

Department of Health (England)
Alcohol Improvement Partnership

The “Alcohol Systems Model”

System Dynamics Society UK Gathering

Thursday 9th February, 2012



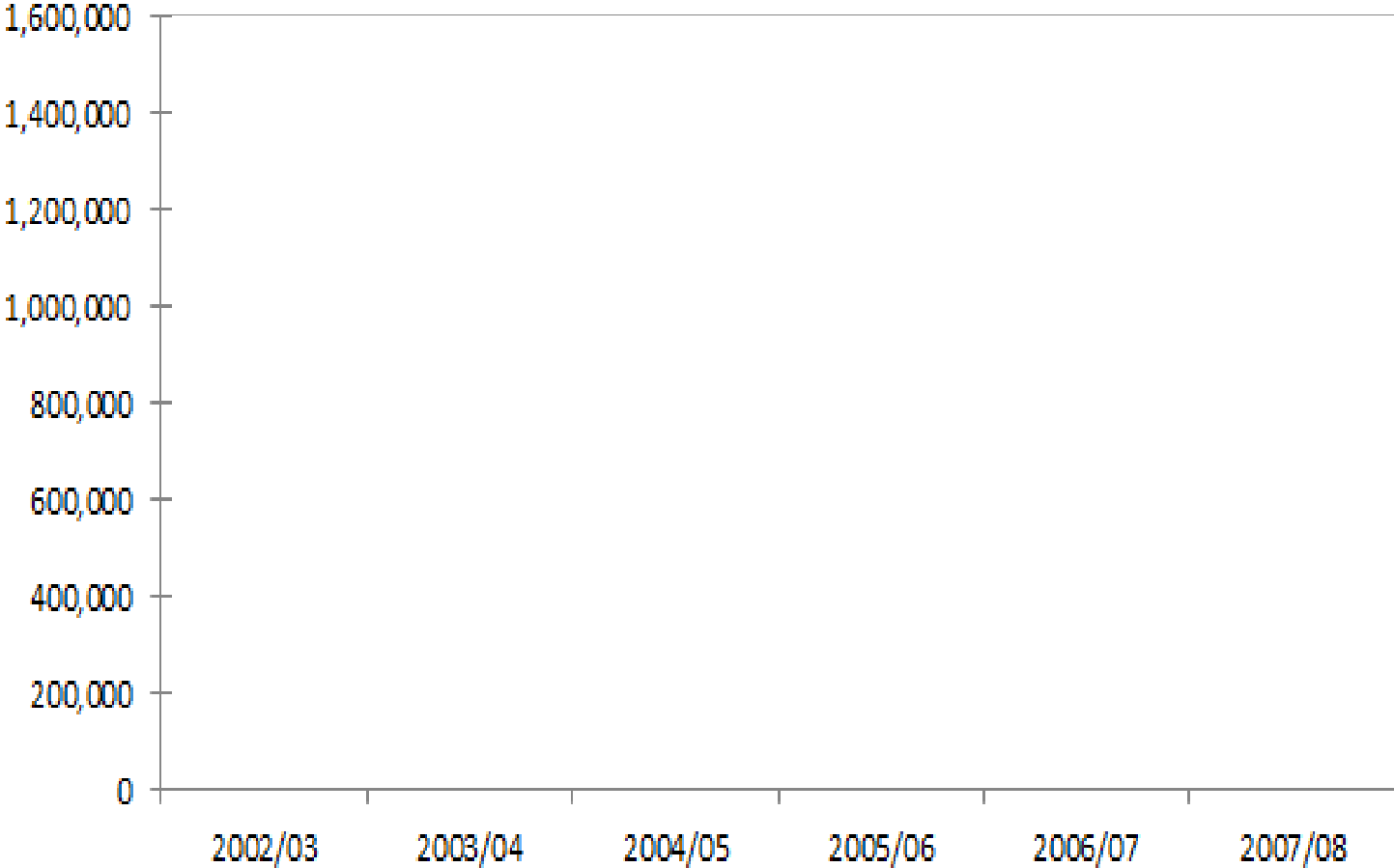
Douglas McKelvie
Steve Arnold
Eric Wolstenholme
David Monk

This is the population
of England.....

“men who drink more than 3 to 4 units a day (2 glasses of wine) run an increasingly significant risk of illness and death from a number of conditions, including haemorrhagic stroke, some cancers, accidents and hypertension”

UK General Lifestyle Survey

Alcohol Attributable Admissions to Hospital (England)



Department of Health “Ready Reckoner” (Spreadsheet)

user input

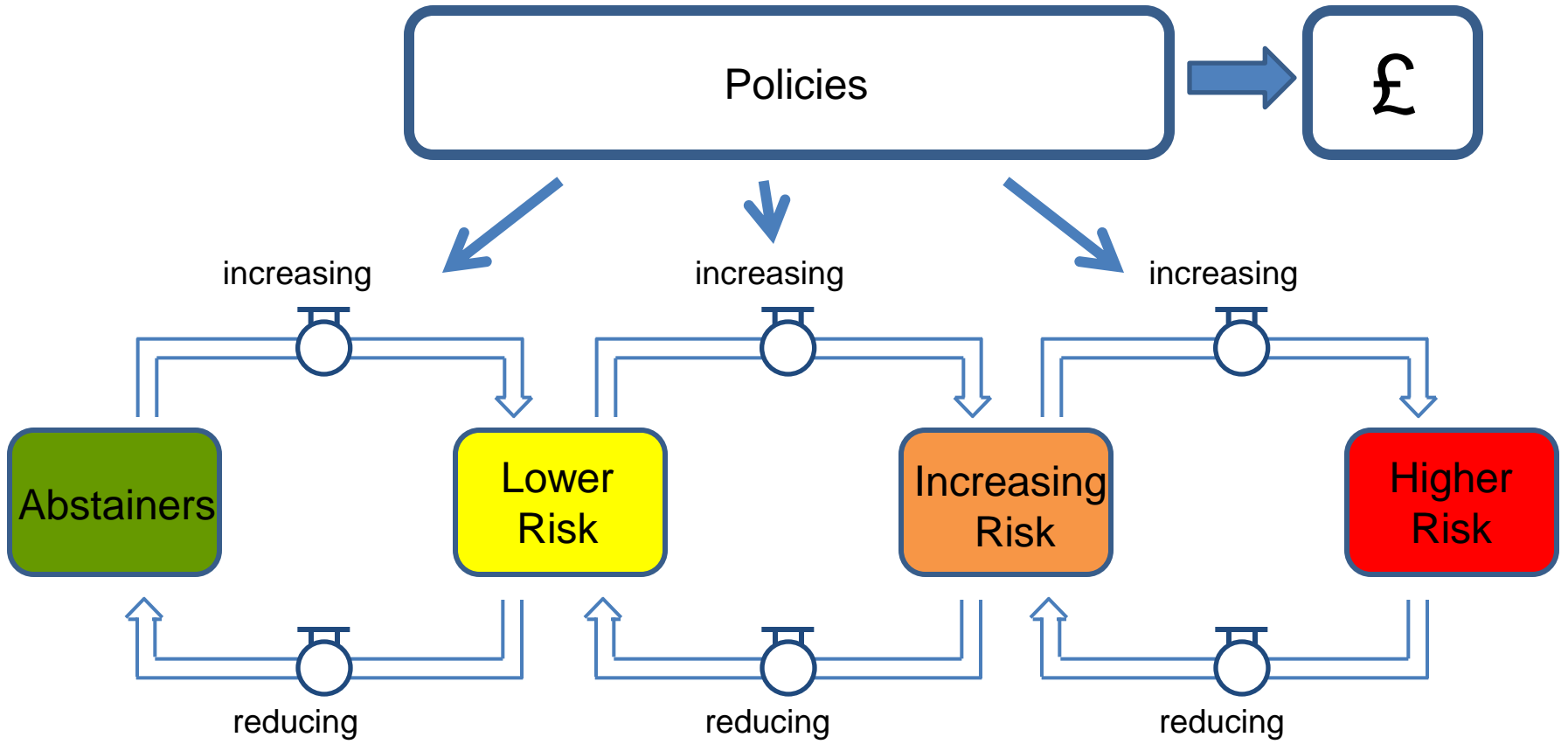
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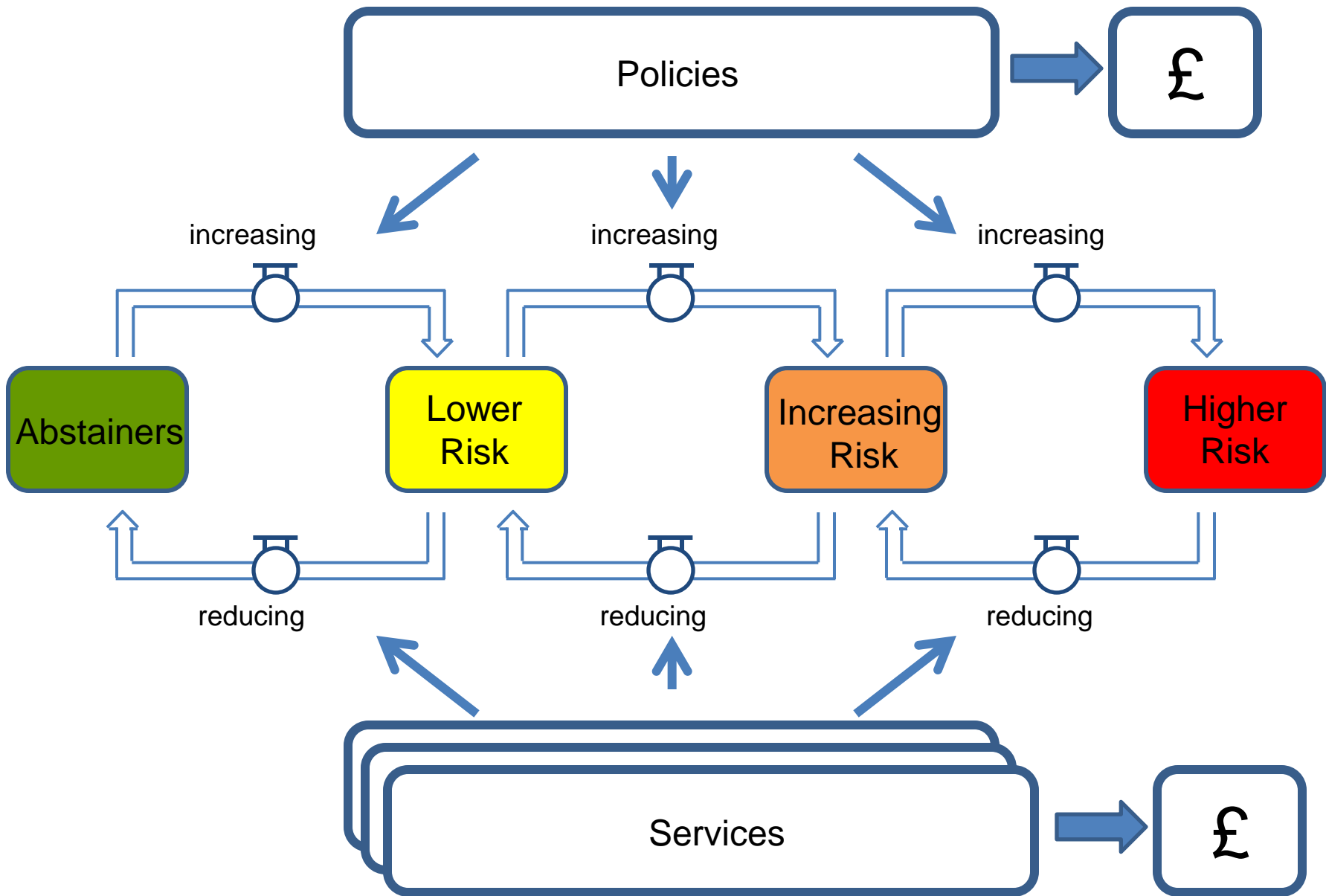
Admissions

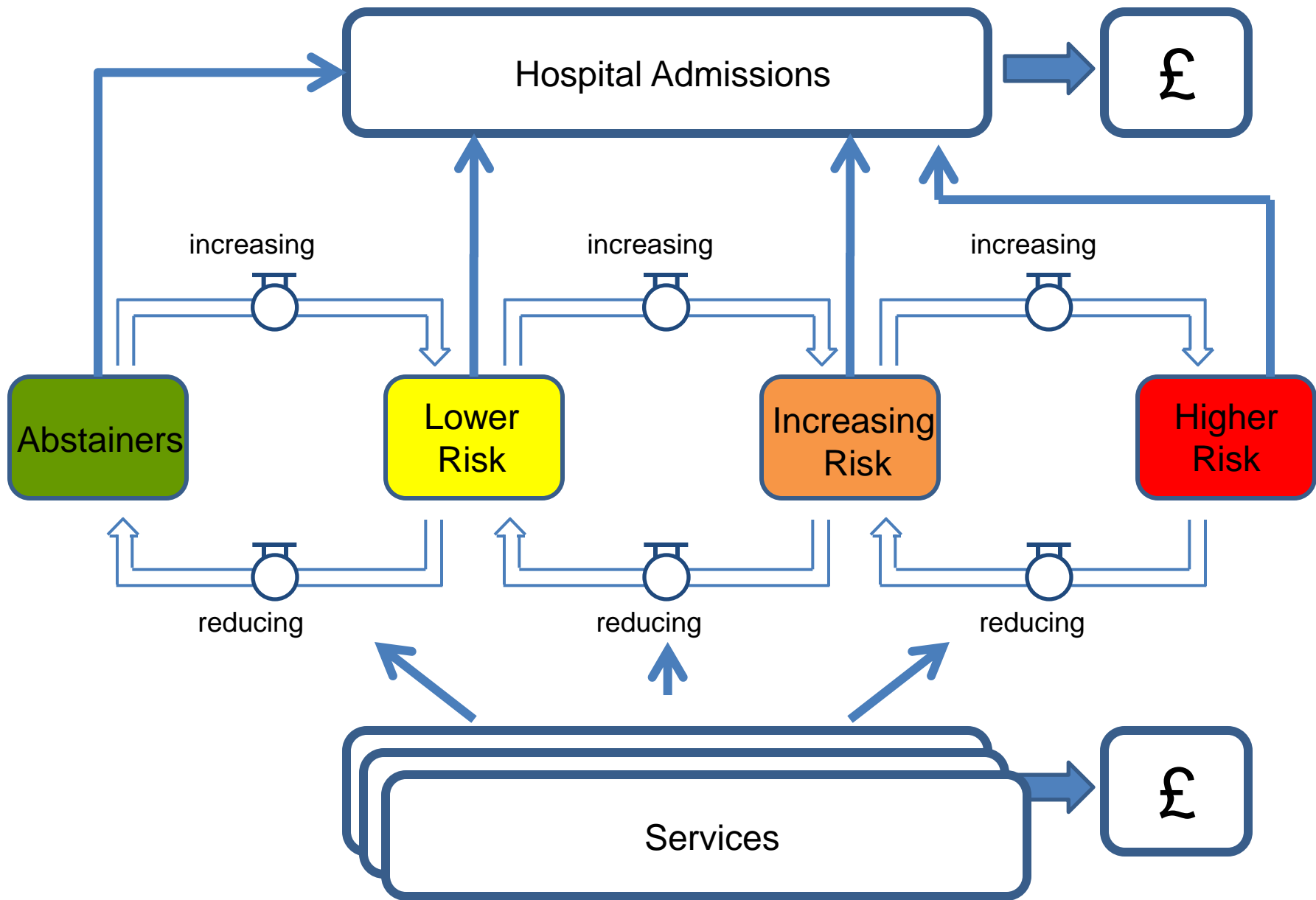
Symmetric Project Brief:

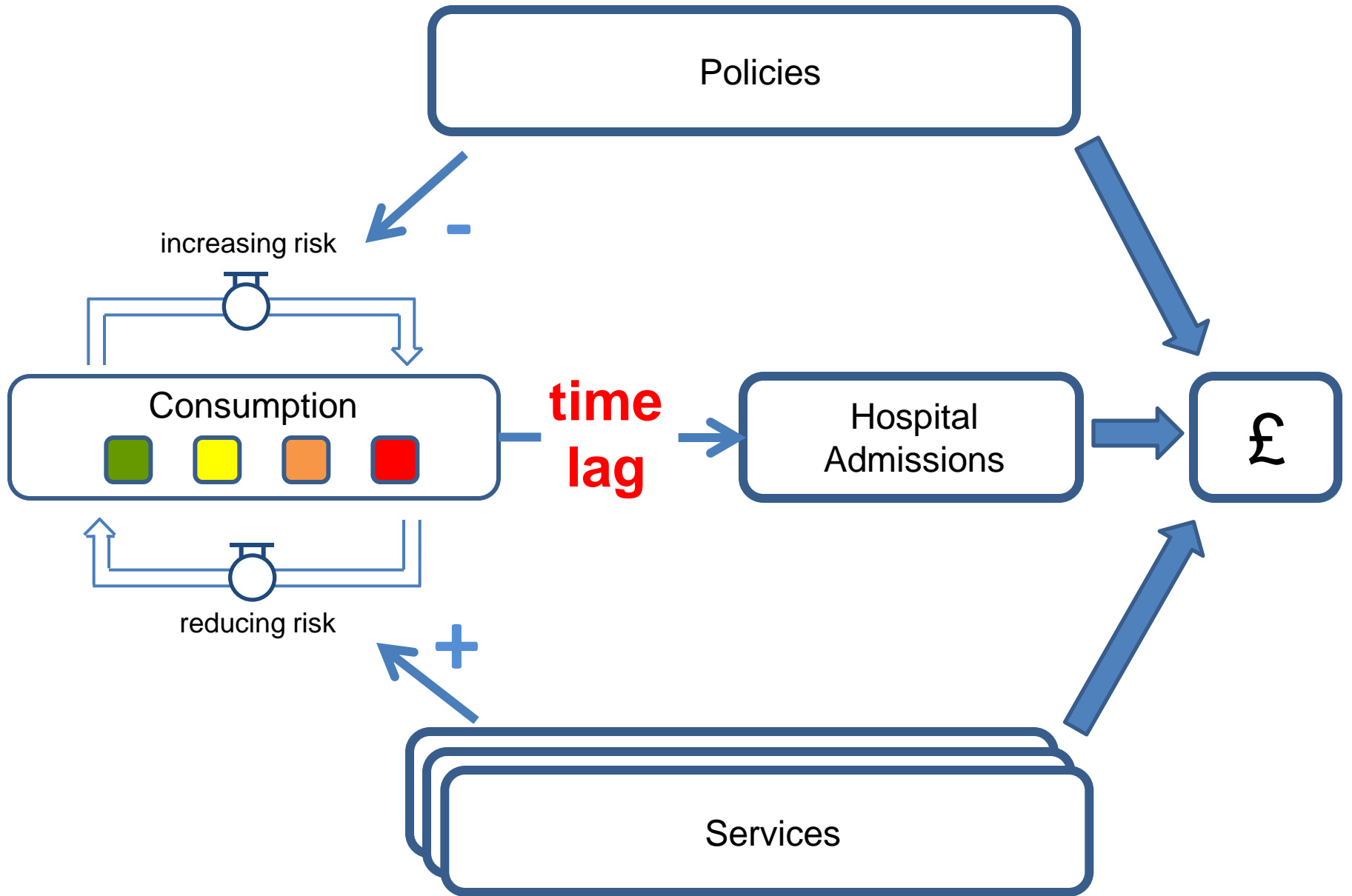
- To develop a “tool” similar to Ready Reckoner but more of a “model” with a User Friendly Interface
- Assumption that the Ready Reckoner was probably “correct”

2009/10	5000	1.0	20	10	£15,500	£17,000
2010/11	5000	1.0	32	20	£15,500	£16,600
2011/12	5000	1.0	45	21	£15,500	£18,700

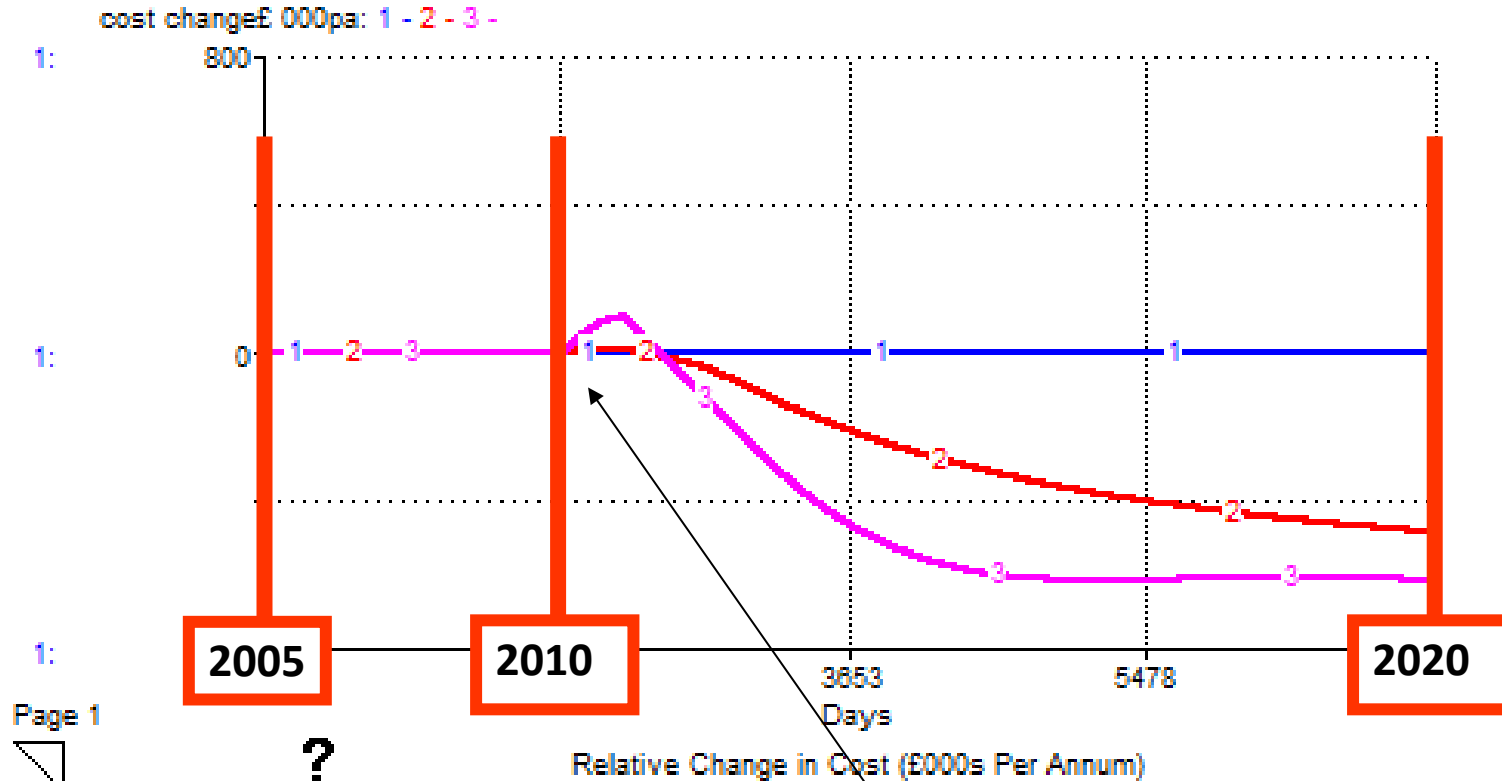








Time Period Covered – 20years

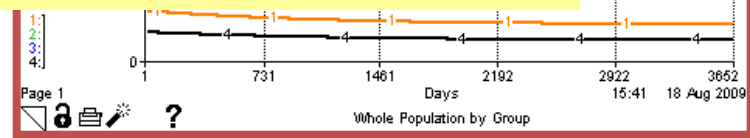
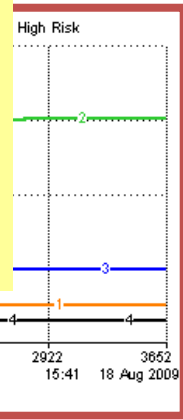
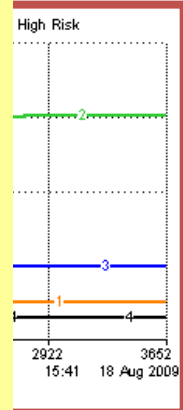
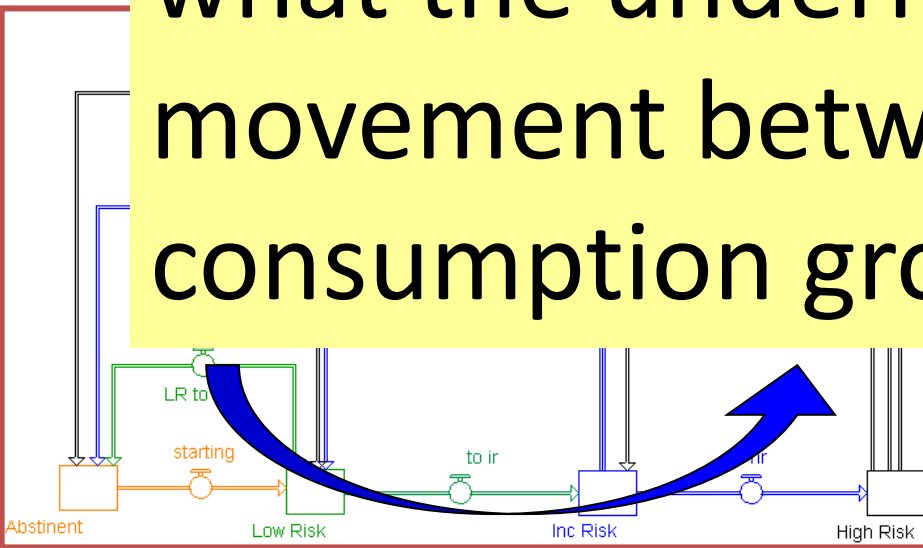
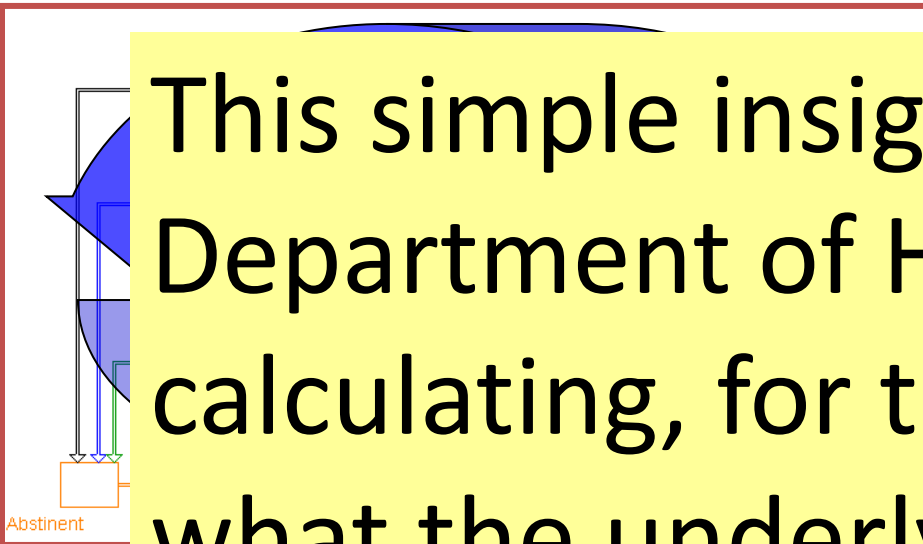


- New services are **introduced in 2010**
- **Further changes can be made when the model pauses**
- **Note the time delay before** some effects register

What is the Underlying Flow Rate between Consumption Groups?

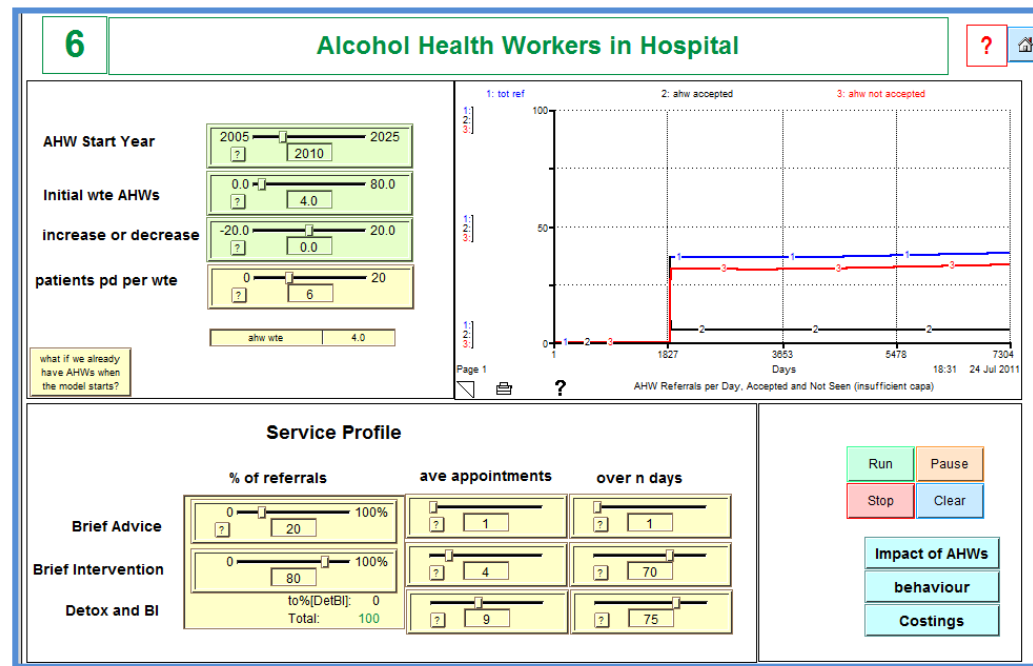
- It cannot be deduced from observing the stocks

This simple insight led to the Department of Health calculating, for the first time, what the underlying rate of movement between consumption groups actually is.

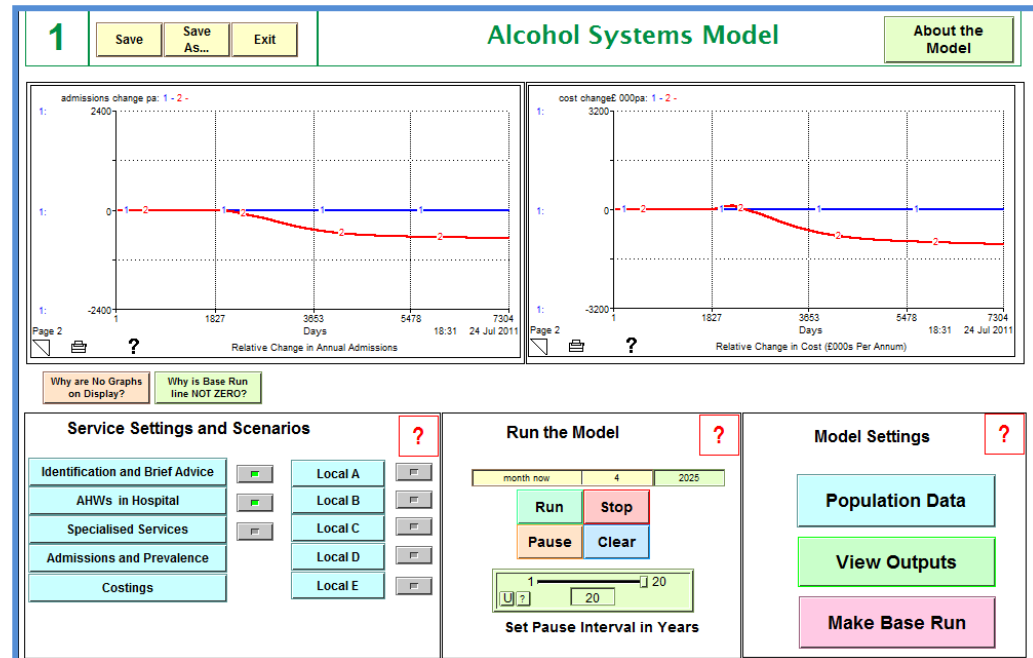


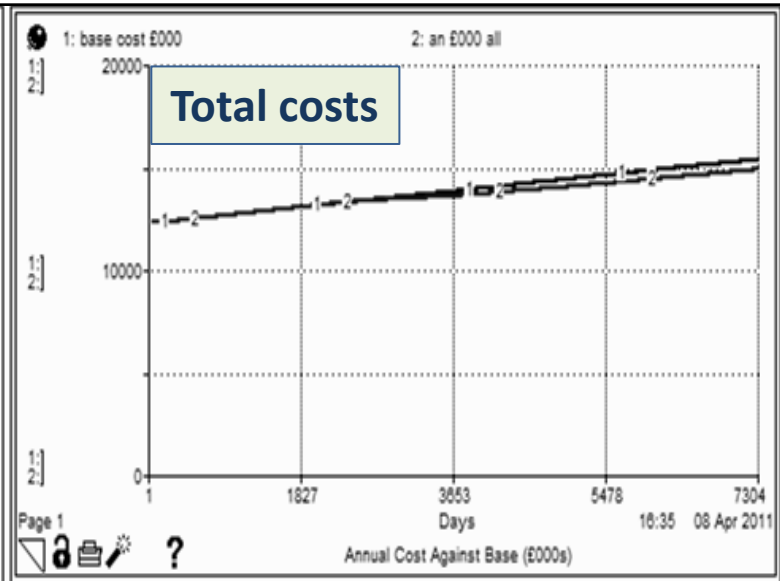
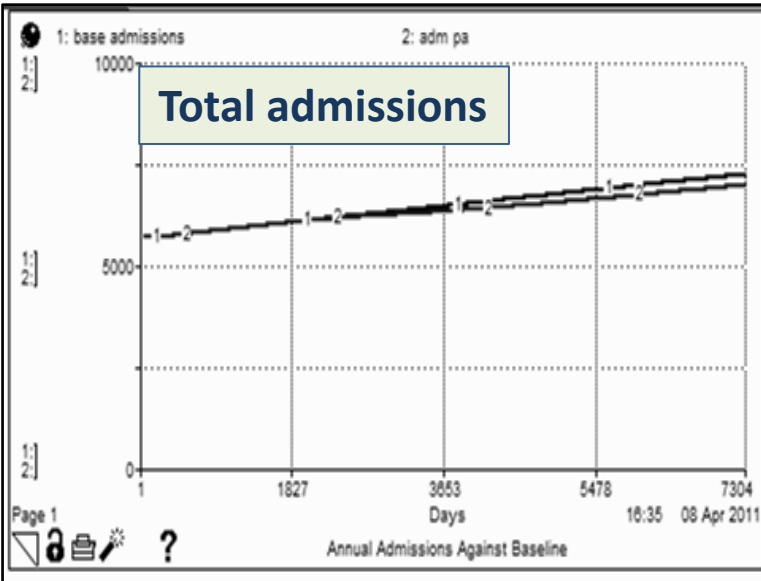
The model works by enabling a user to

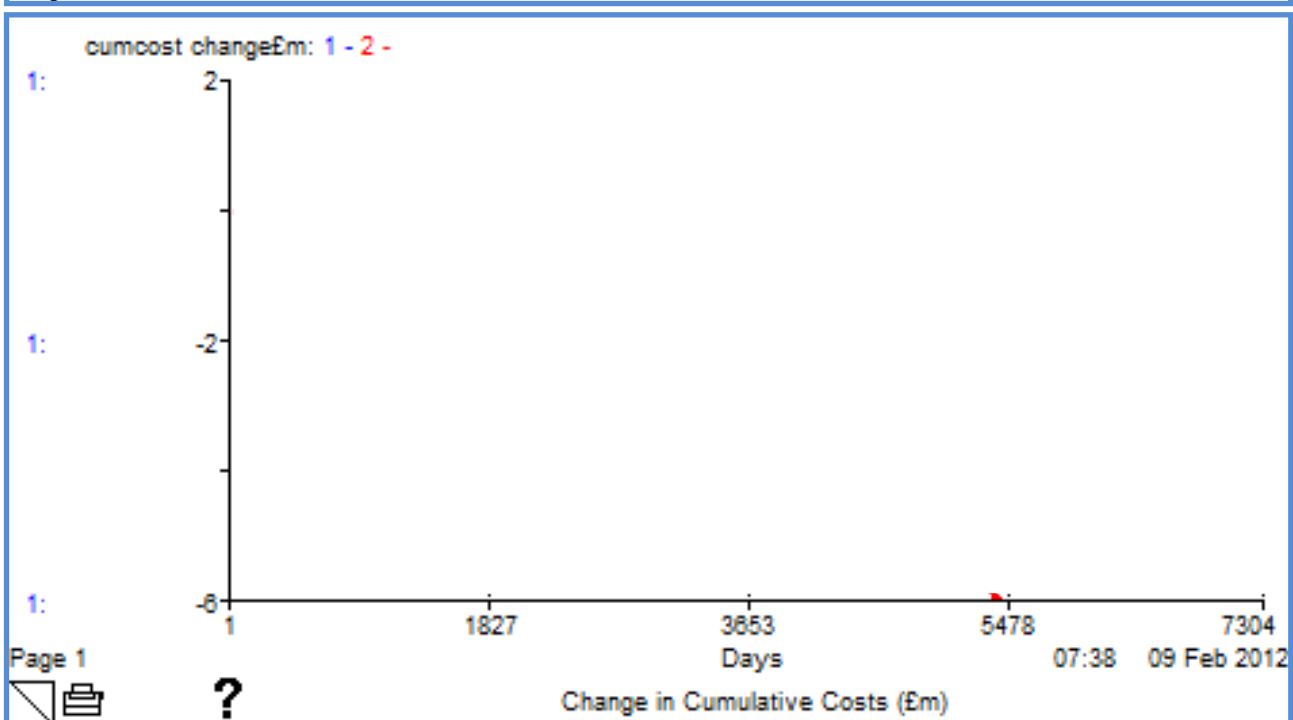
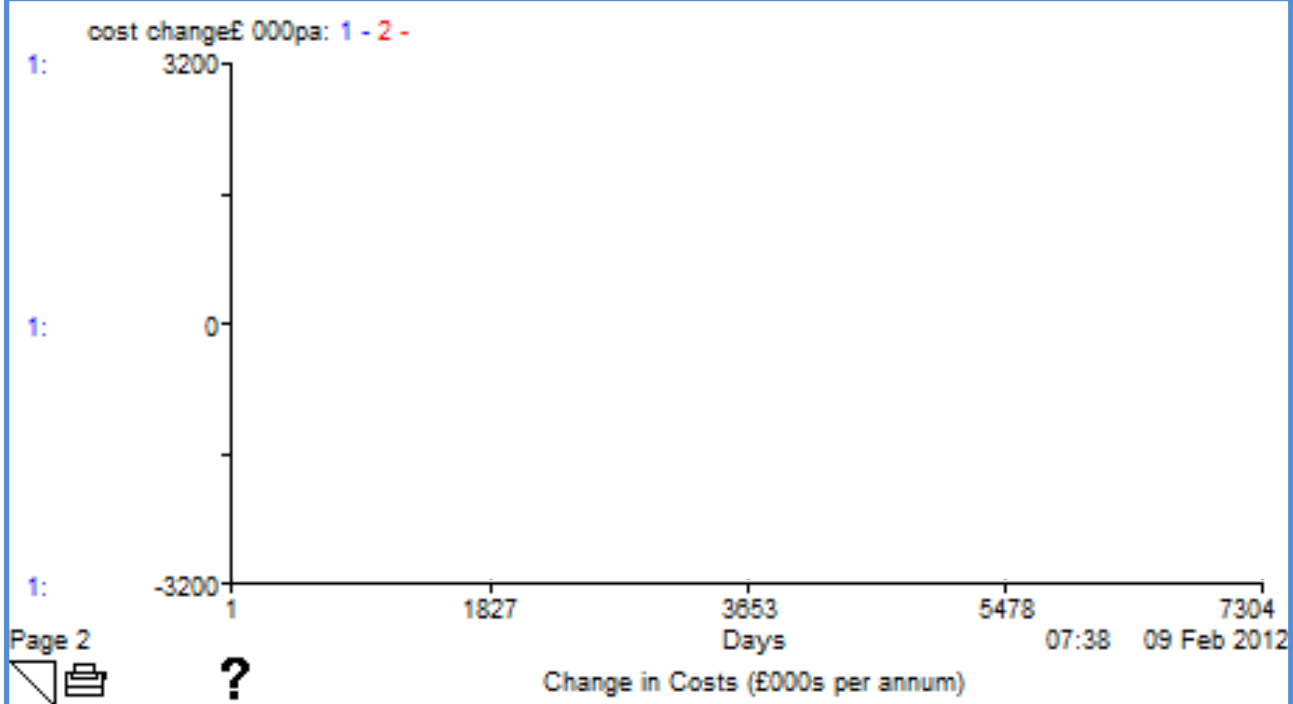
- Introduce a new service capacity, at a point in time
- Make assumptions about its impact on alcohol consumption (screen not shown)

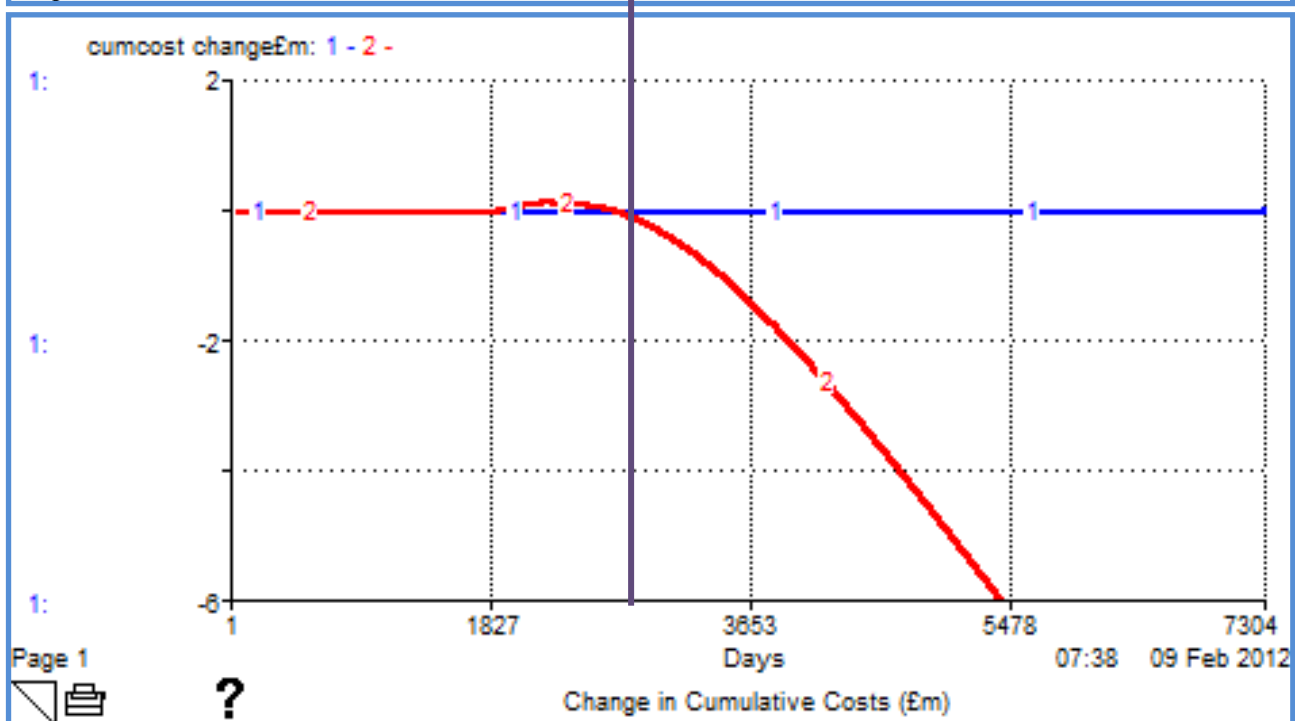
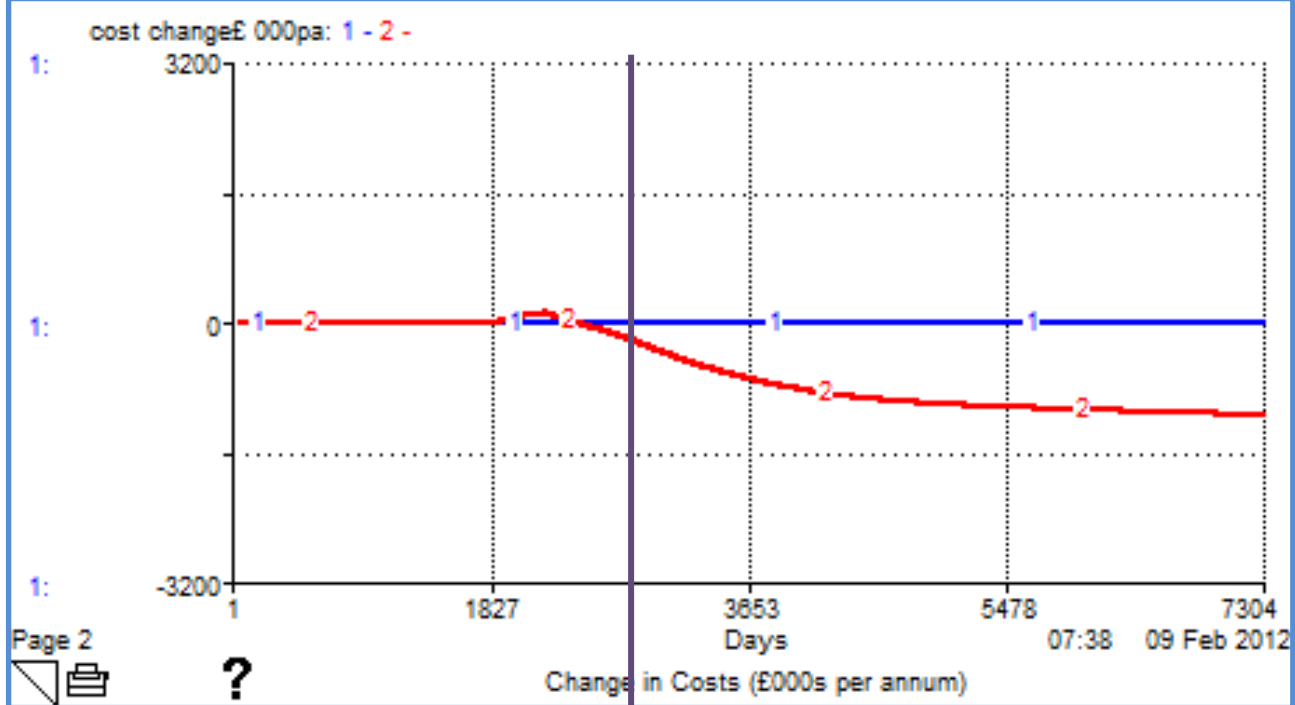


Then on the model dashboard, user can switch on these new service settings, and observe the impact on hospital admissions and total costs

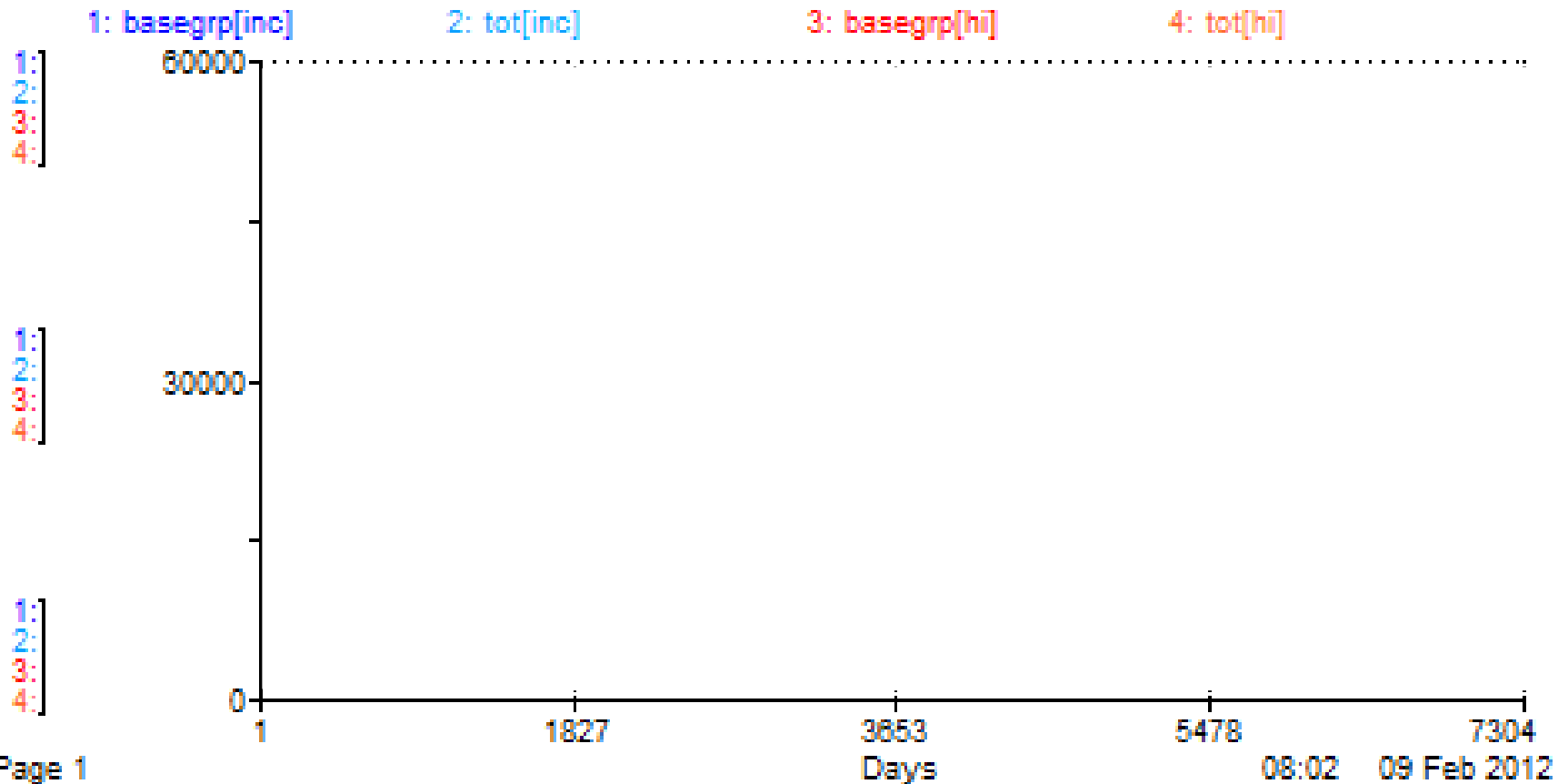








Impact of Brief Advice Services on Whole Population over Time



- Model simulates some key dynamics that are harder to show on a spreadsheet
 - time delay between intervention and health improvement
 - Cumulative impact on Population
- Dynamic view of changing consumption, new data
- “Invest to save”, the case is made, but there will be a few years of higher expenditure at a time when costs are tight
- Available as a “runtime” tool for commissioners in England (and anyone else interested)
- Wider public benefits of reductions in alcohol consumption can also be considered (some interest in the model from the criminal justice system)
- There may be less costly ways of reducing alcohol consumption, e.g. “minimum pricing”

For further information:-

douglas.mckelvie@symmetricpartnership.co.uk

Model available at:-

<http://www.alcohollearningcentre.org.uk/Topics/Browse/Data/Datatools>

(or search for “alcohol systems model” “Department of Health” “Alcohol Learning Centre” “England”)