

The Cost Implications of Non-Completion

A Markov Model

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Plan

- Background
- Aims
- Method
 - Literature review
 - Data
 - Decision tree
 - Markov model
- Results
- Conclusion

Background

- Clinical problem
 - Antibiotic course
 - Post-surgery physio
- Non-completion in PD
- Consequences
 - Health
 - Social
 - Crime
 - Institutional
 - Staff moral
 - **Economic**

Background

- Economic consequences
 - Criminal justice costs
 - Unemployment costs
 - **NHS costs**

Aims

- Consequences of non-completion
 - Are non-completers more likely to return to prison and less likely to return to the community?
- Find the cost consequences
 - Do completers and non-completers incur differing costs?
- Is economic modelling a viable method for the evaluation of interventions in PD?

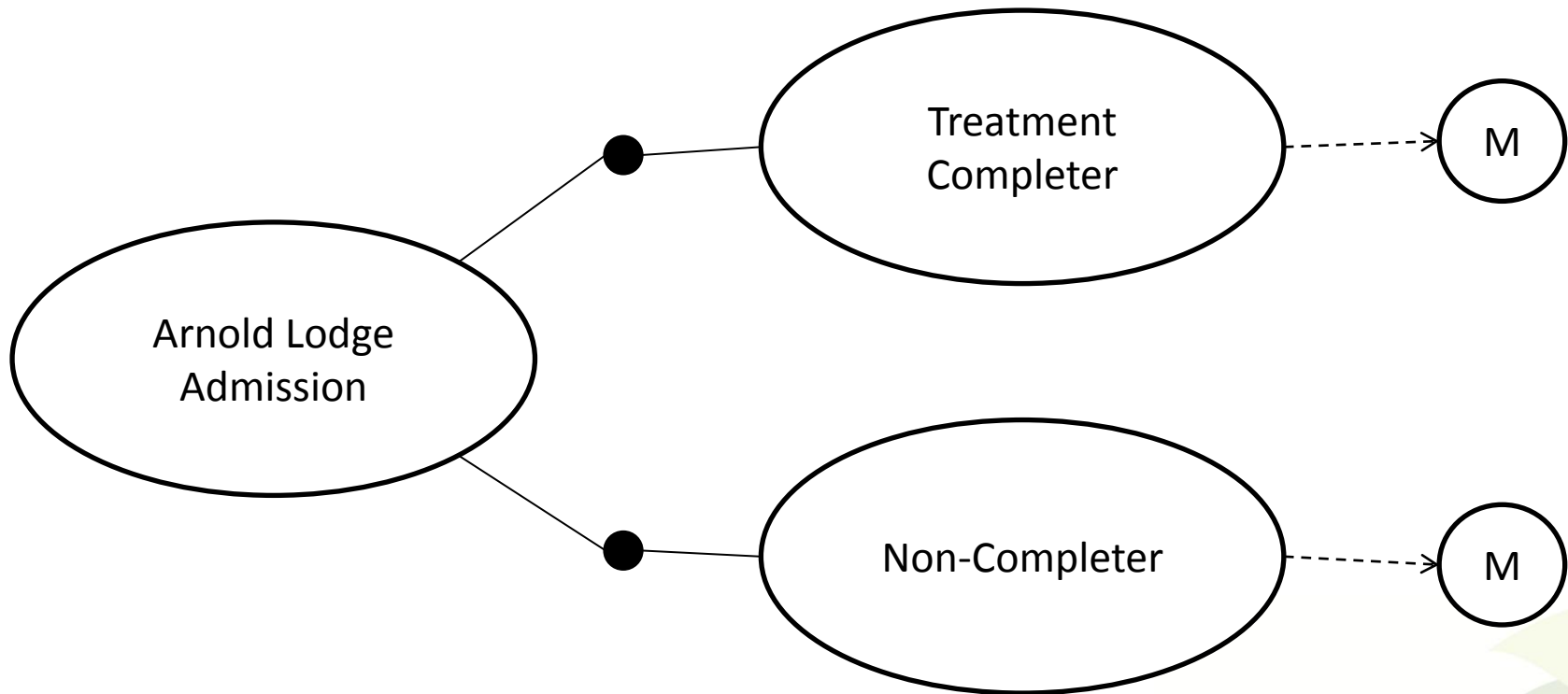
Method | Literature Review

- We looked for:
 - The economic costs of PD
 - The cost consequences of non-completion
- We found:
 - Prevalence data
 - Small cost of illness studies
 - Trials
 - Non-economic consequences of non-completion

Method | Data

- Arnold Lodge PDU
 - 95 cases
 - Up to 10 year follow-up
 - Mean: 5 years
 - Minimum: 6 months
 - Collected yearly
 - Weekly information

Method | Decision Tree



Method | Decision Tree

- Completion rate
 - 51%
- Average length of stay
 - Completers: 76 weeks
 - Non-completers: 14 weeks

Method | Markov Model

- Why it's useful
 - Other models – not appropriate
 - Useful when patients easily defined
 - In terms of costs
 - Can simulate real life
 - Used poorly in past
- What we need to know
 - States
 - Transition probabilities
 - Costs

Markov Model | States

- Prison
- Hospital
 - High Secure
 - Medium Secure
 - Low Secure
 - Non-Secure
- Dead
- Community
 - Specialist services
 - Cost can vary dramatically
 - Unlikely in this population

Markov Model | States

Dead

Prison

Non-Secure
Hospital

Community

Low Secure
Hospital

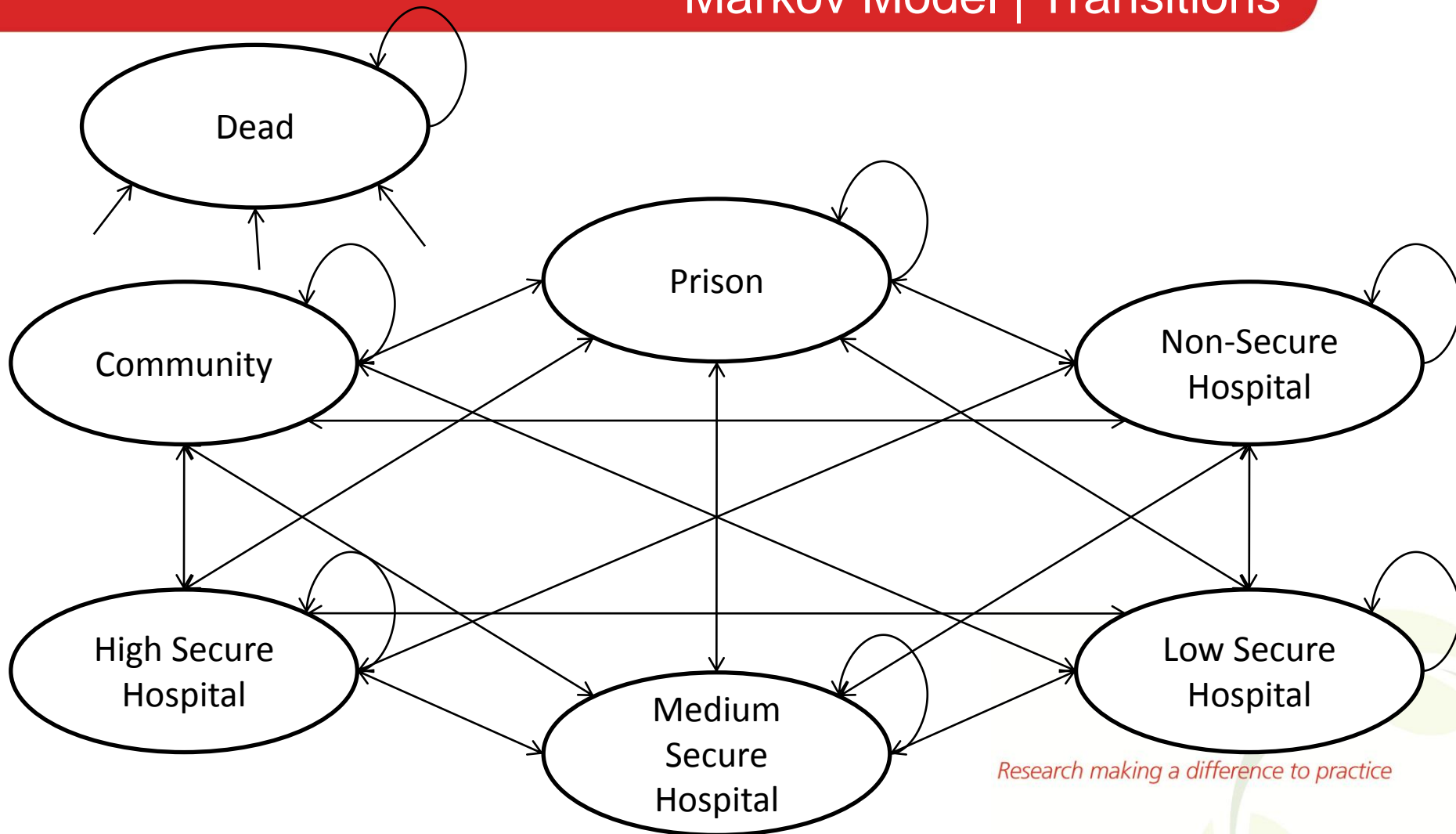
High Secure
Hospital

Medium
Secure
Hospital

Markov Model | Transitions

- Any state to any state
- Markov cycle
 - weekly
- What is the probability than an individual will move from A to B?
 - Proportions?
 - Different for completers/non-completers
 - Weekly timeline of 95 individuals
 - Average weekly chance of transfer

Markov Model | Transitions

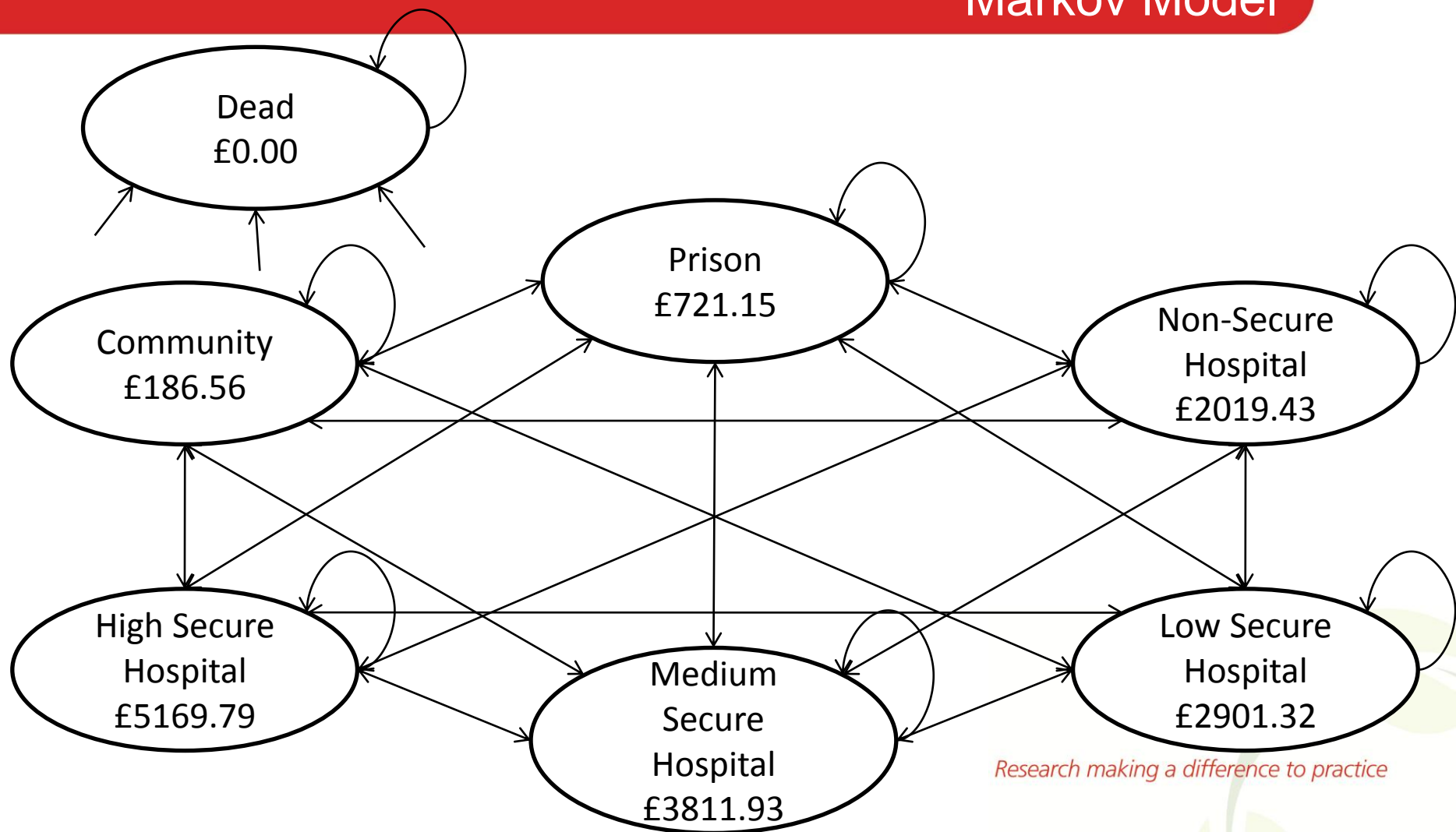


Costs

Per person per week

Community	£186.56
Prison	£721.15
Low Secure	£2,901.32
Medium Secure	£3,811.93
High Secure	£5,169.79
None Secure	£2,019.43
Dead	£0.00

Markov Model



Results

Year	Completers	Non-Completers	Difference
1	£168,234	£170,614	-£2,380
2	£124,741	£132,018	-£7,277
3	£99,368	£110,603	-£11,235
4	£84,513	£98,435	-£13,922
5	£75,776	£91,312	-£15,535

Conclusion

- Non-completers are likely to incur greater costs
- Increasing completion rate could save money
- An engagement intervention could be cost-effective
- Economic modelling is an ideal way to evaluate such an intervention