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| **Table 2 – Model Design and Structure** |
| Author | Model Type | Cycle Length | Time Horizon | Discounting | No. and Names of Key States / Pathways |
| **Low back pain decision modelling studies** |
| Lloyd et al. (2004) [17] | Decision tree | N/A  | 4 days | N/A | 7: Successfully treated or Not, Consultation or not, Refer to physio, Adverse Event, or Treat with NSAID  |
| Kim et al. (2010) [14] | Markov model  | 3 months  | 5 years  | 5% costs and benefits | 4: Acute LBP, Chronic LBP, Well, Death |
| Wielage et al. (2013a) [18] | Markov model  | 3 months | Lifetime  | 3% costs and benefits | 4: Treatment, Adverse Event, Post-Adverse Event, Death. |
| Wielage et al. (2013b) [19] | Markov model  | 3 months | Lifetime  | 5% costs and benefits | 4: Treatment, Adverse Event, Post-Adverse Event, Death |
| Norton et al. (2015) [15] | Decision tree & Markov model | Unclear | 1 year and 10 years | 3% costs and benefits | 3: Improved, Not improved, Dead |
| **Sciatica decision modelling studies** |
| Launois et al. (1994) [16] | Decision tree & Markov model  | 3 months  | 7 years  | 5% costs and benefits | 7: Success or Failure; Maintained; Re-Operation, Deterioration, No Reoperation or Definitive failure |
| Lewis et al. (2011) [11] | Decision tree | N/A  | 12 months | N/A | 100+: First line treatments Succeed or Fail. Failures have 2nd treatment. 2nd failures have possible disc surgery or epidural, each with Success or Failure. |
| Skidmore et al. (2011) [23] | Unclear  | Unclear | 2 years | None | Unclear  |
| Fitzsimmons et al. (2014) [21] | Decision tree | N/A  | 12 months | N/A | 100+: First line treatments Succeed or Fail. Failures have 2nd treatment. 2nd failures have Disc surgery or Epidural, each with Success or Failure. |
| Koenig et al. (2014) [25] | Markov model | 1 year  | 4 and 8 years | 3% costs and benefits | 4: Satisfactory outcome, Unsatisfactory outcome, Death, and Revision.  |
| Udeh et al. (2015) [22] | Decision-tree  | N/A  | 2 years  | 3% costs and benefits | 21: Various reflecting type of treatment, complications during treatment, and any further treatments.  |
| Igarashi et al. (2015) [20] | Markov model | 1 month | 12 months  | N/A | 4: Mild or no pain, Moderate pain, Severe pain, After surgery (return to mild pain). |
| Parker et al. (2015) [24] | Markov model | 3 months  | 2 years  | 3% costs and benefits | 7 states with failure or success attached: CC, DS, Continue post-DS, Spacer implant, Continue post-spacer, (DS and Continue post-DS after spacer).  |
| Tapp et al (2018) [50] | 2 Separate Markov models 1 for CC and 1 for surgeries | Unstated. Assume 1year | 3 years and 10 years  | 3% costs and benefits | CC Markov model 2: Alive, DeadSurgical model: 4: Surgery, Post-Surgery, Post Major complication |
| **Sciatica decision modelling studies – surgical treatments** |
| Kuntz et al. (2000) [26] | Stated as Markov, but no diagram  | Unclear | 10 years  | 3% costs and benefits | Unclear. Could be inferred from the text.  |
| Kim et al. (2012) [27] | Markov model  | 1 year | 10 years | 3% costs and benefits | 4: Unwell, Well, No improvement, and Death.  |
| Parkinson et al. (2012) [31] | Markov used for costs. Utility values are pooled.  | 1 month  | 2 years  | None | 9: Initial surgery, Successful surgery, Failed surgery; Replace, Remove without replace, Revise, Supplemental fixation, Other Re-operation > Successful surgery following Re-operation |
| Schmier et al. (2014) [28] | Diagram resembles a Markov with one-way movement | 1 year | 5 years  | 3% costs and benefits | Unclear number. States include Surgery, Short-term postoperative, Long-term postoperative.  |
| Bydon et al. (2015) [30] | Markov model  | Unclear | 9 years? | None | 4: Re-operation or No re-operation. PLF with additional Reoperation or Not.  |
| Vertuani et al. (2015) [32] | Unclear  | Unclear | Unclear. Utility values are after 2 years.  | None | Unclear  |
| Yaghoubi et al. (2016) [29] | Very basic decision Tree  | N/A  | Unclear  | None | 2: Success or Fail.  |
| Abbreviations; CC (Conservative care); DS (Decompression surgery); LBP (Low back pain); NSAID (Nonsteroidal anti-inflammatory drug); PLF (posterolateral fusion) |