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Valuation of Orthopedic Services: Introduction

This five-part *Health Capital Topics* series provides a discussion of current trends in the orthopedic surgery industry relevant to the valuation of orthopedic services. This series discusses the competitive, reimbursement, regulatory, and technological environments in which these providers operate, as well as the implications of these trends for the orthopedic surgery industry. This first installment provides an overview of orthopedic surgery and the burden of musculoskeletal diseases and injuries that drive demand for orthopedic services.

The Burden of Musculoskeletal Diseases and Injuries

Musculoskeletal disorders (MSDs) are a wide variety of conditions affecting muscles, bones, joints, and connective tissue that may cause acute or chronic pain and interfere with daily activities. MSDs occur in all major body areas, such as neck and back, hips, arms, and legs. Acute MSDs, i.e., rapid onset with severe symptoms, include injuries such as sprains, fractures, dislocations, and bone and muscle bruises. MSDs affect approximately 126.6 million Americans, representing roughly one in two adults, and constitute the largest category of chronic conditions in the U.S.[1] This disease burden generates healthcare costs exceeding $980 billion annually, representing 5.8% of gross domestic product (GDP), and causes approximately 264 million lost workdays due to back and neck pain alone.[2]

In addition to acute injuries, MSDs can result from chronic overuse of a particular muscle or joint, which can cause repeated micro-traumas – repetitive and more subtle events occurring over time – to the musculoskeletal system. Such overuse injuries are generally more subtle than acute injuries, which are usually a result of macro-trauma – a single, traumatic event. Other health factors, such as obesity, can increase a patient's risk of developing various MSDs. Obesity is a chronic condition that increases a patient's risk of developing a variety of MSDs, most notably osteoarthritis, due to the strain that excess weight puts on the patient's musculoskeletal system.

Arthritis is one of the most common forms of MSD, with 53.2 million adults having physician-diagnosed arthritis as of 2022.[3] The prevalence of arthritis increases with age; more than half of adults age 65 and over suffer from a musculoskeletal condition, with arthritis affecting 53.9% of Americans aged 75 and older.[4] Conservative estimates predict that by 2040, 78.4 million American adults will have physician-diagnosed arthritis, with 35 million experiencing arthritis-attributable activity limitations.[5] The most common form of arthritis is osteoarthritis, affecting 32.5 million American adults, a degenerative or wear and tear disease that erodes the cartilage in the body's joints, such as the hands, knees, and hips, and causes pain, swelling, loss of motion, and disability.[6] While arthritis is more common among older adults, age itself does not cause the condition; rather, arthritis results from the cumulative effects of joint wear, prior injuries, genetics, and other factors. In fact, approximately 75% of those with arthritis are younger than 65, and women are more often affected than men.[7]

In addition to chronic conditions, the incidence and prevalence of MSDs have increased among teenagers, as millions participate in high school sports every year. An all-time high of over 8.26 million high schoolers played school-sponsored sports during the 2024-2025 school year, exceeding the previous record by nearly 200,000 students.[8] This increasing participation indicates that MSDs in young athletes will continue to rise in incidence and prevalence. Football remains the highest-risk sport with an injury rate of 3.96 per 1,000 athletic exposures, followed by girls' soccer at 2.65.[9] Approximately 6.3% of high school sports injuries require surgery, with wrestling, girls' basketball, and baseball demonstrating the highest surgical intervention rates.[10] Further, teenage injuries can lead to arthritis later in life, contributing to the long-term demand for orthopedic services.

Providers of Orthopedic Services

Orthopedics (also called orthopedic surgery) is the branch of medicine that focuses on injuries and diseases of the body's musculoskeletal system, including bones, joints, ligaments, tendons, muscles, and nerves. Orthopedic surgeons, commonly known as orthopedists, are highly skilled in the prevention, diagnosis, management, and treatment of musculoskeletal conditions and provide professional medical services to children and adults with musculoskeletal diseases and injuries. Orthopedists treat MSDs with a variety of techniques, including the use of medical, surgical, physical, and other rehabilitative methods. Orthopedic surgeons focus on minimally invasive and invasive surgical treatment of congenital deformities, trauma, infection, tumors, and metabolic disorders that affect the musculoskeletal system. They often utilize arthroscopy, in which the physician uses a small camera to look within

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a joint to make diagnoses, and in some cases, provide treatment.

Sub-specialization is increasingly prevalent among physicians, as evidenced by an over 45% increase, from 11,973 to 17,528, in the number of sub-specialty certificates issued by American Board of Medical Specialties (ABMS) from 2015 to 2024.[11] The American Board of Orthopaedic Surgery (ABOS) offers specialty certification in hand surgery and sports medicine. Over 97% of current orthopedic surgery residents now pursue subspecialty fellowship training, up from 76% in 2003.[12] Sports medicine represents the most common fellowship choice, though the rapidly aging population creates a mismatch between training emphasis and actual demand. Research indicates that 27% of orthopedic surgeons transitioned from being a generalist to a subspecialist between 2010 and 2021, reflecting the ongoing trend toward specialization in the field.[13]

The orthopedic surgeon workforce comprises approximately 31,920 ABOS board-certified surgeons.[14] However, as discussed in the next installment of this series regarding the competitive environment, this supply may be insufficient to meet the growing demand for orthopedic services driven by demographic trends and the increasing prevalence of musculoskeletal conditions.

Conclusion

MSDs represent a significant and growing burden on the U.S. healthcare system, affecting approximately half of all adults and generating nearly $1 trillion in annual healthcare costs.[15] The prevalence of these conditions, particularly arthritis, is expected to increase substantially over the coming decades as the population ages. At the same time, youth sports participation continues to reach record highs, creating additional demand for orthopedic services across all age groups. The orthopedic specialty has responded to these trends with increasing subspecialization, though questions remain regarding whether the current workforce is adequate to meet projected demand.

The next installment of this five-part series will examine the competitive environment for orthopedic services, including the supply of orthopedic surgeons, demand trends, and the factors driving the supply-demand imbalance in this specialty.

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