OBJECT: To study the feasibility/suitability of posterior instrumentation of the entire cervical and upper thoracic spine (C0-Th5) for a broad spectrum of indications in a predominantly old-aged and co-morbid patient population using a novel occipito-cervico-thoracic system.

METHODS: 54 consecutive patients (m=31, f=23, median age 63) with degenerative, neoplastic, traumatic, or infectious diseases were treated over a period of 29 months. Primary posterior as well as secondary posterior approaches after anterior instrumentation were used. Clinical and radiographic data was acquired prospectively using standard scales at pre-defined time intervals.

RESULTS: On average 3 segments (range: 1-6) were bridged without significant intraoperative complications. In 30 cases a posterior decompression was additionally performed. Nine of 315 implanted screws were defined as suboptimal, leading to operative revision in 5 cases. During the follow-up interval (9 +/- 1.1 months, range: 3-25) patients showed a statistically significant improved mobility (Karnofsky score: 58 +/- 3 [pre] compared to 75 +/- 3 [post]) with improved mental and physical health (SF-36 health survey: mental component 44 [pre] to 51 [post], physical component 34 [pre] to 44 [post]) and less subjective pain (VAS: 3.9 +/- 0.3 [pre] to 0.5 +/- 0.1 [post]). All patients remained neurologically stable or improved after operation except two, who transiently...
deteriorated by one Nurick grade. Only one dislocation and no breakages of the implanted hardware were seen, and no significant secondary loss of spinal alignment was observed. CONCLUSIONS: Posterior instrumentation of the entire cervical and upper thoracic spine with the novel occipito-cervico-thoracic system has been shown to be safe, convenient and effective. The anterior approach in high-risk patients can thus be avoided, and the approach provides substantial additional stability to multi-level anterior constructs.