

APPENDIX:

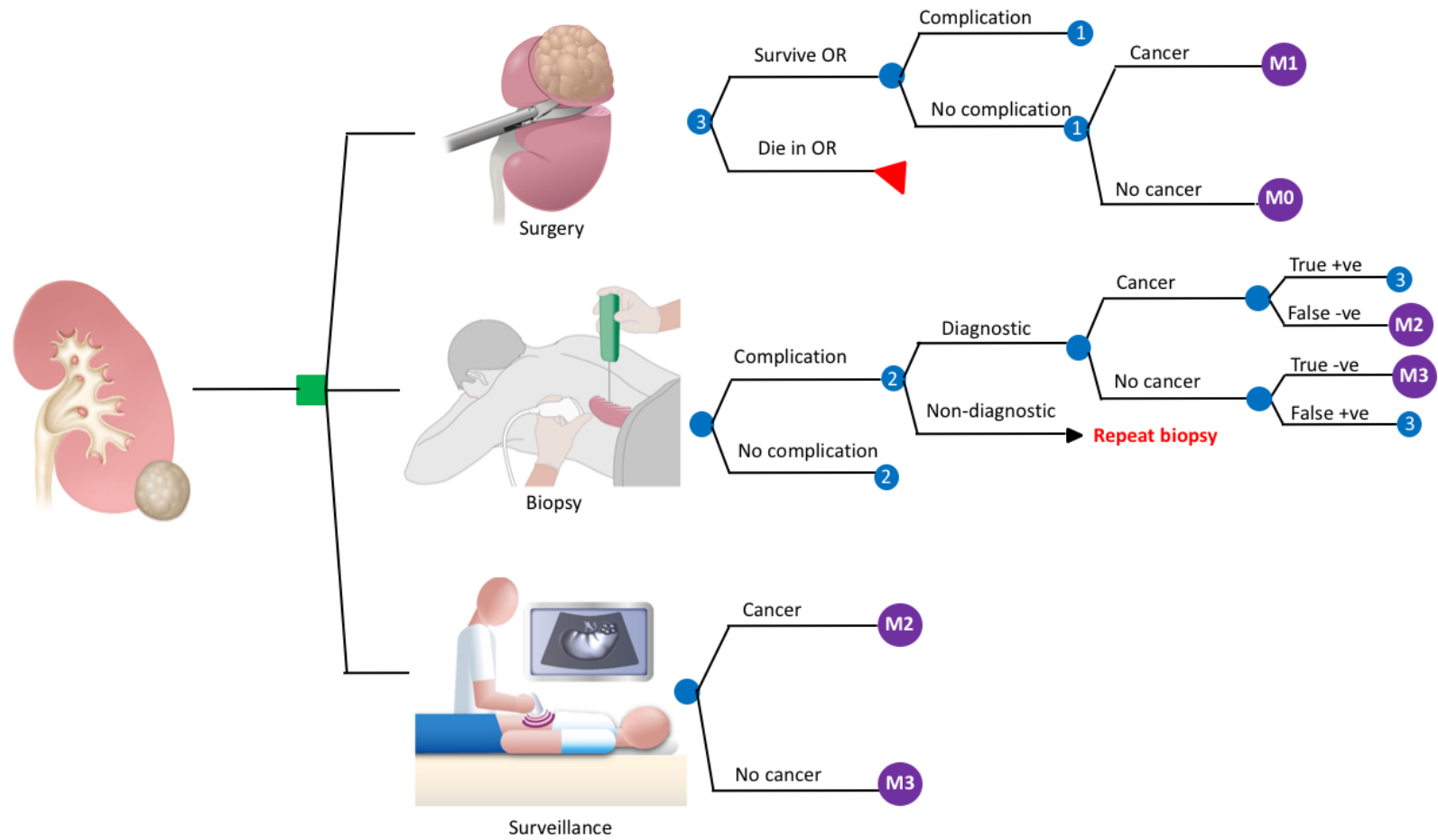
Appendix 1 - Schematic of decision analysis model

Appendix 2 - State-transition diagrams for Markov models

Appendix 3 - Summary of assumptions in model

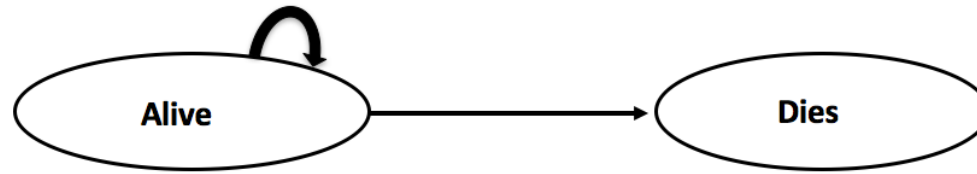
Appendix 4 - Summary of evidence tables

Appendix 1 - Schematic of decision analysis model

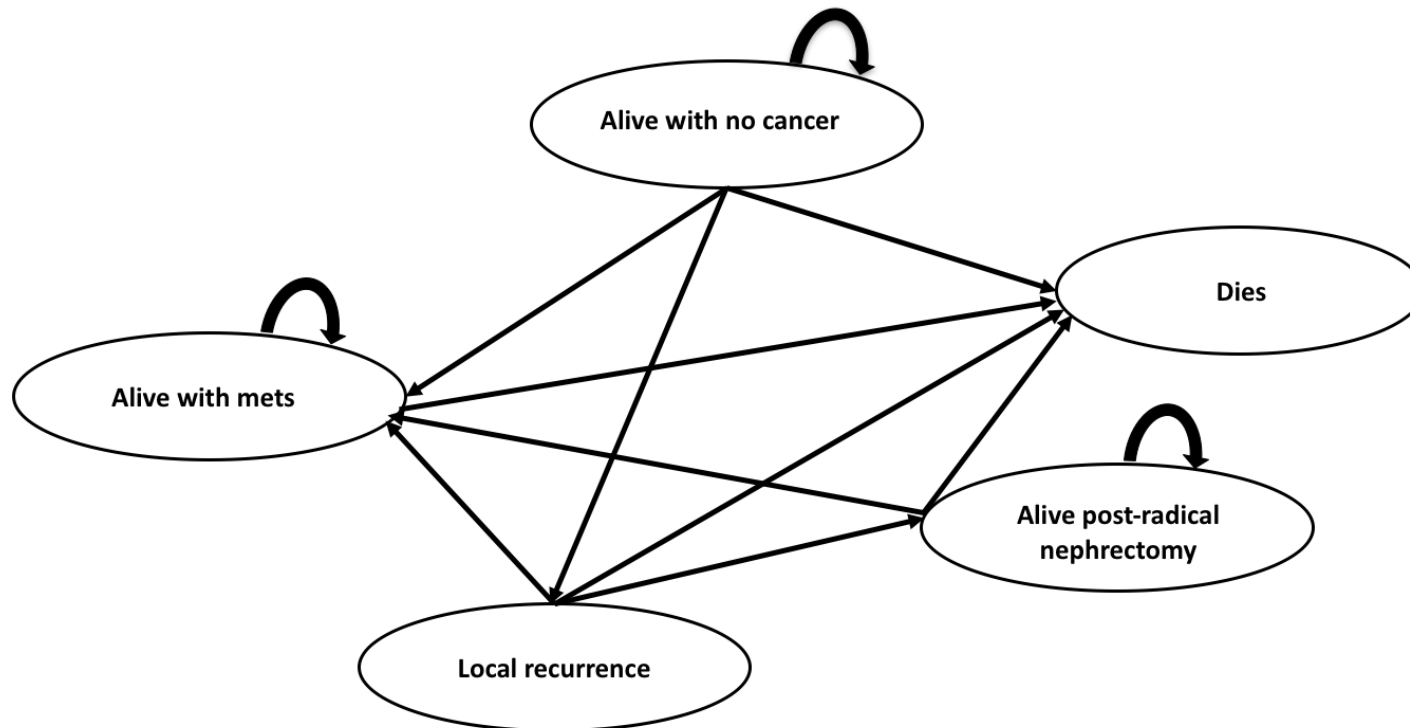


Appendix 2 - State-Transition Diagrams for Markov Models

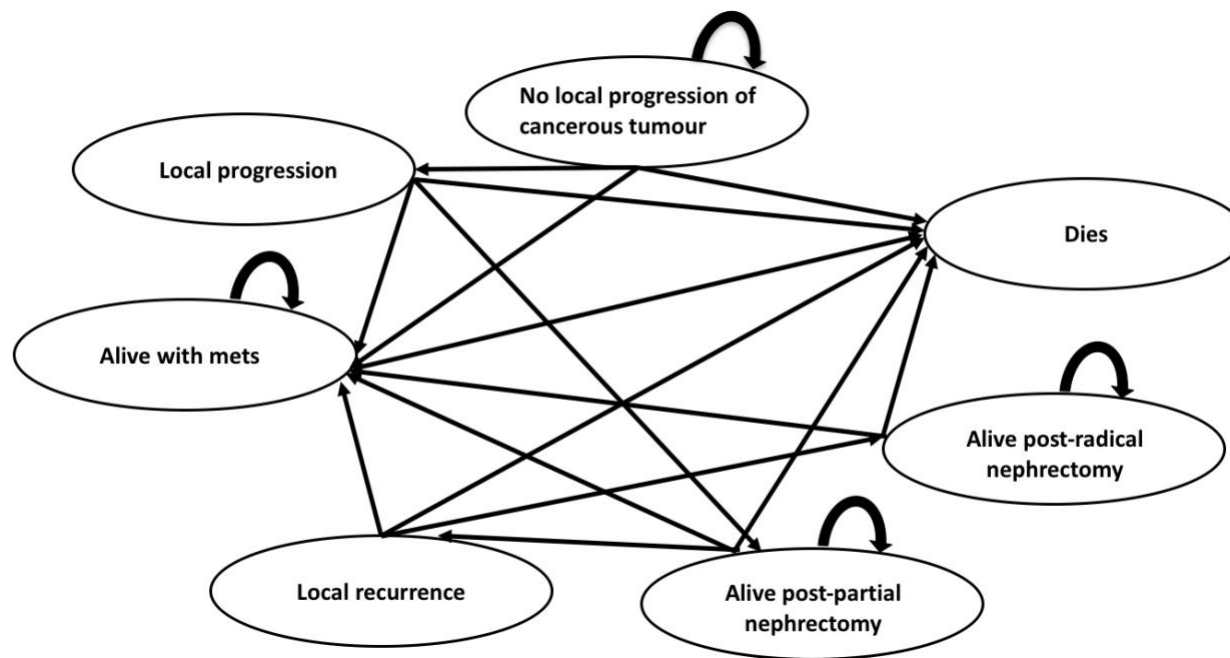
M0



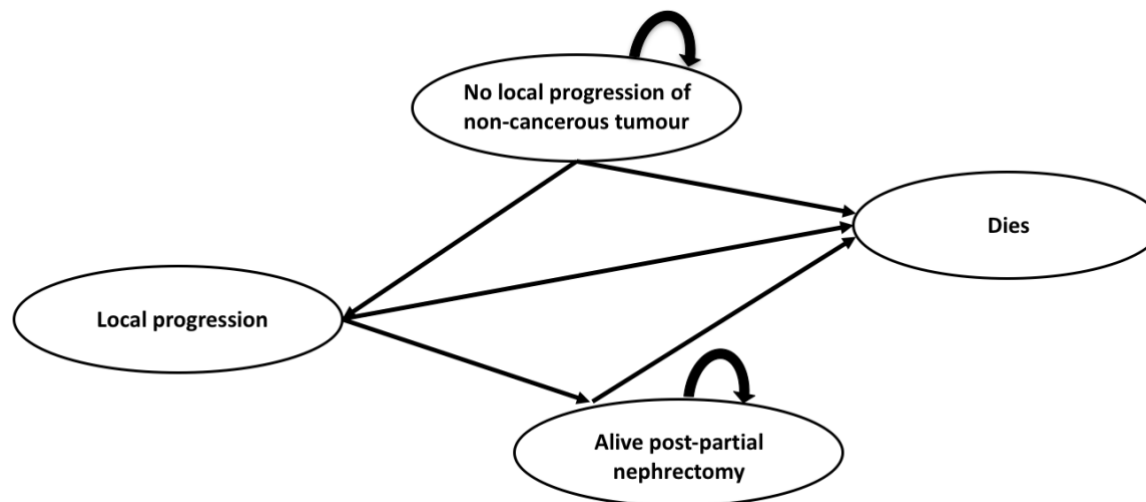
M1



M2



M3



Appendix 3 - Summary of assumptions in model

Key Assumptions in Model:

1. If a patient receives a non-diagnostic renal mass biopsy, they will return for a second attempt at a renal mass biopsy.
2. If a patient receives two non-diagnostic renal mass biopsies, they will proceed to surgery in the form of a partial nephrectomy.
3. If a pathology from a renal mass biopsy is reported as cancerous, all patients will proceed to surgery in the form of a partial nephrectomy
4. If a pathology from a renal mass biopsy is diagnostic and reported as non-cancerous, all patients will proceed to active surveillance.
5. If a patient develops a local recurrence after partial nephrectomy, they will proceed to receive a radical nephrectomy.
6. Surgical pathology is the gold standard for a diagnosis of a benign or cancerous small renal mass.
7. If a patient develops local progression on active surveillance, they will proceed to surgery in the form of a partial nephrectomy.
8. Patients with a small renal mass in the model would be willing and able to receive surgery, a biopsy and/or active surveillance.

Appendix 4 - Summary of evidence tables

eTable 1 - Summary of evidence table for renal mass biopsy

Author	Type of study	Year	n	Rate of Complications	Diagnostic Rate
Marconi ¹⁵	Meta-analysis	2015	5228	8.1%	92%
Leveridge ¹⁶	Cohort	2011	354	10%	83% (repeat)
Richard ¹⁷	Cohort	2017	373	8.5%	87%
Finelli ¹⁸	Cohort	2020	159	-	81%

eTable 2 - Summary of evidence table for partial nephrectomy

Author	Type of study	Year	n	Rate of Complications	Rate of Recurrence	Rate of Mets	Cancer Specific Survival at 5 Years
Maurice ¹⁹	Cohort	2017	411	Major 2% Any 20-30%	-	-	-
Van Poppel ²⁰	Randomized trial	2011	541	4%	-	-	-
Pierorazio ²¹	Comparative effectiveness review	2016	-	6-25%	-	-	-
Klatte ²²	Meta-analysis	2014	627	Major 3-8% Any 22%	0.4%	0.4%	-
Olweny ²³	Cohort	2005	74	-	5%	8%	100%
Chang ²⁴	Cohort	2015	90	-	4%	4%	98%
Pierorazio ²⁵	Cohort	2015	497	-	4%	0.5%	99%
Thompson ²⁶	Cohort	2015	1424	-	3.4% at 3 yr	2% over 2.2 yr	98%

eTable 3 - Summary of evidence table for active surveillance

Authour	Type of study	Year	n	Rate of Metastatic Disease
Jewitt ²⁷	Cohort	2011	178	1%
Finelli ¹⁸	Cohort	2020	129	4%
Smaldone ¹¹	Meta-analysis	2012	880	2%
Pierorazio ²⁵	Clinical trial	2015	223	0%

eTable 4 - Summary of evidence table for radical nephrectomy

Authour	Type of study	Year	n	Rate of Complications	Rate of Recurrence	Rate of Mets	Cancer Specific Survival at 5 Years
Katsanos ²⁸	Meta-analysis	2014	587	11%	3.6%	-	-
Pierorazio ²¹	Comparative effectiveness review	2016	-	-	3% at 5 yr	4-6%	97%
Van Poppel ²⁰	Clinical trial	2011	541	4-7%	2%	4%	-

eTable 5 - Summary of evidence table for metastatic renal cell carcinoma

Authour	Type of study	Year	n	Median overall survival
Heng ²⁹	Retrospective cohort	2013	1028	40% over 48 months