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Section 1 Summary Statement: Background to Understanding Value-based Surgical Spine Care

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The Patient Protection and Affordable Care Act (PPACA) has rapidly shifted the focus of healthcare from volume to value (Quality/Cost). While much of the value-based reform movement has focused on transitioning incentives from quantity to quality of care, the escalating and unsustainable cost of healthcare has garnered even more attention. Hence, all stakeholders ranging from healthcare purchasers, employers, and third-party payers to hospital systems, physicians and patients alike are demanding more transparency in the relative value of their healthcare options. Understanding what works best for which patients at what costs in real world settings of care is now of highest priority.

Spine pathology is among the most prevalent disease states worldwide. The annual cost of spine care as a whole is estimated at \$100 billion in the U.S. alone.¹ On a per-case basis, spine surgery is amongst the most costly procedures in U.S. healthcare.² However, this needs to be balanced against the significant impairment and disability which can occur as a result of disorders of the spine and spinal cord. Now more than ever, the scientific measurement of health economic value is a critical component of effective reform for a sustainable, and more importantly, high quality healthcare system.

As demonstrated in the manuscript by Resnick and colleagues, legislative and economic imperatives will mandate resource allocation be made only towards treatments with proven value. For the majority of spine treatments, their value remains undefined when compared to competing spinal treatments options as well as when compared to established therapies in other disease states. As a roadmap for spine care providers to fill this value evidence gap, Angevine and colleagues provided a detailed overview of currently accepted methods to

measure the relative cost-effectiveness and cost-utility of competing treatment options. While these traditional patient-centered definitions of cost-effectiveness provide a *quantitative* measure of the relative value of one treatment versus another, the *qualitative* thresholds which determine what is cost-effective or high value are not well defined and may vary dramatically as a function of the decision-maker's perspective. For example, the costs of treating oncologic conditions are high and yet typically do meet such qualitative thresholds. It is clear that cost effectiveness assessments need to be individualized according to the type of pathology treated.³ Nevertheless these well accepted methods provide a recognized metric for spine care providers and researchers to generate and interpret evidence on spine care value.

Given the current evidence gap in spine care value, decision-analysis modeling is being increasingly utilized to estimate value when high level evidence does not exist. Edwards and colleagues describe the common methods of modeling cost-effectiveness by piecing together many complementary but separate studies with the “glue” of clinical assumptions. The authors appropriately highlight the equal importance of the validity of both economic and clinical assumptions that drive these models. Without active input from the spine clinician, both construction and analytical interpretation of decision-analysis models of cost-effectiveness cannot be reliably performed to help inform resource allocations. It is not enough for models of cost-effectiveness to adhere to sound statistical rules if they violate simple clinical face validity. As these models are being increasingly utilized to support payer-policy, spine clinicians must play an active role in critically examining their validity.

The convergence of value measurement and clinical spine care delivery is a relatively new phenomenon that all spine care providers will have to increasingly navigate. Spine care providers and researchers are now at a crossroads, define the value of spine care, or have it defined for them. The perceived value of spine care treatments will define their place in tomorrow value-based healthcare system. The introductory papers in this Value focus issue provide a starting roadmap for such a path forward.

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