Tables

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| **Table 1 – Overview of studies included in this review** | | | | | | |  |
| Author | Country | Type of Analysis | Perspective | Condition and Population | Intervention | Comparator(s) | ICER Value / Main findings |
| **Low back pain decision modelling studies** | | | | | | |  |
| Lloyd et al. (2004) [17] | U.K | CEA | UK NHS | Adult patients, with acute nonspecific LBP | Heat wrap therapy (ThermaCare® Procter & Gamble Ltd.). | Paracetamol, Ibuprofen | Heat wrap dominates comparator, at £48.72 per successfully treated patient. Paracetamol next best at £131.63 per successful patient |
| Kim et al. (2010) [14] | South Korea | CUA | Societal | Cohort of 60-year old females with CLBP | Acupuncture plus routine care options | Routine care (NSAIDs, heat therapy, electrotherapy and lumbar traction) | Acupuncture cost-effective Vs routine care (ICER 3,421,394 KRW/ QALY). Inclusion of indirect costs lowers ICER to 1,349,463 KRW per QALY |
| Wielage et al. (2013a) [18] | U.S.A | CUA | Private Payer | CLBP patients | Duloxetine | Celecoxib, Naproxen, Pregabalin, Oxycodone APAP, Oxycodone ER, Tapentadol, Tramadol | Duloxetine cost-effective treatment for LBP compared to all but generic NSAIDS. Duloxetine ICER of $59,473 Vs Naproxen. |
| Wielage et al. (2013b) [19] | Canada | CUA | Societal | Chronic LBP patients | Duloxetine | Celecoxib, Naproxen, Pregabalin, Hydromorphone, Oxycodone ER, Amitriptyline | Naproxen least expensive. From societal perspective Celecoxib ICER of $19,881, and duloxetine ICER $43,437 relative to Naproxen. Others dominated. |
| Norton et al. (2015) [15] | U.S.A | CUA | Private Payer | Adult Chronic LBP patients | CBT with educational materials | Educational materials on managing pain, activity and symptoms. | ICER of $5855 for CBT Vs advice alone at ten years. |
| **Sciatica decision modelling studies** | | | | | | |  |
| Launois et al. (1994) [16] | France | CUA | Unclear | Patients with radicular pain caused by lumbar disc herniation | Chemonucleolysis | Surgical discectomy | Chemonucleolysis dominates discectomy. More effective, and 9,126 Francs cheaper |
| Lewis et al. (2011) [11] | U.K | CEA | NHS | Patients presenting with sciatica | Full range of Sciatica treatments used in the UK | | Stepped approaches based on initial treatment with non-opioids most cost-effective regimens relative to direct referral to surgery. Referring patients who fail initial treatments to surgery unlikely to be cost-effective |
| Skidmore et al. (2011) [23] | U.S.A | CEA | Societal | Patients at least 50-years old with moderately impaired LSS | Decompression using the X-STOP ® Interspinous Spacer | Conservative care (epidural, supplemented by NSAIDS, oral steroids, physical therapy, or spinal manipulation).  Laminectomy | X-STOP cost-effective when compared with CC (ICER $17,894 per QALY. X-STOP spacer dominant compared with Laminectomy |
| Fitzsimmons et al.  (2014) [21] | U.K | CEA | NHS | See Lewis et al. (2011) | | | |
| Koenig et al. (2014) [25] | U.S.A | CEA | Private Payer and Societal | Patients of various age cohorts, with lumbar disc herniation | Lumbar discectomy | Non-surgical treatments | Consideration societal costs reduces the ICER for discectomy from $52,416 to $35,146 over 4 years |
| Udeh et al. (2015) [22] | U.S.A | CEA | Medicare | Patients with moderate to severe LSS who failed conservative therapy. | *mild®*, ESI or laminectomy surgery | Standard treatment for LSS patients after failure of conservative therapy | *mild®* most cost‐effective ($43,760/QALY), ESI next best at additional $37,758 per QALY. Laminectomy least cost‐effective ($125,985 per QALY) |
| Igarishi et al. (2015) [20] | Japan | CUA | Public Payer and Societal | Patients with moderate or severe LBP alongside neuropathic pain | Pregabalin | Usual care (standard analgesic) | Pregabalin cost-effective relative to usual care, ICERs ¥2,025,000 per QALY. Inclusion of societal costs decreases ICER to ¥1,435,000 per QALY |
| Parker et al. (2015) [24] | U.S.A | CEA | Medicare | Patients with diagnosis of LSS who have completed six months of conservative treatment. | Minimally-invasive interspinous spacer. | CC comprised of (physical therapy,  NSAIDs, mild opioids, and epidural injections).  DS | CC had the lowest cost at $10,540, but also lowest QALY increase (0.06). ICER for Spacers compared to CC was $16,300 and for DS was $15,200 |
| Tapp et al. (2018) [50] | U. S. A | CEA | Medicare | Patients with LSS with no previous surgery | Minimally-invasive interspinous spacer | CC  DS | DS cost effective relative to CC at $25,000 per QALY. Spacer cost-effective relative to decompression at $89,500 per QALY |
| **Sciatica decision modelling studies – surgical treatments** | | | | | | |  |
| Kuntz et al. (2000) [26] | U.S.A | CEA | Societal | Patients with degenerative lumbar spondylolisthesis and LSS | Non-instrumented fusion and instrumented fusion | Laminectomy without fusion | Laminectomy with non-instrumented fusion costs $56,500 per QALY *versus* laminectomy without fusion. ICER for instrumented fusion compared with non-instrumented fusion was $3,112,800 per QALY |
| Kim et al. (2012) [27] | U.S.A | CUA | Hospital | Patients with LSS who failed conservative treatment | Lumbar decompression without fusion | Lumbar decompression with fusion | Compared with decompression alone, decompression plus instrumented fusion cost $185,878 per QALY. |
| Parkinson et al. (2012) [31] | Australia | CEA | Healthcare | Patients with axial back pain and/or radicular pain who failed conservative treatment | Lumbar AIDR | Lumbar fusion.  Anterior lumbar interbody fusion.  PLF | AIDR cost‐saving compared with lumbar fusion ($1600/patient). However anterior lumbar interbody fusion and PLF were less costly by $2155 and $807.  Not all comparators had cost per QALY. PLF dominates AIDR on cost/QALY. |
| Schmier et al. (2014) [28] | U.S.A | CEA | Third Party | Patients with moderate to severe sciatica and low-grade generative spondylolisthesis | Coflex® interlaminar stabilization inserted following decompressive surgical laminotomy | Instrumented posterolateral lumbar fusion | QALYs higher for Coflex patients Vs fusion. Costs lower for Coflex compared to fusion, at $15,182 compared to $26,863 for the fusion control |
| Bydon et al. (2015) [30] | U.S.A | CEA | Unstated | Patients with degenerative spondylolisthesis | Posterior lumbar interbody fusion or transforaminal lumbar interbody fusion | Non-interbody fusion and posterolateral fusion | ICER for the interbody fusions versus non-interbody fusion, $9,883.97 per QALY |
| Vertuani et al. (2015) [32] | U.K & Italy | CEA | Healthcare Payer | Patients with degenerative lumbar spinal conditions | MIS | Open Surgery | MIS dominant compared with open surgery, yielding cost savings and improved HRQoL. Total cost saving per procedure €973 for Italy and €1666 for the UK, with an improvement of 0.04 QALYs over 2 years |
| Yaghoubi et al. (2016) [29] | Iran | CEA | Healthcare Payer | Patients requiring surgery for treatment of LSS | Dynamic Interspinous Spacer (Coflex®) and Static Spacer (X-STOP ®) | Laminectomy | ICER for X-stop and Coflex versus laminectomy was US$ 665.9 and US$ 780.7. X-stop the most cost-effective treatment strategy. |
| Abbreviations: AIDR (Artificial intervertebral disc replacement); CBT (Cognitive behavioural therapy); CC (Conservative care); CEA (Cost-Effectiveness Analysis); CLBP (Chronic low back pain); CUA (Cost-Utility Analysis); DS (Decompression surgery); ESI (Epidural steroid injections); HRQoL (Health Related Quality of Life); ICER (Incremental cost-effectiveness ratio); LBP (Low back pain); LSS (Lumbar spinal stenosis); mild® (Minimally invasive lumbar decompression); MIS (Minimally invasive surgery); NHS (National Health Service); NSAID (Nonsteroidal anti-inflammatory drug); PLF (Posterolateral fusion); QALY (Quality adjusted life year). | | | | | | |  |