

## ***Position Statement***

# **Innovation and New Technologies in Orthopaedic Surgery**

*This Position Statement was developed as an educational tool based on the opinion of the authors. It is not a product of a systematic review. Readers are encouraged to consider the information presented and reach their own conclusions.*

Orthopaedic surgeons have always been at the forefront of introducing new surgical procedures and technologies to improve patient care. For example, internal fixation of displaced fractures, total joint replacement for arthritic disorders, and correction and stabilization of major spinal deformities have revolutionized the care of patients by decreasing pain and improving function. Many of these technologies were gradually introduced after extensive preclinical basic and applied research studies, and limited single surgeon or institutional clinical trials. Other innovations have been initiated by surgeons in the past and were based on empiric knowledge and then perfected over many years.

Currently, new devices, biologics and surgical procedures are being introduced and marketed at an increasing rate. Although many of these innovations have undergone comprehensive preclinical and clinical evaluation, some have been adopted under the umbrella of an existing predicate device or are being used in an "off-label" indication. Some of these newly introduced devices and biologics do not have sufficient basic science justification or long-term outcome studies to substantiate their continued safety and efficacy.

***The American Academy of Orthopaedic Surgeons (AAOS) believes surgeons have an obligation to offer their patients the most efficacious, safe and cost-effective non-surgical and surgical treatments available. They should be cognizant of the scientific basis for the different treatment options offered to their patients, including the benefits and risks of an operation, device, biologic, or pharmacologic intervention. These facts should be discussed with the patient in an open manner where the patient feels no hindrance to asking questions. In addition, the surgeon and team should be proficient in the use of this new treatment, so that the final outcome is optimized in an efficient and safe manner. It is essential for the safe and effective use of new technology that appropriate training methods for surgeons be available.***

Innovation in surgical procedures and technologies is important to continued progress in our specialty. Surgeons have a great opportunity to play a major role in this regard. In collaboration with hospitals, device and drug manufacturers, payers, governmental agencies and other interested parties, surgeons can facilitate the introduction of new technologies to help ensure that the best possible treatment options are reaching the patient. At the same time, it is

incumbent on our specialty to track the clinical outcomes and complications associated with these new technologies using open databases, registries and other methodologies to ensure that our patients and society in general realize the benefits of these innovations, and avoid undue risks.

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