



EXIGO 10
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Ivabradine's added therapeutic and pharmaco-economic value in Portugal

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Summary

- Portuguese health system & financing
- Cost-effectiveness of ivabradine: supporting reimbursement
- Decision tool supporting the economic efficiency of ivabradine in the Portuguese NHS hospitals
- Discussion and conclusion

Pricing & reimbursement

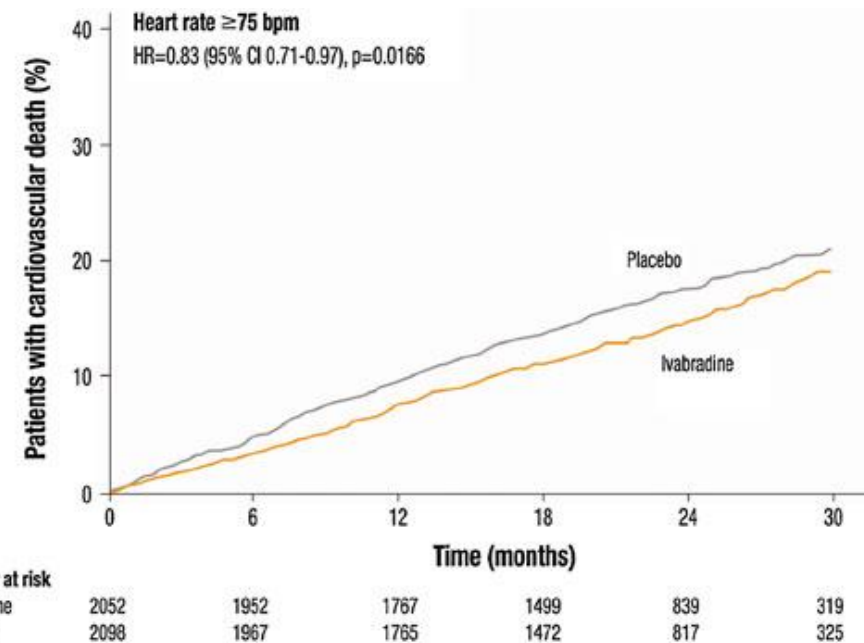
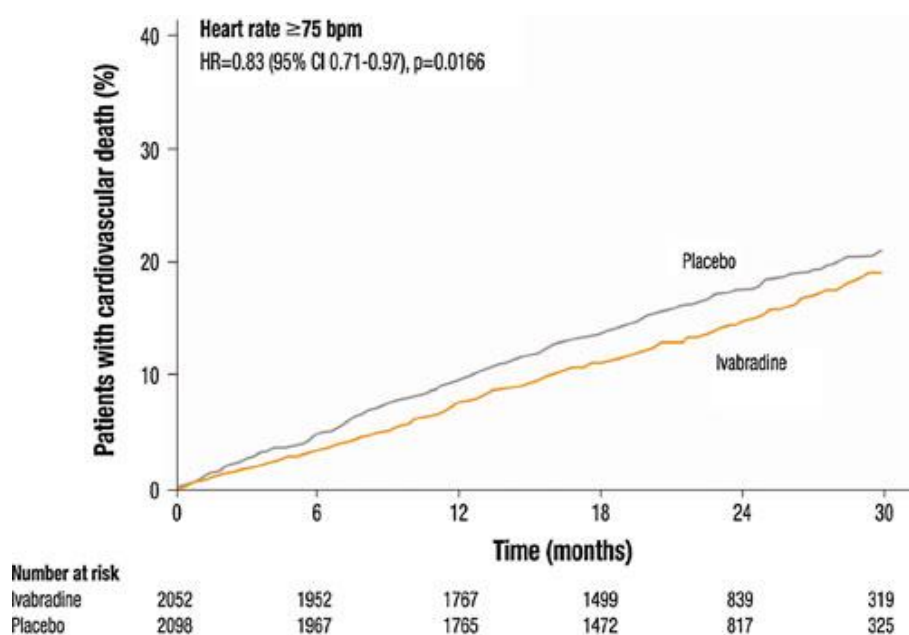
- Agency: INFARMED (Regulatory; Pricing; HTA)
- Primary care drugs
 - Price (reference countries Spain, Italy and Slovenia)
 - HTA (added therapeutic value; economic value)
 - Reimbursement (15%, 37%, 69%, 90%)
- Hospital drugs
 - Mandatory therapeutic value and economic value assessment prior to utilization by NHS hospitals
 - several layers of decision until effective use
 - Central (HTA, budget caps, clinical guidelines, positive list)
 - Local (Pharmacy and Therapeutics Committee, financial agreements)
 - 100% public funding

Cardiovascular diseases/heart failure in Portugal

- Cardiovascular diseases
 - 1st cause of death in Portugal
 - 2nd most frequent cause of hospitalization in NHS hospitals
 - 1st Pharmacotherapeutic Group in NHS Expenditure (30% of ambulatory)
 - >15^o Pharmacotherapeutic Group in NHS Expenditure (hospital)
- Heart failure
 - Most frequent CV hospitalization, DRG 127 in 2006 (n= 15,664, 16% of all CV)
 - High 30 days, 6 months and 12 months readmission rate (7.8%¹, 20.9%², 23.9%²)
 - High in-hospital mortality (5.5%²-17.3%¹)
 - No study on costs, however 50-75% due to hospitalizations!

Cost-effectiveness of ivabradine: supporting reimbursement

Chronic heart failure NYHA II to IV class with systolic dysfunction, in patients in sinus rhythm and whose heart rate is ≥ 75 bpm



Markov modelling approach to extrapolate beyond clinical trial duration

Cost-effectiveness of ivabradine: supporting reimbursement

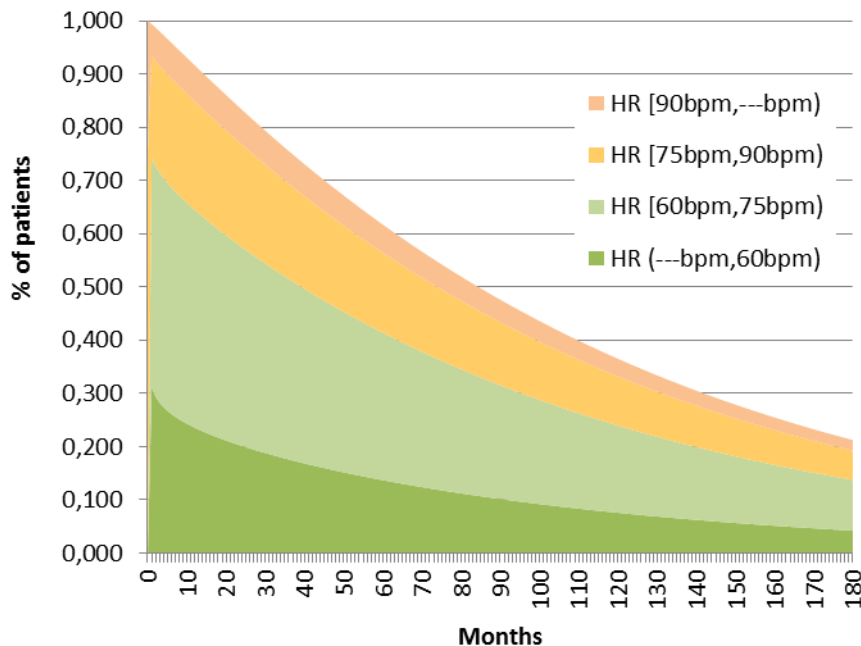
IVABRADINE

14 months increment in median OS
18 months gain in Life expectancy

Median OS = 85 months

Mean Life expectancy = 116,8 months

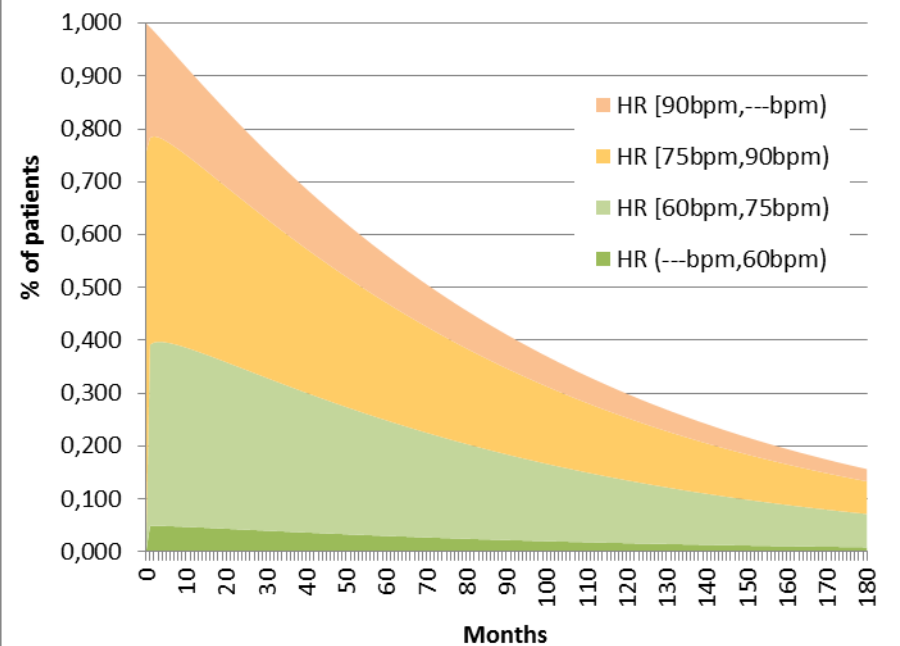
Ivabradine (Overall Survival)



Median OS = 71 months

Mean Life expectancy = 98,7 months

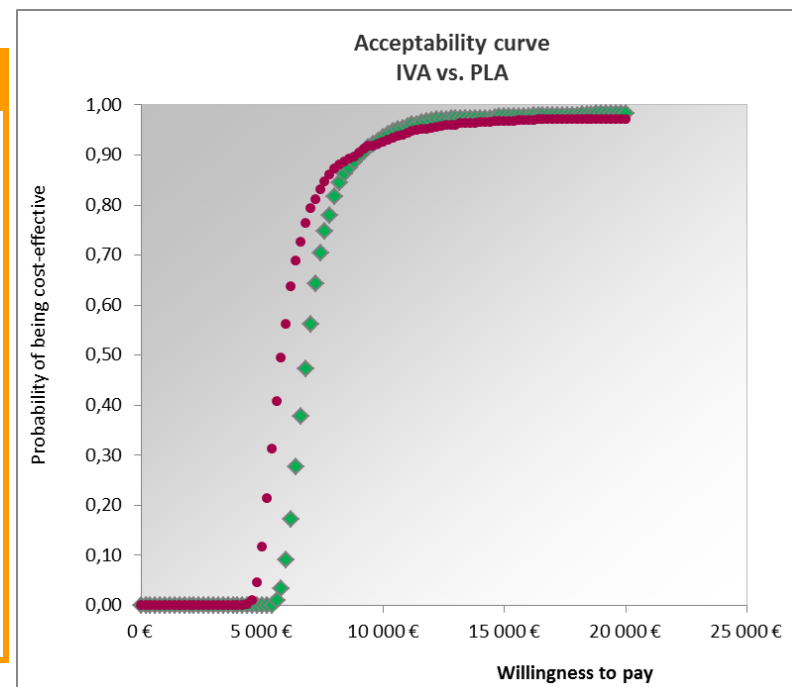
Placebo (Overall Survival)



Cost-effectiveness of ivabradine: supporting reimbursement

	Ivabradine	Placebo	IVA vs PLA	
Costs				ICER
Total	25 815,07 €	21 342,70 €	4 472,37 €	
Ivabradine	5 303,65 €	0,00 €	5 303,65 €	
other HF therapy	1 893,56 €	1 681,52 €	212,05 €	
Hospitalization	16 850,70 €	18 091,92 €	-1 241,22 €	
Monitoring	1 767,16 €	1 569,27 €	197,89 €	
Effectiveness				ICER
Life Years	6,87 LY	6,10 LY	0,77 LY	
QALY	5,15 QALY	4,50 QALY	0,65 QALY	5 810 €/AV 6 840 €/AVAQ

5% discount rate for costs and effectiveness



Ivabradine considered cost-effective at the commonly accepted ICER threshold (< 30,000€)

In UK NICE considered Ivabradine cost-effective at £8,498 per QALY

How to translate CE into economic efficiency at hospital level?

- NHS hospitals contracting system 2014
 - National objectives
 - Length of stay
 - Readmission within 30days
 - Variable regional objectives

	Prices / Costs	Source
Hospitalization (<u>price</u> medical DRG)	2 120.28€	ACSS contrato programa 2014
Cardiology department daily <u>cost</u>	438€	BDEA 2008
Mean length of stay for heart failure	10,2 days	
Hospitalization cost for cardiology department (BDEA 2008)	4 467 € (4.6% medicines)	BDEA 2008
1 st hospitalization cost	2.1 x subsequent	Ballard et al. Int J Qual Health Care (2010)
% of patients without previous hospitalizations	15%	Cleland et al. European Heart Journal (2003)

Decision tool: economic efficiency of ivabradine in the Portuguese NHS hospitals



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INPUT (hospital)

Demographics

Epidemiology

Treatment

Resource utilization

Outcomes (hospital)

Epidemiology

Therapeutic efficiency

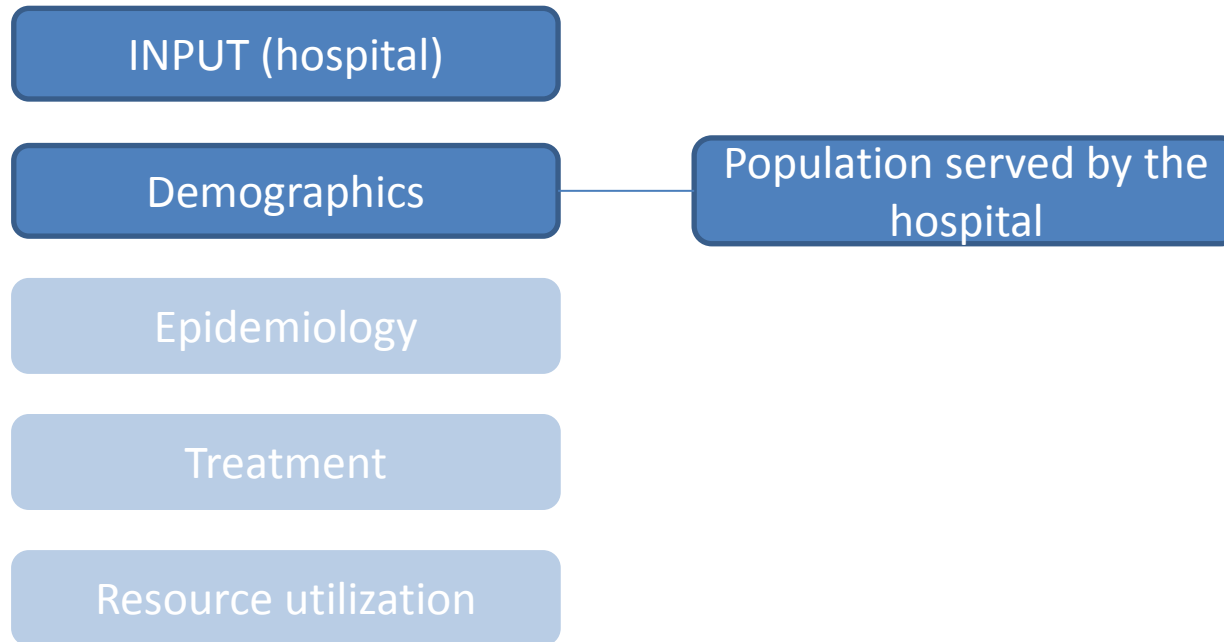
Economic efficiency

Budget impact

Decision tool: economic efficiency of ivabradine in the Portuguese NHS hospitals



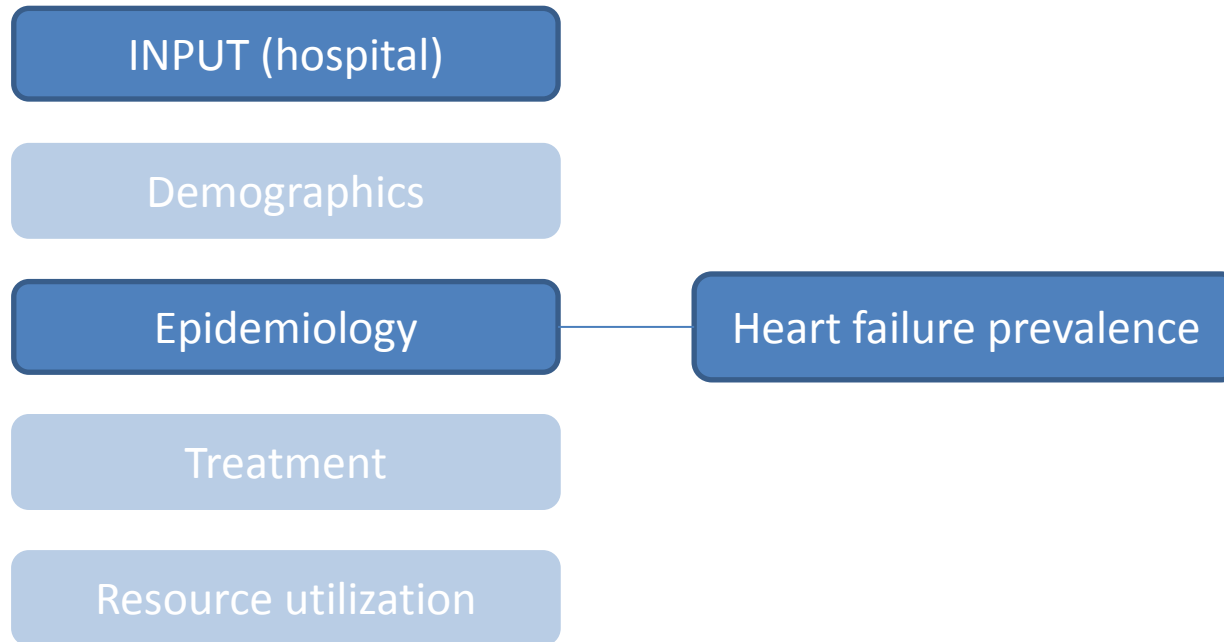
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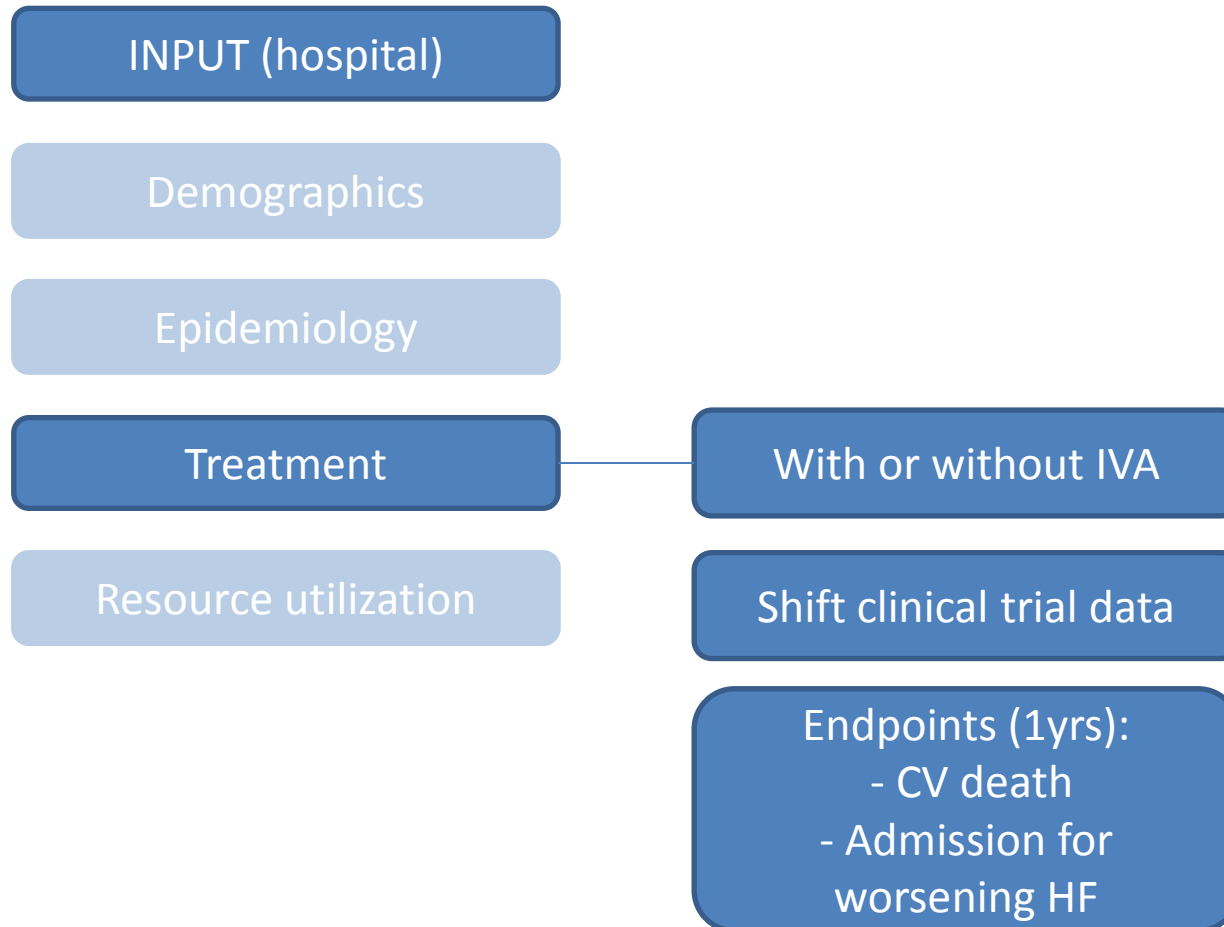
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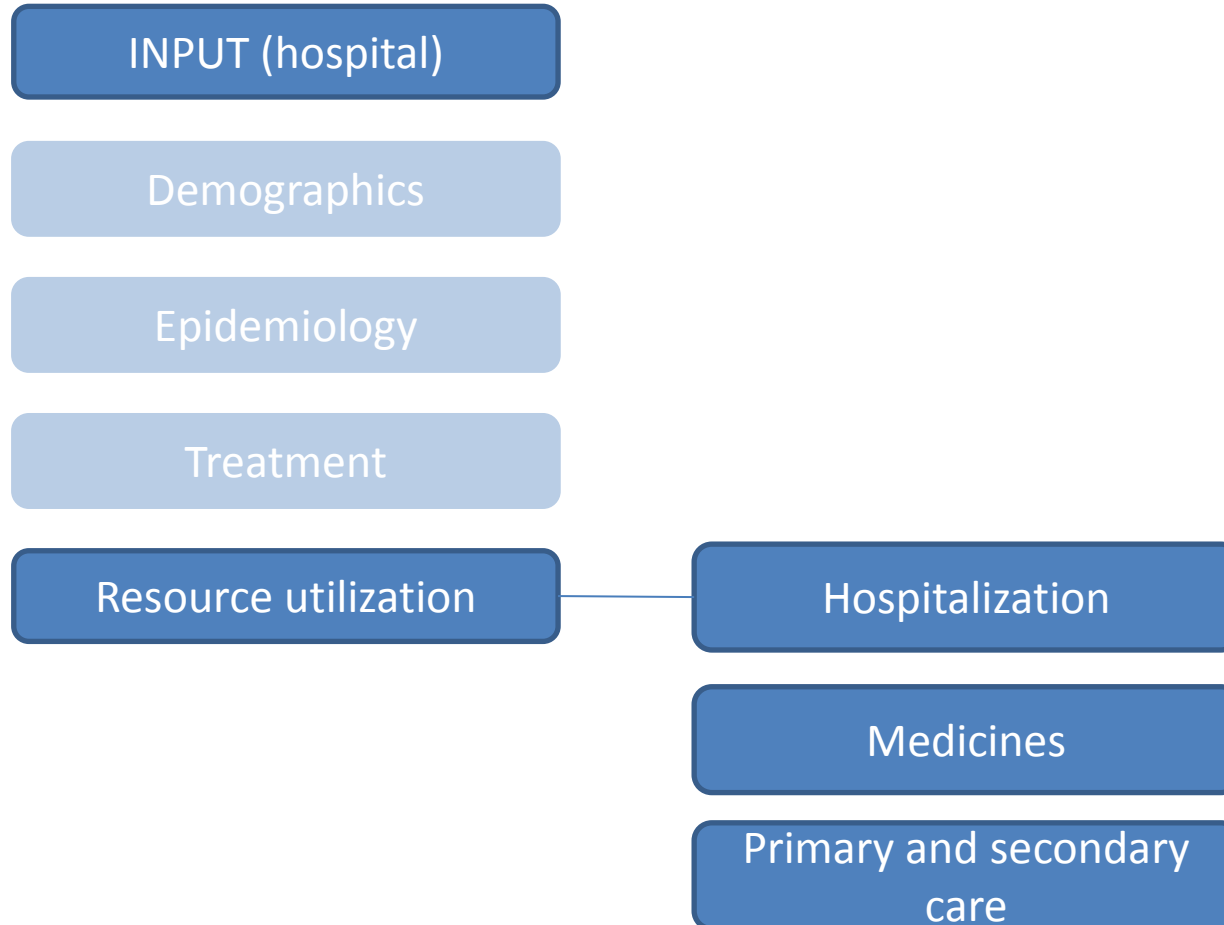
Decision tool: economic efficiency of ivabradine in the Portuguese NHS hospitals



Decision tool: economic efficiency of ivabradine in the Portuguese NHS hospitals



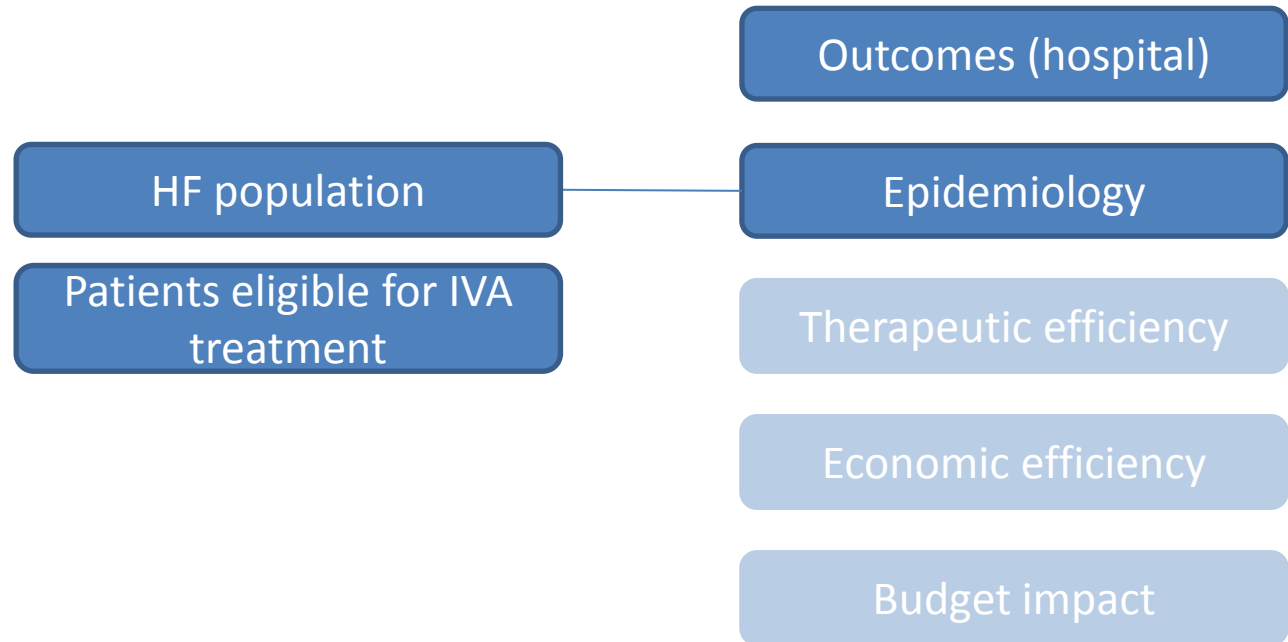
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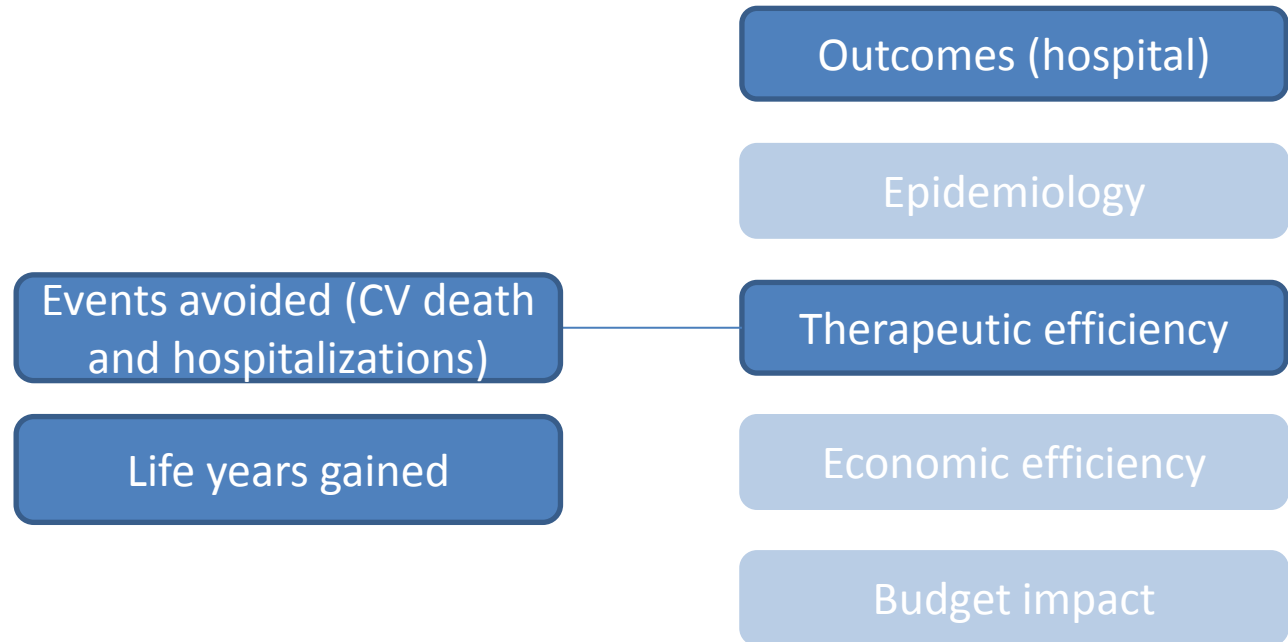
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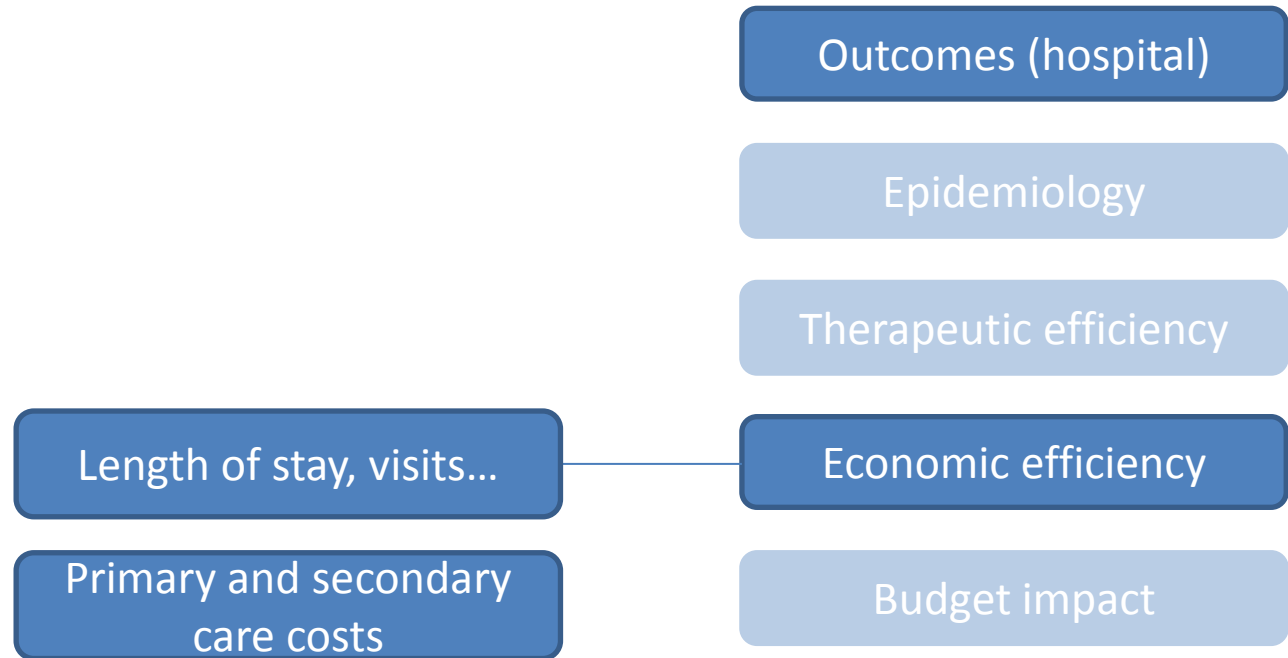
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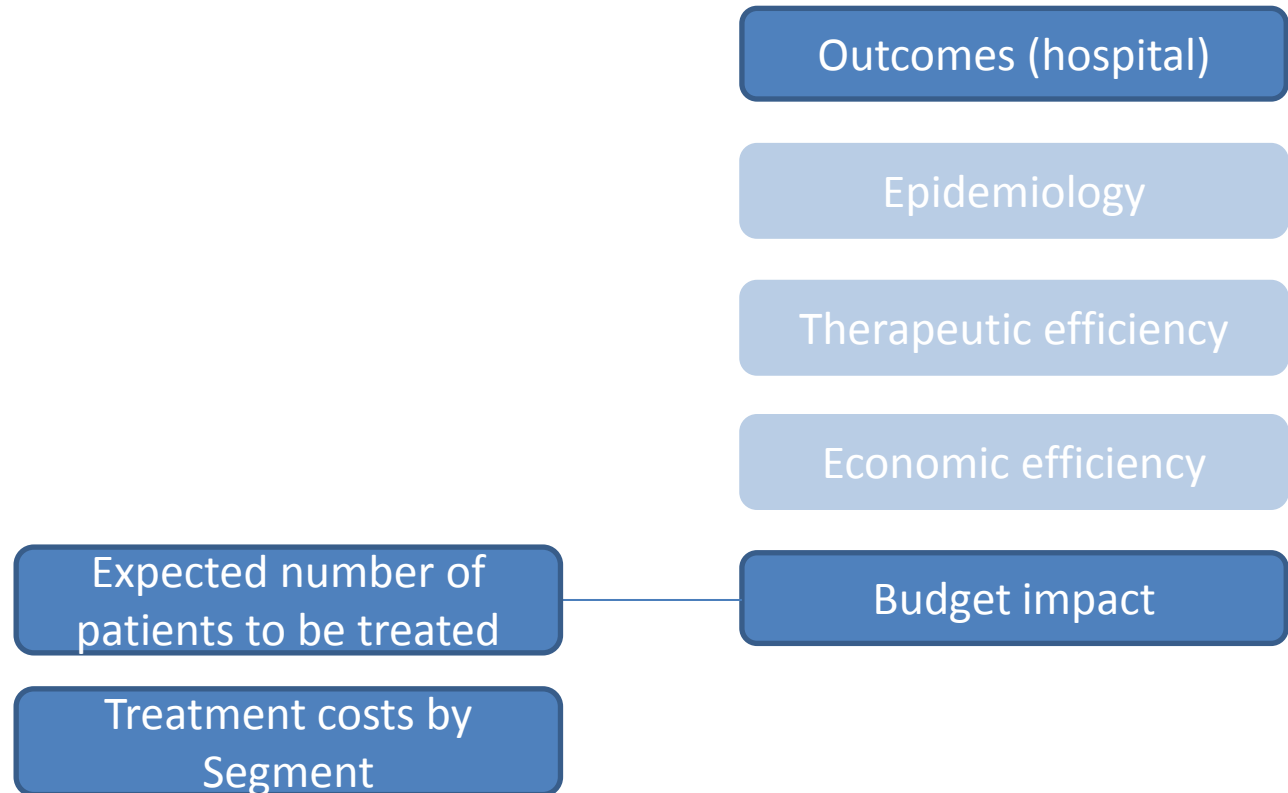
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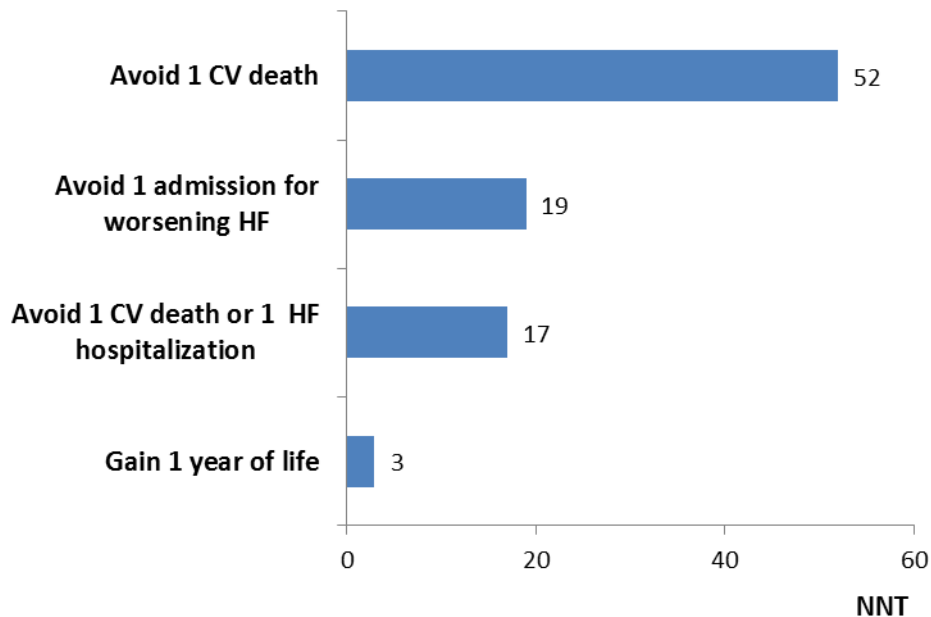
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Ivabradine: 1 year results hospital perspective

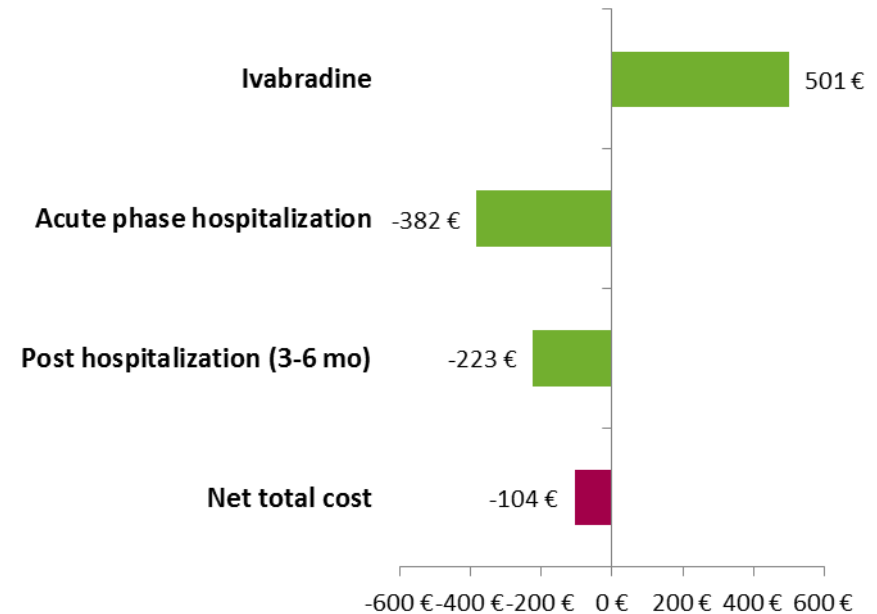
Therapeutic efficiency

Number Needed to Treat during one year with IVA



Economic efficiency

1st year treatment costs



Discussion and conclusion

- Pharmacoeconomics has an established role in pricing and reimbursement of medicines in Portugal
- Applied health economics/economic evaluation is increasingly important in supporting health care decisions
- Ivabradine was found to be a cost-effective treatment option in Portugal
- The use of ivabradine may contribute to reduce hospitals budget while enhancing health outcomes in patients with heart failure