

From the Chairman's Corner

Alfred Shands Jr's Vision in 2013: Inventing the Future of Orthopaedics at Duke

We live in an era of fast paced changes in health care, affecting all clinical specialties, but these changes will have much more of an impact in resource intense clinical areas, such as orthopaedics. These changes are a special challenge for academic departments, which need to not only provide excellent care and be financially responsible but also have a mandate to educate the next generation of clinicians and undertake research that will improve the health of the population they serve. It is essential to be able to be nimble and rapidly adapt to the changes in health care in an innovative manner to thrive in this environment. This is the challenge that Duke Orthopaedics, indeed every other academic orthopaedic department, will be facing in the coming years.

Confounding the situation, as health care has evolved, groups outside of the traditional medical arena have increasing influence in shaping our future. As an academic department, we have a unique understanding of where gaps in patient care exist, and how to integrate education and research into our clinical mission to bridge these gaps. As such, I believe that we have a special obligation to lead in setting the direction for the future of orthopaedics, and this is something I plan to help the trainees, faculty, alumni and friends of Duke Orthopaedics accomplish in the coming years.

Duke orthopaedics has undergone unprecedented growth in the past decades. Its clinical faculty has grown substantially, and it reached one of its most important milestones by becoming an independent department. This growth has been due to the work of our immediate two past chairs, James Nunley and James Urbaniak, who are incredibly dedicated to Duke Orthopaedics, and worked tirelessly to build such a strong department. There is a sound clinical base, an excellent training program, extremely supportive alumni, and a long tradition of orthopaedic excellence. The department exists within a strong hospital system and an academically vibrant University, with excellence in a number of academic and research areas closely related to orthopaedics. In building a future in which the department can rapidly adapt to the changing environment, it will be critical to remember the values that make us strong and unique, and to support all the hard work and effort that brought us to where we are today. Indeed, too frequently in an attempt to set a new direction to address a weakness, an organization will lose sight of what makes it unique and strong, and the end result is an overall decline.

In the coming years, I plan to help the department build on its rich tradition, starting with our first chair Alfred Shands Jr, who said, 'Where there is no vision, the people perish.' This quote is as true today as it was when he started orthopaedics at Duke. I plan to help the Duke orthopaedics family use the opportunity of rapid change, without sacrificing the rich tradition that makes us unique, to fulfill a vision of inventing the future of orthopaedics.

How can We invent the Future of Orthopaedics?

There is excellence in clinical care and fundamental research at Duke, and we can bridge the gap to provide leadership in research into disease etiology and management and the development of technologies to improve diagnosis and treatments. Most major advances in medical research come from innovative individuals from different disciplines working together on a significant health problem. We have innovative individuals from different disciplines at Duke, and by working together we can develop new ways to treat patients with orthopaedic problems. Future health care likely includes individualized care, utilizing information for each patient about genetics, risks and pathophysiology. With the development of new technologies, new personalized managements for patient problems will blur the boundaries between specialties, allowing better and quicker diagnosis and minimally invasive therapies. New procedures using smaller scale devices, assisted by computers will likely be employed. Exogenous cell therapies and new ways to exploit native progenitor cell population can be used to more rapidly and effectively heal, reconstruct or tissue engineer damaged tissues. One can imagine a future where after a knee injury, rapid imagining identifies an ACL tear and a cartilage injury, genetic information tells the risk of developing early arthritis and what drug management is best used to prevent this. A robotic-assisted arthroscopy technique is used to insert a tissue engineered ACL replacement and deliver the appropriate drug locally to prevent arthritis from developing. Individualized data will prescribe the precise rehabilitation protocol for that specific patient. While such a treatment may seem like science fiction, the research to make this a reality is already ongoing at Duke, and it is a matter of completing the work and linking everything together to make this a reality.



Well-designed clinical studies will be needed to identify emerging clinical problems, patient needs, and to test the efficacy of new treatment approaches. Research into how disease affects various genetic and socioeconomic population, and how to best deliver health care in the most cost effective way possible has enormous potential to improve orthopaedic outcomes in the very near future.

To push this frontier forward, we need innovative ideas, the ability to cross traditional clinical and research barriers, and the right people to form the right collaborations. By developing collaborative teams, new ways of thinking about health develop, and by crossing multiple disciplines, advances can be brought to clinical care as rapidly as possible.

Inventing the future of orthopaedics also includes developing better methods to train orthopaedists and researchers. Our current students learn in different ways than they did decades ago. In addition, there are new time constraints in our clinical training programs. Novel educational programs are needed to train today's learners. There is also a need to review and renew the educational structure and the curriculum to be more responsive to changes in care delivery. Opportunities exist to develop curriculum maps to identify what trainees need to learn and how to best provide the needed knowledge; new assessment tools to determine when our trainees are competent and can move on to higher level learning; and new simulation and skill labs and techniques to teach surgical techniques as effectively as possible. Education in realms not necessarily thought of as part of traditional orthopaedics, such as in leadership, management, education and fundamental science, can provide a strong foundation for future growth and development. Such programs will help to develop top quality clinicians and researchers who can cross traditional boundaries and become tomorrow's orthopaedic leaders. By being proactive in this realm, Duke Orthopaedics can be a leader in developing educational programs that can be exported nationwide.

I am extremely excited to have been selected as Duke's next Chair of orthopaedic surgery. Duke Orthopaedics has an incredible tradition as one the world's best Orthopaedic programs, excelling in providing exceptional clinical care, producing top-notch orthopaedic trainees, and undertaking ground breaking research. In the coming years, we will work together to build on this strong foundation to enhance our academic profile, developing new collaborative research programs; innovative ways to enhance our ability to train the next generation of orthopaedists; and a clinical enterprise that will be efficient and nimble to prosper as we enter an era of rapid change and uncertainty in our health care delivery system. I believe that we can build on Alfred Shands Jr's advice, and work together to share a vision to invent the future of orthopaedics. Along the way, we will become the best orthopaedic department possible. With this vision, we will not perish but instead will prosper.

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