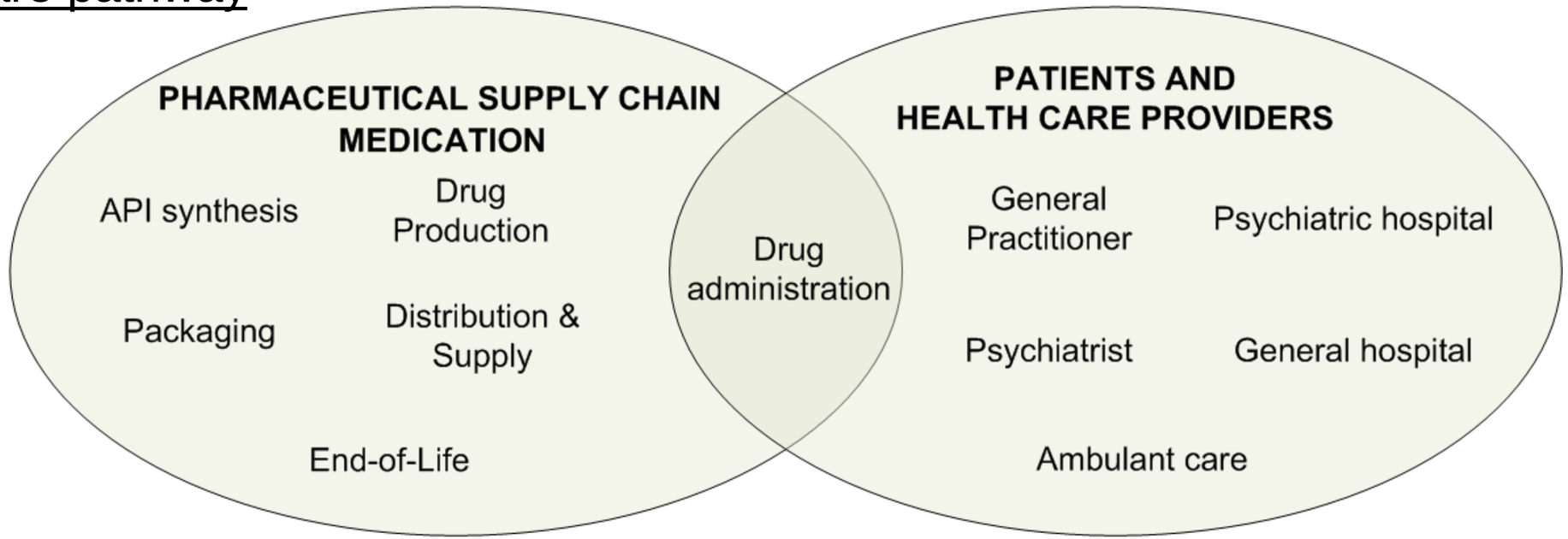
- Disease area: schizophrenia
  - Patients suffer from hallucinations, delusions
  - Symptoms suppressed by medication
  - Adherence to medication remains a challenge

- Comparison of 3 treatment regimens for schizophrenia
  - Paliperidone palmitate 1-monthly injectable (PP1M)
  - Paliperidone palmitate 3-monthly injectable (PP3M)
  - Treatment Interruption (TI)

- Focus on Belgian market/population

Functional unit: the treatment of 1000 patients for 1 year

- Includes <u>full health care pathway</u>

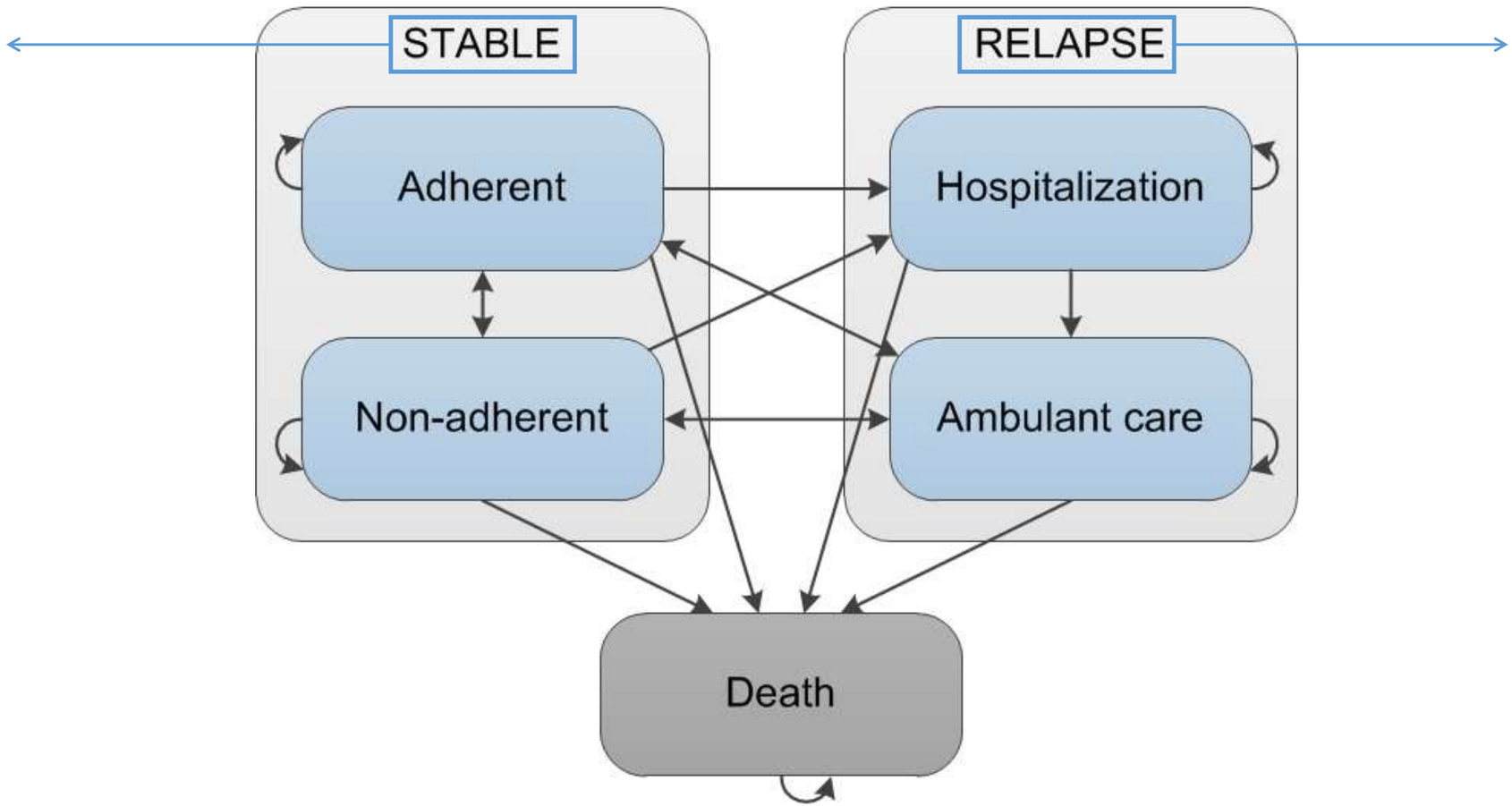


- Primary data from:
  - Janssen Pharmaceutica (sites in Belgium and Ireland)
  - 5 psychiatric hospitals, 3 general hospitals
  - Specialized ambulant care unit
  - Ghent University Geography dept. for transport distances

-> To calculate the burden

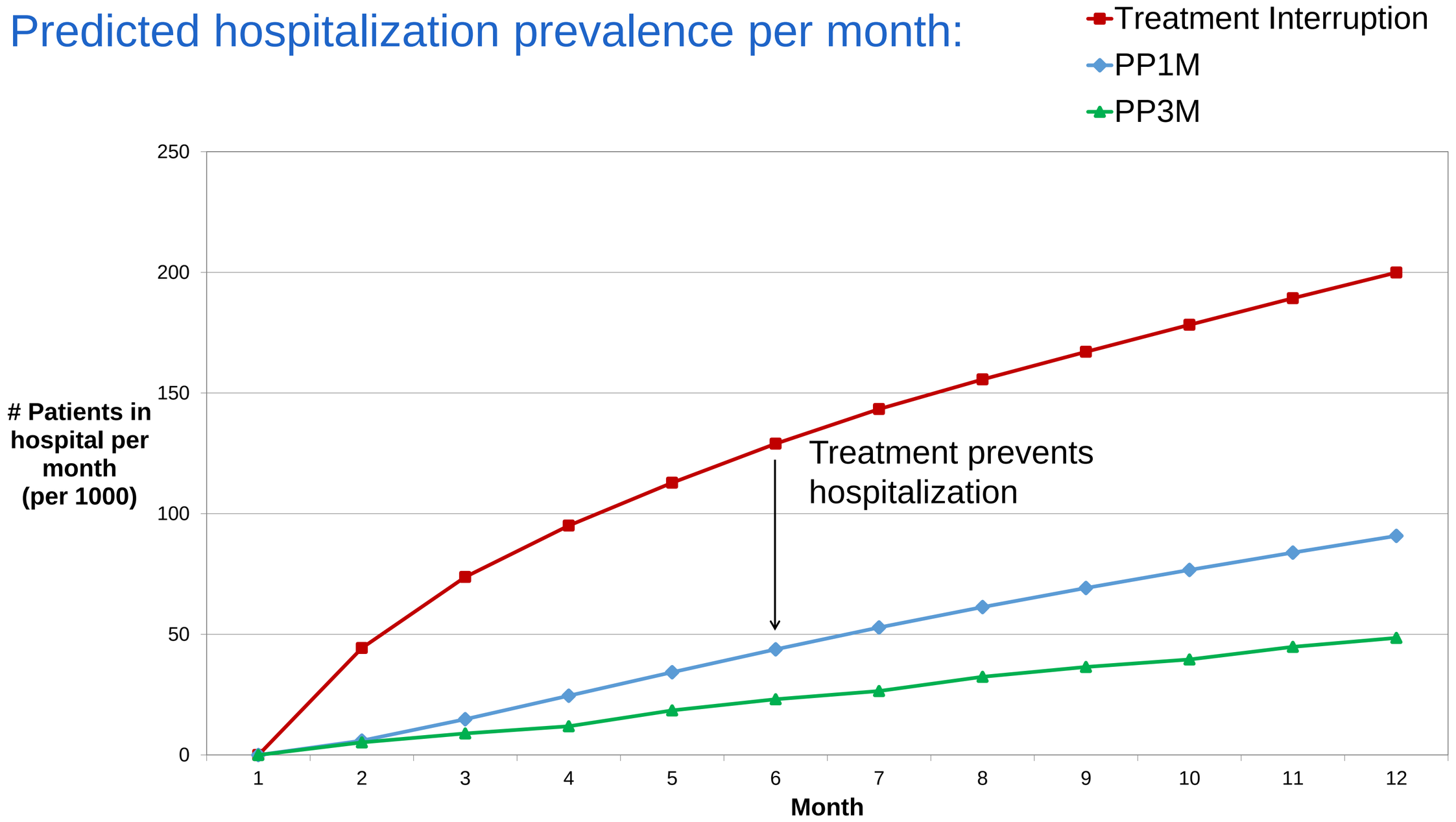
Markov model to map patient benefit

Disability:
0.588

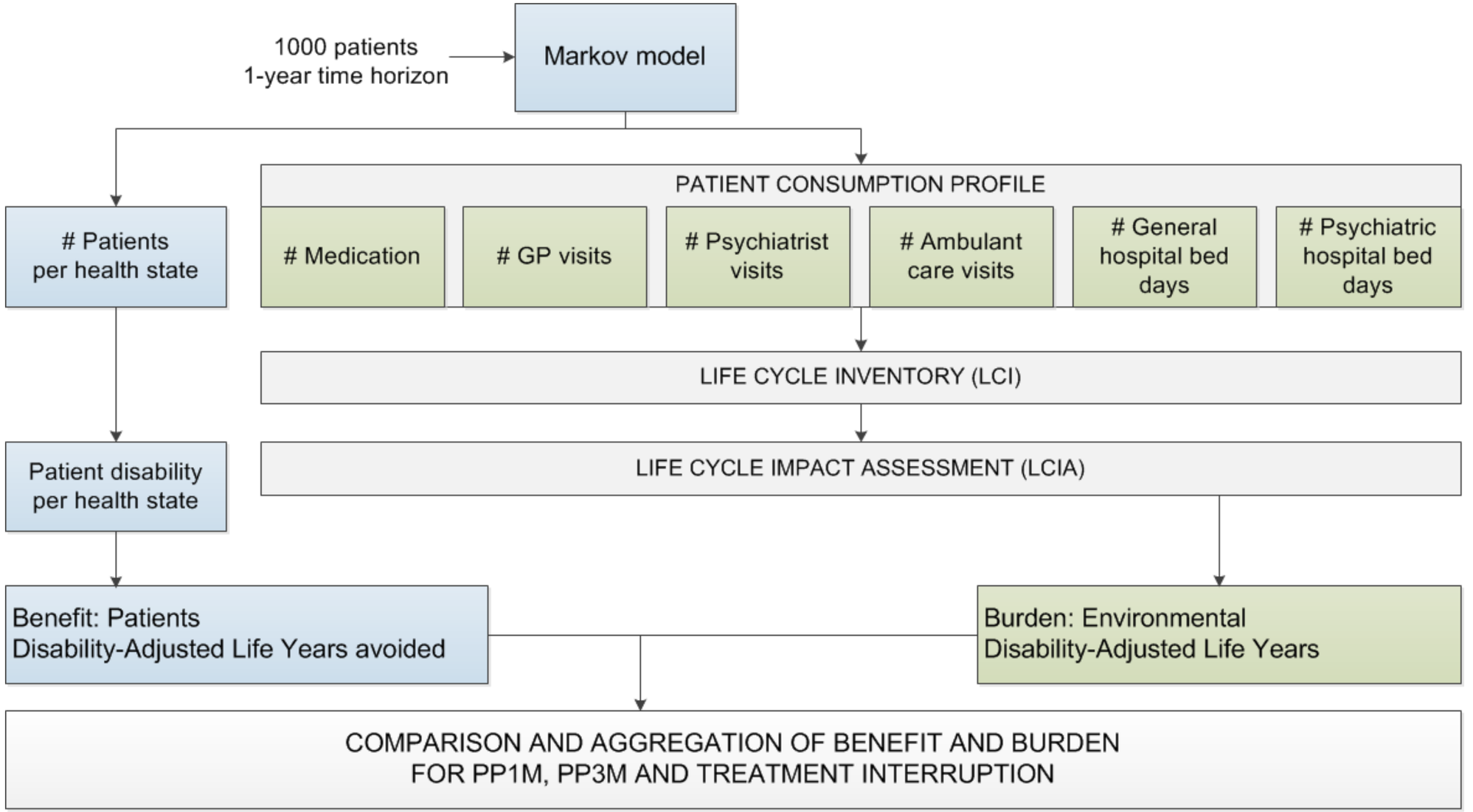


Disability:
0.778

Predicted hospitalization prevalence per month:

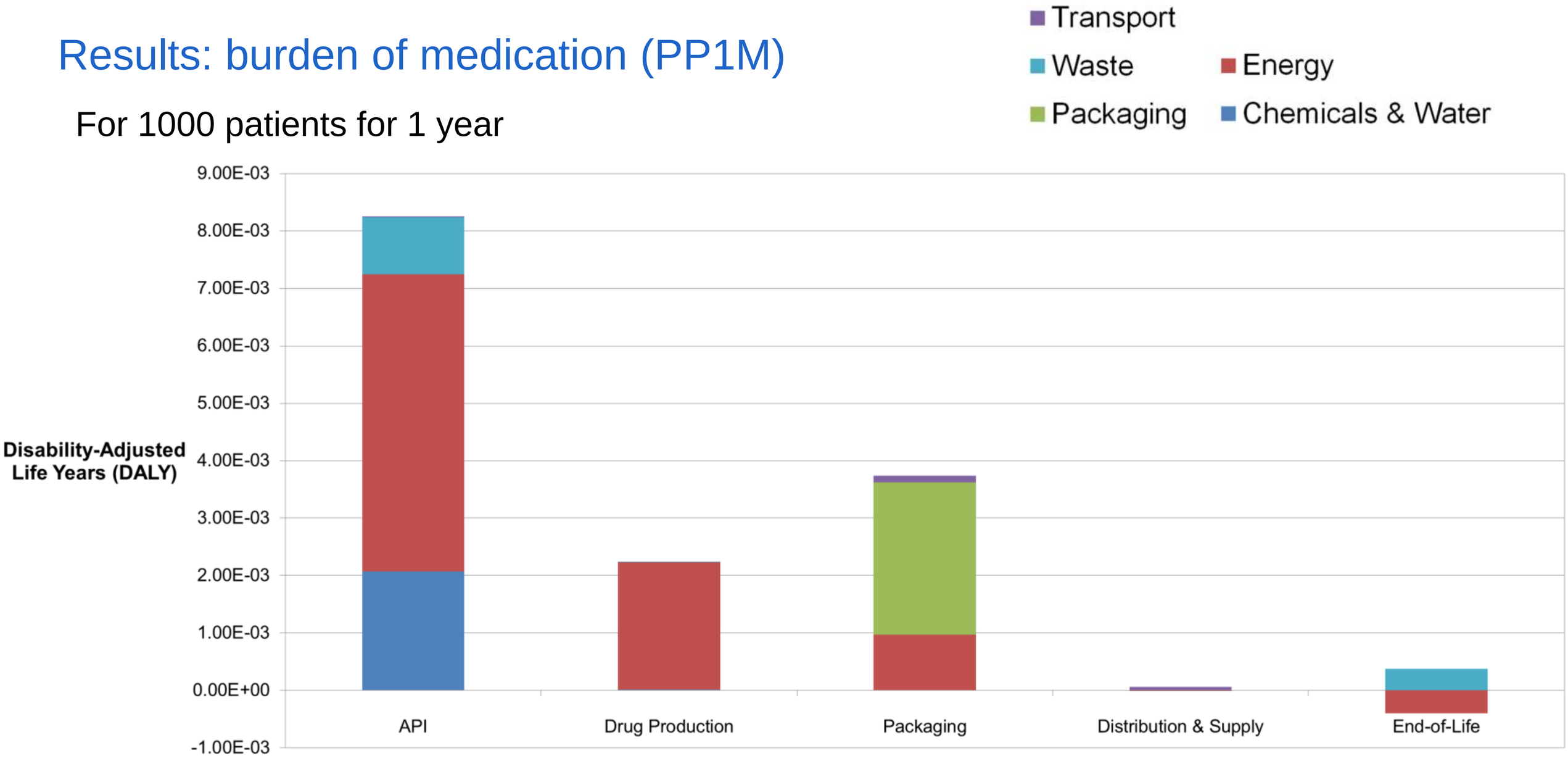


Quantification of benefit and burden



Results: burden of medication (PP1M)

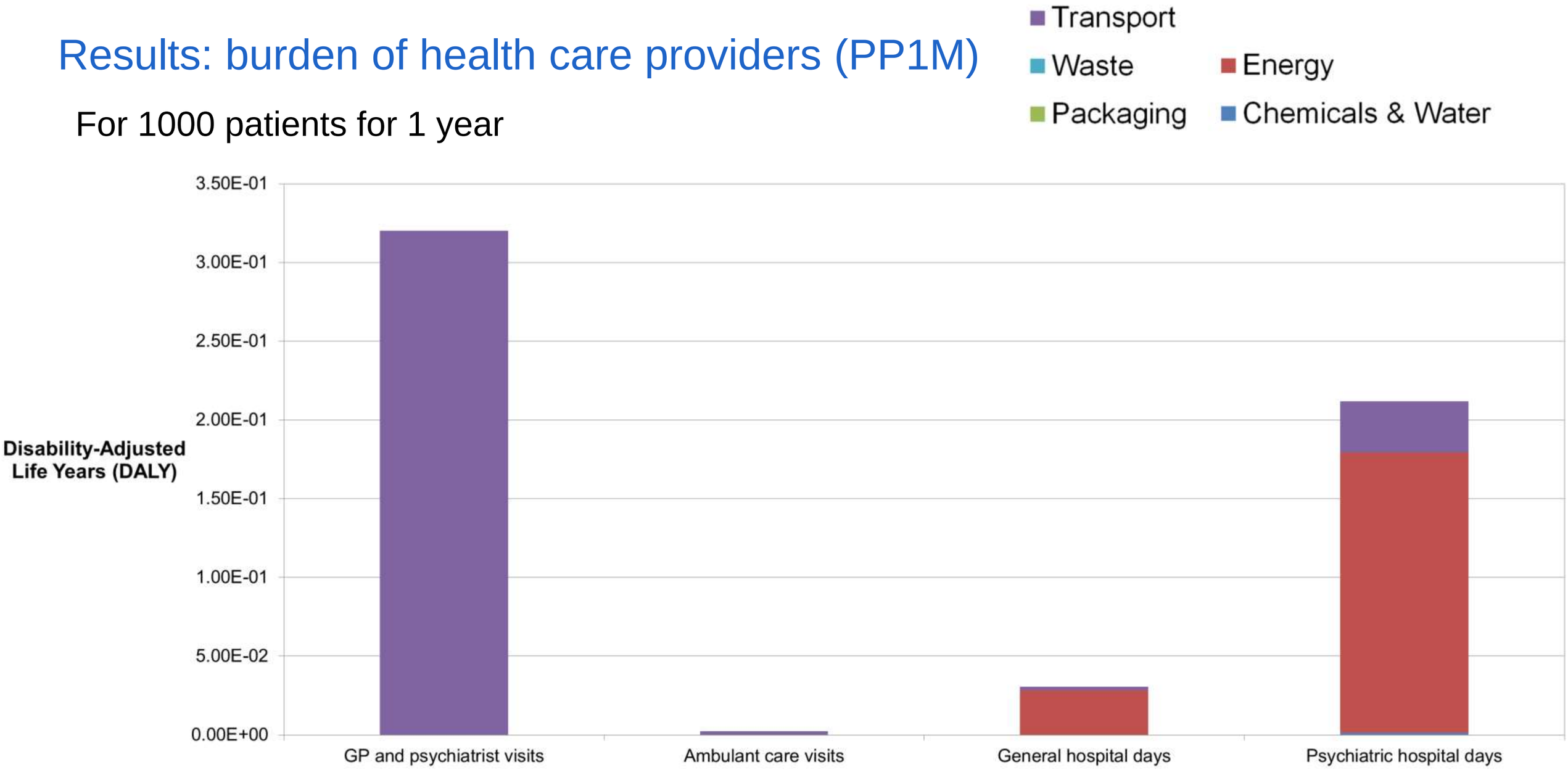
For 1000 patients for 1 year



Impact Assessment method: ReCiPe v1.11, EndPoint, Hierarchist

Results: burden of health care providers (PP1M)

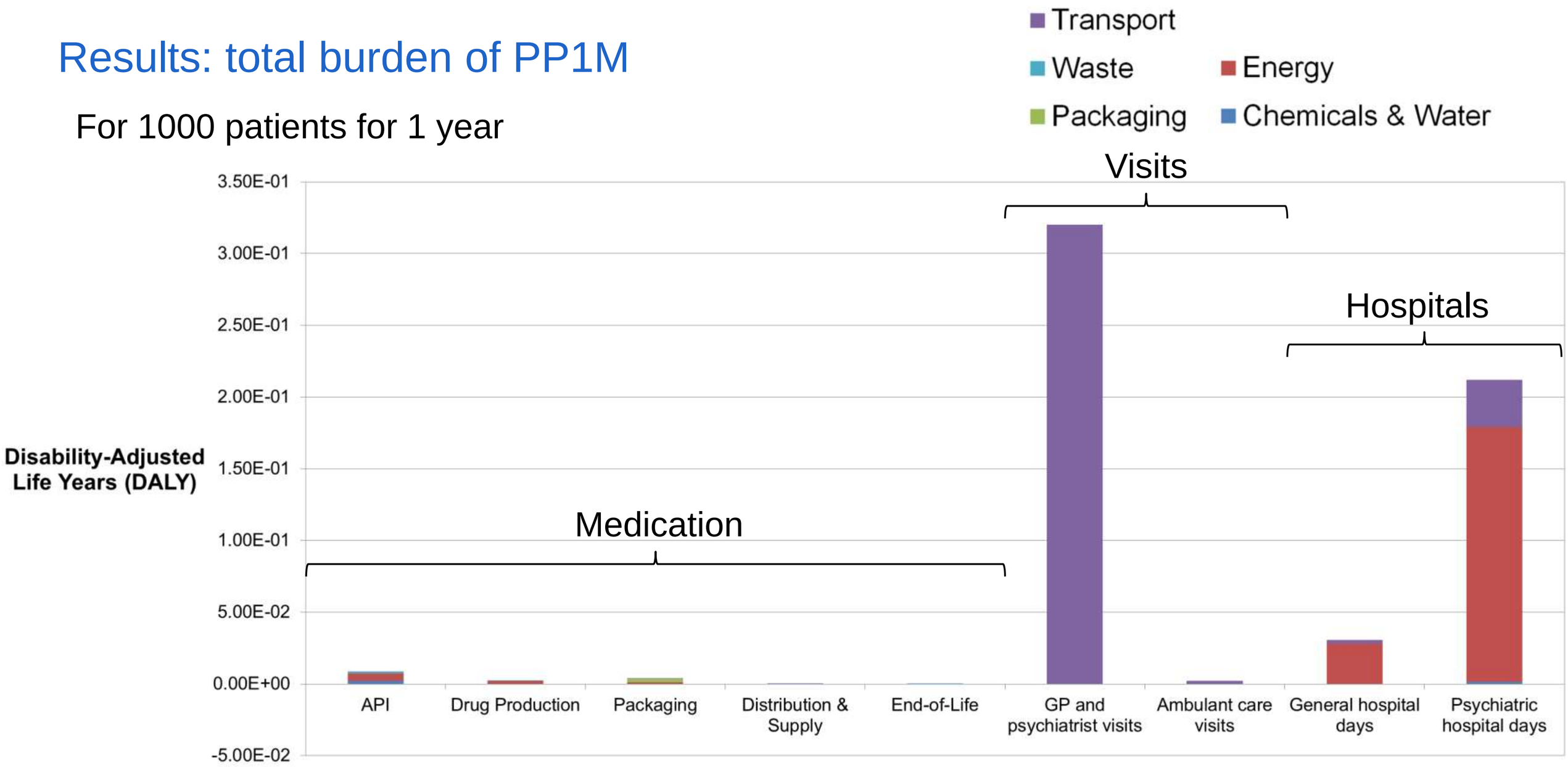
For 1000 patients for 1 year



Impact Assessment method: ReCiPe v1.11, EndPoint, Hierarchist

Results: total burden of PP1M

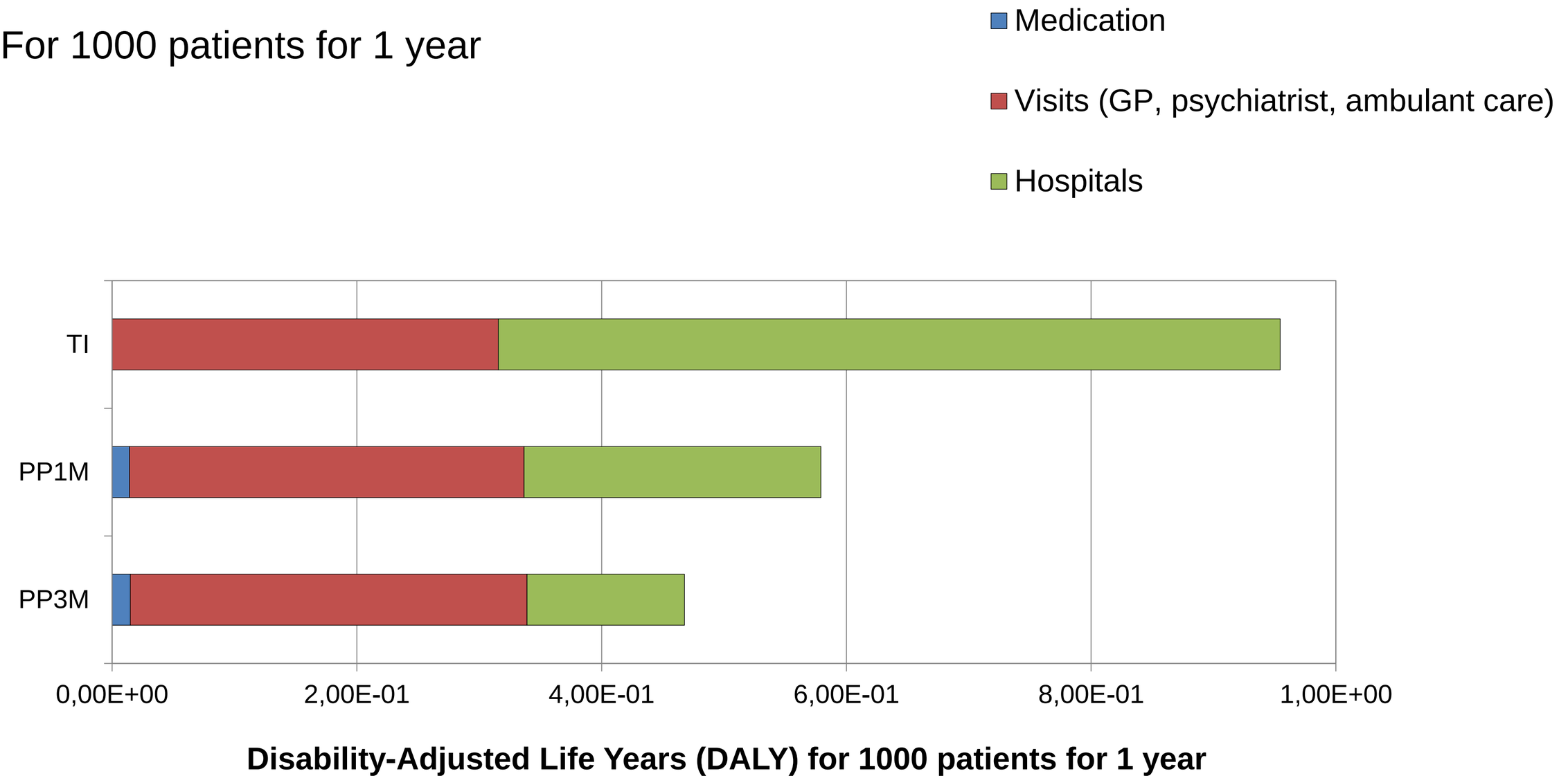
For 1000 patients for 1 year



Impact Assessment method: ReCiPe v1.11, EndPoint, Hierarchist

Results: burden compared by treatment

For 1000 patients for 1 year



Results: human health benefit and burden

Treatment	Environmental Human Health burden (DALY)	Increment	Patient Human Health (DALY)	Increment
TI	0.95		973	
PP1M	0.58	–0.37 (–39%)	904	–69 (–7%)
PP3M	0.47	–0.48 (–51%)	885	–88 (–9%)

- Patient health benefit outweighs burden
  - Factor 184 for PP1M
  - Factor 180 for PP3M

Conclusions

- GP and psychiatrist visits (car transport) and psychiatric hospitals (energy use) cause highest burden
- Hospitals are most resource intensive
- Treatment reduces environmental Human Health burden
  - Burden medication ↗
  - Burden hospitals ↘ ↘ ↘
- New methodology: patient health benefit may outweigh environmental burden in health care

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Thank you!

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