

UNDERSTANDING THE STATE OF ORTHOBIOLOGICS

The American Academy of Orthopaedic Surgeons (AAOS) conducted an environmental scan to enhance its understanding of the impact of biologics within the orthopaedic space.

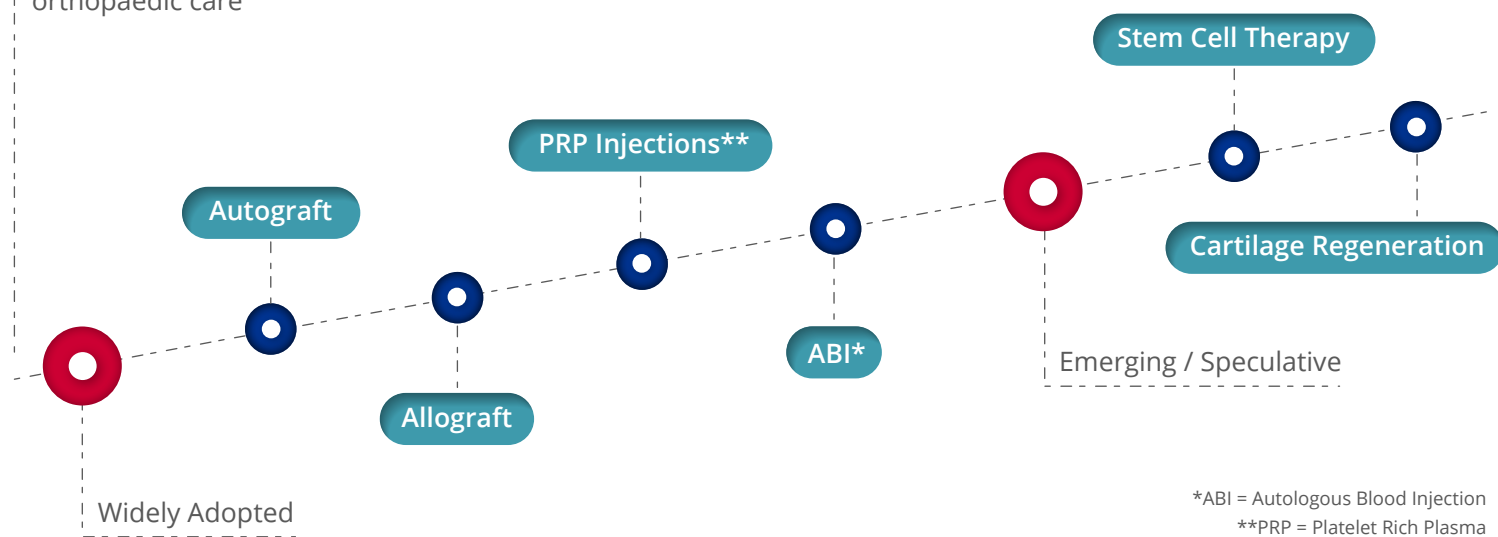
ORTHOBIOLOGICS OVERVIEW

Orthopaedic biologics, also known as **orthobiologics**, are a class of therapies that use biological products (by leveraging the body's natural physiology) to help enhance the body's healing process.

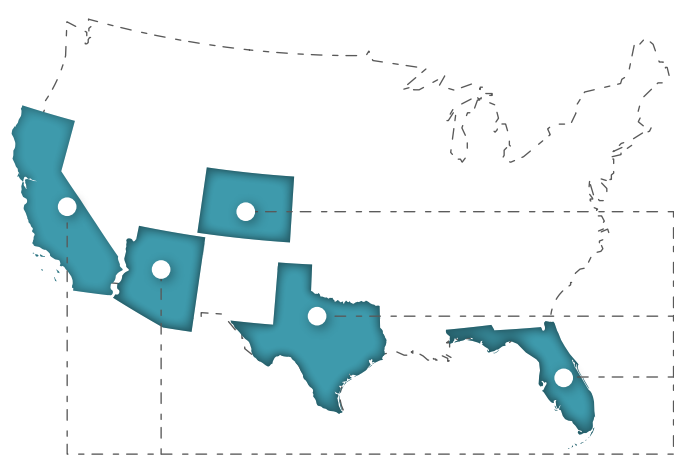
These treatments are utilized in both **surgical and non-surgical** settings and potentially have a vast range of clinical application in the **treatment of musculoskeletal injuries**.

CATEGORIZING ORTHOBIOLOGICS

The range in level of adoption across orthopaedic care



CONSUMERISM OF ORTHOBIOLOGICS



28% increase in the number of **U.S. clinics** providing **stem cell-based interventions** (2016 compared to 2017)¹

TOP 5 states with the highest volume of **direct-to-consumer stem cell clinics** (CA, FL, TX, CO, AZ)¹

Most **common use** of stem-cell treatment is for:



Bone & joint conditions



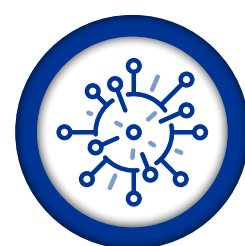
Pain relief



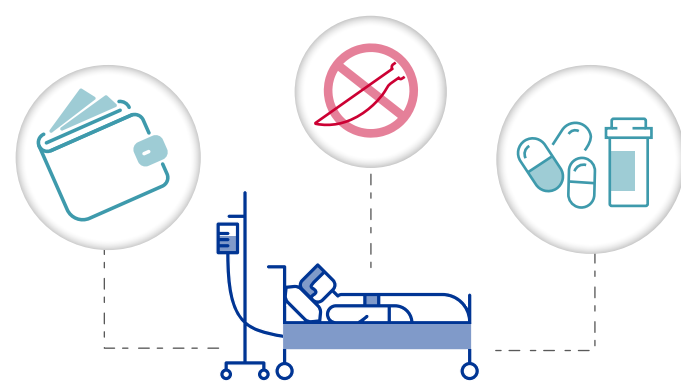
Sports injuries



Neurological disease & disorders

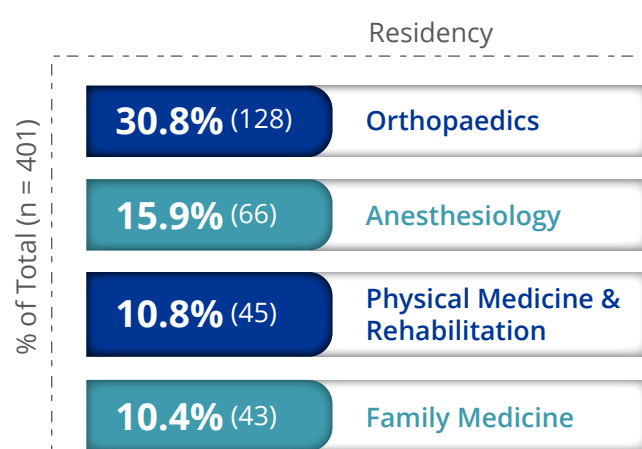


Immunological diseases



When it comes to pain management, patients are **open to alternatives** to surgery or complementary treatments and are willing to **cover out-of-pocket costs**.²

PHYSICIAN TRAINING IN CLINICS OFFERING CONSUMER-FOCUSED STEM-CELL TREATMENTS, 2018³



GROWTH IN DEMAND

Key **orthopaedic trends** and considerations **driving biologics utilization**:



Aging, obese and active population growth



Consumer priorities - access, experience and personalization



Growing number of clinical trials



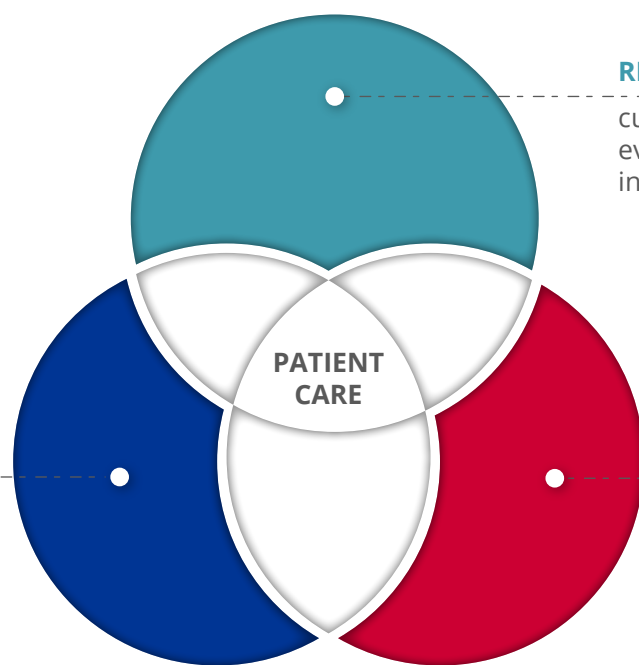
Increasing number of trained physicians

IMPACT & OPPORTUNITY

The AAOS provides **evidence-based programs** for current orthopaedic diagnostic, treatment, and postoperative procedures. The new **AAOS Biologics Dashboard** is one example of how the Academy is better equipping AAOS members with reliable, credible information about **biologic-based interventions** with the goal of helping patients receive the **highest quality of care**.

NAVIGATE

the status of biologic-based interventions



REVIEW

currently available evidence-based information

IDENTIFY

regulatory status

AAOS BIOLOGICS DASHBOARD

noun. A dynamic, **interactive tool** that aggregates the various types of **biologic-based interventions products** currently available to orthopaedic surgeons in an easily searchable platform.

To learn more, visit AAOS.org/biologics

1 National Center for Biotechnology Information - The US Direct-to-Consumer Marketplace for Autologous Stem Cell Interventions, 2018

2 National Center for Biotechnology Information, Out of Pocket Expenditures on Complementary Health Approaches Associated with Painful Health Conditions, Nahin et. Al, November 2015

3 Characteristics and Scope of Training of Clinicians Participating in the US Direct-to-Consumer Marketplace for Unproven Stem Cell Interventions, JAMA Network, June 25, 2019

4 Sg2 Impact of Change®, 2019; HCUP National Inpatient Sample (NIS), Healthcare Cost and Utilization Project (HCUP) 2016, Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2017; The following 2017 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2019; Sg2 Analysis, 2020