

The New Demands by Patients in the Modern Era of Total Joint Arthroplasty

A Point of View

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Abstract Historians have the opportunity of viewing Introduction events, people, and their epoch through an aperture in time. With retrospective clarity, change and the forces effecting change can be appropriately categorized, emphasized, and interpreted. Sociologists see change in a forward-focused manner. When we examine our patients today, it is clear our current patients having total joint arthroplasty are different from those in years past. Thus, sociologic influences effecting this change are many and include the revolutionary explosion of, access to, and dissemination of information; increased wealth, life activity expectation, and life expectancy; and an aging workforce. Concurrent with these forces, change in our patient population is an erosion in respect for professionalism and vertically oriented authorities. Yogi Berra said, "The future ain't what it used to be." Our patients are citizens of our modern age. Our public has come to expect miracles in medicine as the norm, yet these miracles are not without inherent risk. The trap implicit in allowing an incompletely informed populace to drive the decisions we make may be bridged by a more complete understanding of who our patients are and what their needs include. This discussion attempts to offer some insight into the forces at play. It focuses on how the changes in society, population, and technology have affected patients and what our response as physicians should be.

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becomes clear there exists a "Boomer mentality" that embraces youth and rebukes the traditional stereotypes of aging. I will focus on how the changes in society, population, and technology have affected our patients' knowledge and attitude toward medicine and what our response as physicians should be.

Demographics are Changing

On October 17, 2006, the United States reached a milestone becoming only the third country in the world to have a population greater than 300 million. It took this country more than 150 years to reach 100 million. We reached 200 million in 1967, and less than 40 years later, we have reached the 300 million mark. In a mere 35 years, we are projected to reach 400 million. Population growth occurs naturally with an excess of births over deaths. However, this \ accounts for only 60% of our current annual growth in the United States. Immigration, legal and illegal, accounts for the additional 40% of US population growth and will effect a profound transformation of the ethnic and social constituencies.

For all of medicine and society, it is important we take note of another growth trend in this country, that of the aging of America. Currently, a baby boomer turns 50 every 7.5 seconds [27]. The noted social scientist Peter F. Drucker has said, "The extreme youth culture of the 1960s and 40 years was based on demographics. It is an age-old rule that the population group that is both the biggest and growing the fastest determines the mood of the United States, there are 76 million baby boomers, the largest single-age demographic in our population.

In addition to aging and growth trends, patients have realized higher activity levels, improved general access to health care, and improved economic security; they are living longer, are better educated, and, unfortunately, are more obese. The percentage of Americans older than 25 years who finished high school soared dramatically from 55% in 1970 to 85% in 2004 [32]. Increase in educational achievement is reflected in economic status and a sense of security in the general population; yet, it is clear the rate of improvement in economic growth is not proportional across all racial and socioeconomic classes [33].

As a percentage of the US population, those older than 65 years have increased from 6.7% of all Americans in 1960 to 12.4% in 2000. The number of Americans older than 65 years is expected to increase some 70 million by 2030 [21].

Additionally, in Americans, the body mass index increased with age through the sixth decade [34]. This trend is particularly disturbing when we reflect on the fact Americans are experiencing a sharp increase in the prevalence of obesity in our population in general. In fact, the majority of Americans aged 60 to 79 years have a body mass index in the overweight or obese range [35]. These obese patients report higher incidences of activity-limiting osteoarthritis [26] and have an increased risk of having osteoarthritis develop when compared with normal-weight adults [16, 19, 33]. In the knee, the literature showing the relationship between increased body mass index and osteoarthritis is clear [17, 22, 24, 29]; however, this relationship in the hip has been inconsistent, with some studies reporting no relationship [17, 29] and others showing a direct correlation [15, 24, 25]. If we add these two factors on the number of arthroplasties is profound [8, 14, 26].

Another important demographic with sociologic consequence is the slow disappearance of the multiperson household. With older patients living longer and youth moving out and delaying marriage, the number of one-person households is increasing. With this trend toward social isolation comes a subsequent reliance on the media, underscoring the importance of information conveyance in our society. The information revolution impacts every aspect of our society, including our relationships with our patients. The physician is no longer the sole source of medical information and patients often are equipped with enough snippets of information to stimulate a dialogue expressing their expectations for an outcome and techniques to achieve that outcome. As a result, the doctor-patient relationship has, in a sense, been democratized, with the patient, surgeon, and industry all influencing the decision process. The information revolution is simply defined as the explosion of not only the acquisition of information but also its dissemination. It is difficult now to remember a world in which the Internet did not have its current level of influence. Underpinned by the Internet, the information revolution encroaches on our human sensibilities, delivering an unending stream of new data at an ever-accelerating pace. This information challenges us to review and react to changes at a far greater pace than any generation in history.

Throughout history, knowledge was spread primarily by word of mouth. In the modern information era, we are now

experiencing exponential growth of information and the patients, these baby boomers and ultimately their children combination of information streams. As a single media and grandchildren, who are accustomed to choice and source reveals a story, it is quickly amplified on traditional control and are infatuated with speed, would not demand and nontraditional media, such as blogs, podcasts, and YouTube, creating a story out of a story.

As our lives become increasingly pressured by the information available to us at work and at leisure, we express this pressure, or time conscientiousness, by multiplying our attention streams. We know this time conscientiousness stretches further into the social conscientiousness as multitasking. Our complex modern fabric of our patients' lives. Maybe it is because our sense of civilization has adopted a proclivity for productivity and of time is absolute that age is becoming relative. Fifty is the time efficiency, which has become ingrained in our collective psyche. Citizens of this modern age have become accustomed to interaction with their increasingly complex environment. As a result, we expect to direct, engage, and control our environment in ways no other generation has before us.

The connectivity of the modern world has resulted in an economy that works 7 days a week, placing a distinct awareness and premium on time. We buy prewashed jeans and instant coffee and our meals are from the drive-thru fast food restaurant. The time we save through these modernizations rarely is redirected toward leisure.

Examine these flashpoints in your own day-to-day life. In a modern elevator, the door close button is simply placebo placed to placate the individual for whom 5 seconds is an eternity. Sociologists have found increasing wealth and increasing education bring a sense of tension about time. The modern patient undergoing joint arthroplasty brings this tension to our offices.

It is true also that time awareness drives social change. The author and sociologist Mark Halprin remarked, "However, patients understand the availability of and, in many cases, the reliability of the surgical procedures we bearers knew only in battle. They, unlike us, were the prisoners of mundane tasks. They wrote with pens, they did long division, they waited endlessly for things that come to us instantaneously. They had less than we do and they bowed to necessity, as we do not. Our infatuation with technologic advances has placed an increasing emphasis speed and precision. Our \$15 digital watches measure time in hundredths of a second. A handheld global positioning system (GPS) has replaced the compass and sextant used to discover and map our country.

At the beginning of the last century, in 1901, H.G. Wells published "The New Accelerator" in which his devilish professor character sought to discover a stimulant that would allow humans to move faster, produce more work, heal quicker, and essentially, modulate the dimension of time. The relativity of time, incidentally, was not discovered by Einstein until some 25 years later. Now, in the 21st century, our patients live out this new acceleration at work, in the car, turning on a microwave, and shopping on the Internet. Is it not then understandable that our new

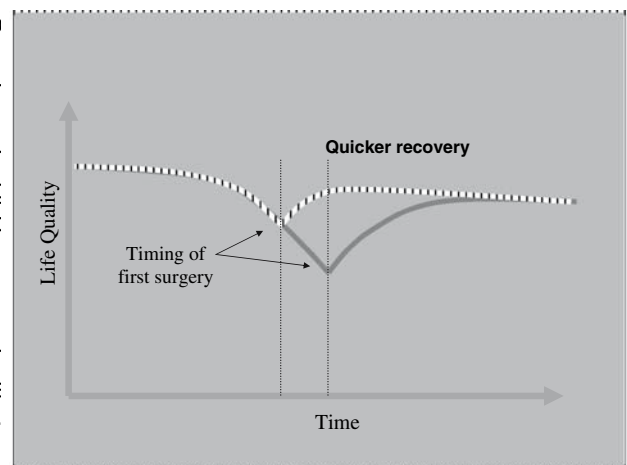


Fig. 1 Surgery can affect life quality positively. The quantitative effect on quality of life is potentially related to the timing of surgical intervention and is represented graphically as the area beneath the curves.

perform and they are not willing to sustain a long decline in their functional capacity and quality of life before going surgery (Fig. 1).

Medicine is Evolving

Chances are most medical residents in training today will never see a case of measles or diagnose chickenpox. Both were leading causes of death 100 years ago. [The humility of the patients who survived polio, measles, the Depression, and a global war is disappearing with the new demographic. Indeed, in the United States, most of us remain largely insulated from the ravages of war or the modern plague of HIV/AIDS and our culture reflects this insulation. The contentedness is, in part, a function of our care received, or societal checks on this drive for life imperial, preeminent economic status in the world. How-ever, on a deeper, more human level, we are comforted by the advances in modern medicine and its impact on disease. Many chronic conditions are amenable to our remedies, rendering scourges of years past to the power of our modern diagnostics and therapeutics. The age-at-death ratios of patients for most diseased conditions have improved with modern medicine. We as a populace are living longer. With notable exceptions, we have pioneered medicine through two epochs of care, that of communicable diseases and, more recently, chronic disease states of medicine, namely, improving quality and function in the lives of our patients, orthopaedics, and joint arthroplasty in particular, figure highly in this new epoch of medicine.

Epidemiologists easily can measure and report reductions in death rates and disease modification, thereby defining our successes and failures in the first two epochs of modern medical evolution. Unfortunately, the crucial metrics are missing for the third epoch! As it is highly subjective, it remains unquantifiable to all interested parties—surgeons, hospitals, insurance companies, and industry alike. We in medicine hold a vaulted social position because we are perceived by our public as being devoted to the needs of our patients. Although this remains true, our patients' needs are changing. The concept of quality is elusive. Lacking a metric to measure our success and wanting to continue to fulfill our societal role, system provided such care.

healthcare costs are positioned to spiral as patients demand more intervention and modalities to reach higher and higher quality of life and function while we as physicians provide our patients with accurate, evidence-based information and to improve communication. However, currently

We know healthcare spending is in trouble even without the pressures of the third epoch. As the United States struggles for fiscal clarity from one administration to the next, the federal deficit continues to grow. The United

States spends more than it earns by 5% to 6% a year and has so for years [3]. The constraints on future healthcare financing invariably are linked. Gregory Manikw, Bush's top economic advisor, recently said, "The benefits now scheduled for future generations under current law are not sustainable. They are empty promises." Medicare, Medicaid, and Social Security already cost approximately 7% of everything produced by every American every year by 2030? greater than 15% [4]. An estimated 48% of the total government's budget will be allocated to the elderly by 2015 [16]. In other words, the trend of the third epoch in medicine will be faced with a financial reckoning solved only by insightful political realism at a national legislative level, systematic improvements in healthcare delivery and efficiencies, an increased personal financial accountability and societal checks on this drive for life quality. In a modern society, it is unlikely the latter will occur. If you care to guess who will influence these decisions you need only consider today in the United States, mature Americans, those older than 50 years, account for 85% of the population and hold 77% of the liquid personal assets and 57% of discretionary income [27].

The Current Milieu
Daniel J. Boorstin, the Pulitzer Prize-winning historian, has been suggested we are evolving now into a third epoch commented, "Planning for the future without a sense of history is like trying to plant cut flowers." [57]. The traditional role of the surgeon and physician has been to deduce, delineate, and control the flow of information and care to their patients. We are operating in a different milieu today which, at least for now, we compete for these patients between practices and between individual physicians in part because these patients have mobility and information from which to make choices. We have begun to legitimize patient input into care decisions, or as it is termed "patient-centered care." The Institute of Medicine's Commission on Future Quality of Healthcare outlines six areas for improving healthcare delivery in the United States, patient-centered, safe, effective, patient-centered, our patients' needs are changing. The concept of life, efficient, and equitably delivered [23]. Without argument, each of us would wish our healthcare and wanting to continue to fulfill our societal role, system provided such care. Yet, for orthopaedic patients, providing true patient-centered care relies on the ability for us as surgeons to accurate, evidence-based information and to improve communication. However, currently involving our patients in true patient-centered decision processes is potentially dangerous because we lack evidence-based data to support many of the new technologies and techniques our patients desire.

Thomas Sculco, a pioneer in modern total joint arthroplasty and a scrupulous investigator, recently stated, in a traditional scientific setting, "Earlier designs and materials that demonstrated inferior functional and long-term results have disappeared in a Darwinian fashion." However, with the rampant influx of new procedures, implant materials, products, and, notably, patients, attributable to the population growth and the increased interest in procedures with recognized improved outcomes from previously not pursuing such options, the natural selection process bridges far more concurrent experiments. Therefore, individual outcomes are subject to the same Darwinian fate; however, their lineage becomes less transparent.

Peter Senge, senior lecturer at Massachusetts Institute of Technology and founder of the Society for Organizational Learning, said, "Our problems today are the result of yesterday's solutions." Successful innovation always makes predecessor technology appear dated, and patients are now savvy enough to begin to ask about these newer technologies. The optimism for continued advancement of our specialty in the 21st century lies in what we have learned from our prior mistakes and what we have discovered as limitations of our current designs, material scientists have continued to improve their understanding of crystallinity, metallurgy, manufacturing tolerances, and simulator modeling.

Robert Booth, in a recent editorial, suggested, just as the advent of anesthesia was the tipping point in the evolution of American surgery, so DTC advertising may be a catalyst for its decline [2]. We are losing the respect of our patients in part because of our failure to communicate properly, to provide patients with fair and balanced education, and to properly counsel our patients in the face of the onslaught of DTC advertisements. Moreover, as we find increasingly savvy ways to advertise our uniqueness to the world through the media, we delegitimize our profession. This evolution of trust by patients of the healthcare system is multifactorial. However, it is likely linked to the pace of change in our society. Harvard Business Professor Juan Enriquez stated, "It is not that people are more evil today than they were in your grandparents' generation. More likely, this sense of unease as to 'who can I trust?' reflects the overwhelming pace and magnitude of change. Nothing seems stable." [Trust in the institution of medicine has suffered the same fate as trust in other major US institutions such as government, declining precipitously.] [3]

If we examine the influences of DTC advertising on orthopaedic practices today, there is a great deal of interest in the public about a hip implant endorsed by a major professional golfer, knee implants that bend and rotate, surface replacement for young athletes, and gender-specific implants. Critical review of our literature underscores the paucity of evidence-based information to support these media proclamations. We have, unfortunately, come to understand patients do not necessarily care about evidence-based medicine. They often are willing to adopt the vendor's message verbatim and consequently are open to our experimentation. This duplicity, however, is understandable when examined from the patient's perspective.

Patients do not yet understand medicine despite the increasing availability of information sources. However, they are, and will continue to be, drawn to ideas that seem simple or simply elegant. Who would not want minimally invasive surgery or computer-enhanced accuracy? Oliver Wendell Holmes once said, "I wouldn't give a leg for the simplicity on this side of complexity; but I would give my right arm for the simplicity on the far side of complexity" [10]. Despite the increasing sophistication of their information sources, patients are unclear as to which side of the complexity equation we present to them.

Conclusions

Our patients presenting for total joint arthroplasty now are a different lot from patients in years past. Demographic trends are swelling their numbers, influencing and commanding our attention. Disparate and convergent trends of age, obesity, activity level, and life expectancy ensure we will remain challenged to perfect the techniques we practice.

More importantly, potentially, is how we embrace our patients as they gain additional insight into their health options. In a world that relishes the acceleration of information exchange, the precision of computerization, and metric declination, seemingly speeding up and expanding daily, we need to understand why they ask more questions if we are to remain the arbiter of orthopaedic medical knowledge. Daniel J. Boorstin said, "The fog of information can drive out knowledge." The beacon in the fog should not be *The Inquirer* or an advertisement in the newspaper, but rather the doctor working diligently with the patient to understand the problems specifically in the context of available solutions.

What, then, is our responsibility and response to the 21st century patient? It is, I believe, to maintain control of validated information sources and of the exchange of information with the patient. We need to be the interpreters and balancers of scientific information to help guide our patients through the maze of medical hyperbole. We need to discuss new treatments and technologies openly and honestly. Additionally, it is important to understand, although what the patient demands from us, their physicians, is changing, our responsibility for their safety and care has not. The current demographics, time pressure, patient mobility, consumerism, and cost pressures are trends. As trends, they too will continue to change. What will remain constant with our new patients will be physician accountability, that is, our responsibility to make decisions, guide patients, and communicate with them in an easily understood manner.

You can observe a lot just by watching. —Yogi Berra [

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