



Cervical Fusion AUC Executive Summary

This document reviews appropriateness of fusion for the treatment of various degenerative cervical conditions. Conclusions are drawn from a methodology designed to provide answers to clinical scenarios based on the existing evidence and clinical expertise from a balanced panel of “thought leaders” in care of the cervical spine. **This does not represent a standard of care.** However, it does provide an evidence-based review to help guide decision-making for patients, providers, payers and policy makers. The words are important. Appropriate does not mean you must follow a scenario, but rather that it would be reasonable to consider that line of treatment. Uncertainty implies either a lack of evidence or conflicting evidence that combined with experience does not establish clear certainty for treatment for a given scenario. Lastly, rarely appropriate is a fairly strong declaration of opposition, but does not mean that a scenario would be ill-advised in all circumstances. The scenarios were developed using variables the scenario writers and reviewers thought best represented the common clinical concerns for indications for cervical fusion among spine care providers.

Several trends emerged in the 250 plus scenarios. Where evidence existed, either for or against, recommendations reflected the evidence as expected. Regarding the variables examined, fusion for degenerative conditions that resulted in axial pain tended to be less appropriate than those resulting in radiculopathy. These in turn tended to be slightly less appropriate than in the setting of myelopathy unless severe neurological deficit was present, in which case there was approximate equivalence. Along the same lines, fusion for degenerative conditions with central stenosis was most consistently rated as appropriate followed by those with foraminal stenosis followed by conditions with no radiographic stenosis. The presence of signal changes in the spinal cord on MRI with central stenosis tended to be associated with stronger support for fusion in some select scenarios, but the ratings were mostly equivalent to similar scenarios without cord signal changes. In the presence of neurological problems, either myelopathy or radiculopathy, both short and long fusions were often considered appropriate. In contrast, for conditions without stenosis or causing axial pain only, one level (versus multilevel disease) was more likely to be considered appropriate for fusion, if at all.

In general, anterior fusion was appropriate regardless of sagittal alignment. Posterior fusion was more often appropriate with kyphosis than lordosis, although this was felt to be appropriate for several scenarios with lordosis, as well. Trends for anterior and posterior surgery were rare except for patients undergoing corpectomy, and, to improve fusion rates. The longer the fusion, the more likely combined anterior and posterior surgery was felt to be appropriate. There was consistent support for revision fusion for pseudarthrosis if it was symptomatic, and just as consistent lack of support for fusion for asymptomatic pseudarthroses. The exceptions to the latter were patients with some element of central stenosis and persistent neurological problems, particularly myelopathy.

Finally, comorbidities definitely affected appropriateness of cervical fusion, including smoking, medical and psychosocial problems. The more severe the comorbidities, the more caution there was to support fusion. These variables resulted in stronger opposition for conditions with axial complaints and for conditions without stenosis than for conditions with radiculopathy and with foraminal stenosis. They had the least effect on conditions with central stenosis and cervical myelopathy.