

## [COST OF CARE, A NO-WIN SITUATION IN THE UNITED STATES](#)

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When it comes to their healthcare, most patients do not think about the cost of care until they receive a bill for medical treatment, or when they have to decide what health insurance plan they will sign up for. To make matters more confusing for patients, the unceasing political debate on how to reduce health costs, which approximate more than \$3.7 trillion a year, or 18% of the GDP, goes on and on, with no resolution in sight. Among the issues are:

Costs of procedures, screenings and treatments such as mammograms, and MRI's vary by institution and location, even within a specific geographic area. There are no easy ways to determine and compare those costs and patients often end up choosing the most convenient location, discovering the cost only when the bill arrives.

[Costs of prescription drugs](#) have escalated tremendously in the past few years, and do not, in the majority of cases, reflect the cost of bringing the drug to market. In the past 10 years, the prices of Epi-Pens, insulin, and asthma inhalers, among many other medications have jumped to unaffordable levels.

Ten years ago, Epi-Pens cost approximately \$100 for a pen, which is used to counter an anaphylactic reaction to an allergic substance such as peanuts. Today that same pen with no change in the formula is between \$600 and \$700 per dose. Basically, this is a medication delivery system that consists of epinephrine which costs as little as \$1.00 in its pure form. Generally, the pens are good for one year, after which time they expire because the medication contained in the pen loses its effectiveness.

For a drug that is life or death to a patient with Type I diabetes, **insulin** has been prominent in the news recently for good reason. The cost of the four most popular types of insulin has tripled over the past decade; and the out-of-pocket prescription costs for patients have doubled. In 2016, the average price of insulin rose to \$450 per month,

(\$5,700) a year up from \$2,900 in 2012. By comparison, the cost of living rose about 6.5 percent during that same time period.

Not only are the prices extraordinarily high and rising, but in comparison to other countries that have a national health system, Americans are paying significantly more for the same drug at the same dose. For example, the price of 5 pens of Lantis, a common insulin, costs approximately \$113 in Canada; 5 pens of Humalog, another popular insulin costs \$65. In the U.S. those same drugs at the same dose both retail for about \$476.

To make matters worse, large Pharma companies appear to be in lock step with respect to pricing. There are no laws to effectively regulate what they are allowed to charge and drug makers say they cannot reduce list prices because it is not feasible to do so in the current system where middlemen and insurance companies demand discounts, rebates and other price concessions that are calculated as a percentage of the list price. Pharma contends that they provide these concessions to guarantee that their drugs will be covered. This would appear to be a vicious cycle that puts patients at risk, as some patients are required to ration their drugs to afford them.

There are also hidden health costs that patients are faced with, including the annual, escalating deductibles that most health plans build in. Talk about sticker shock, there are health plan deductibles that have risen as much as 75% in the past 5 years. When patients go to get their medications or agree to a procedure, early in the year, before they have met their deductible and unless they have studied the fine print, they are in for a whopping surprise.

Nearly one-third of Americans face each day not knowing if they can survive a medical crisis. It is estimated that nearly 10 million adults with year-round medical insurance accumulate medical bills that they cannot pay off. Additionally, there are 44 million individuals in the U.S. who have no health insurance. These individuals have to make choices between receiving a life-saving medical treatment, or paying their mortgage; between obtaining their prescription or feeding their children. It is estimated that bankruptcies resulting from unpaid

medical bills affect over one million individuals each year, making health care the No 1 reason why individuals file for bankruptcy. To further aggravate cost of care to the American patient, the [U.S. spends approximately twice what other high-income nations do on health care](#) but has the lowest life expectancy and the highest infant mortality rates. The WHO (World Health Organization) reports that US health outcomes are actually below those of other developed countries. We have higher than average rates of infant mortality, greater incidence of low birth-weight babies and high incidences of breast and prostate cancer.

The time has come for the American people and their representatives in Congress to take a hard look and a hard stance on the cost of care, and work together to do something about it. It is obviously self-defeating when individuals ration their medications and end up in the emergency room with multiple serious conditions. It is also unconscionable when, in a country with the riches and quality of life that so many enjoy, there are also so many who do not have basic healthcare at an affordable price. Further it is shocking and appalling that our country, which has always prided itself on its ability to make advances and foster new discovery and innovation in medicine, has rankings in infant mortality, low birth rate and various cancers that are at an all-time low, compared to the rest of the world. The time for change has come and it is now.

[ARTIFICIAL INTELLIGENCE: NO SIMPLE ANSWERS ON THE HORIZON AS THE TECHNOLOGY MARCHES ON](#)

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Like almost everything else in healthcare, the impact of Artificial Intelligence (AI) will first be experienced by a variety of clinicians in a hospital setting, but ultimately, AI will be a technology that radically changes the patient-clinician relationship, with the patient as the ultimate beneficiary. This was evident at the 5<sup>th</sup> annual World Medical Innovation Forum, (WMIF), held last week in Boston, MA, where over 1,800 individuals from around the world who are involved in diverse aspects of healthcare and innovation gathered.

Throughout the conference there were a few recurring themes worth noting:

That AI will provide the intelligence and objective data to medical professionals that empower them with critical information they need to better identify medical issues and make diagnoses.

That AI will produce powerful tools to help medical practitioners make complicated decisions on behalf of their patients

That AI will foster “engagement” among clinicians and patients — a much touted goal in care today.

That AI will “re-humanize” everyday care by providing clinicians with the opportunity to carry on real face-to-face focused discussions with

their patients, in a setting where the clinician no longer has to be sifting through information and filling out forms during that encounter. That AI in combination with genetics, genomics, and robotics will change the face of medicine forever from what we currently experience, to a much more personalized, information-based approach which eliminates much of the guess-work and is truly based on proven best practices.

This transition will not come without pitfalls and serious ethical issues including:

How to monitor the data that is has been aggregated, for accuracy, bias and transparency?

How to insure patient privacy when there is so much data available in many scattered silos, in spite of the fact that this data is anonymized?

How to ensure that AI data gathered is secure and protected and is not misused for evil purposes?

How to structure AI technology so that it helps to reduce rather than increase the cost of care, and reduce the disparities in care among diverse populations?

This technology , that is going to profoundly impact families, communities and society, is already used in many facets of care, including: radiology, pathology, ophthalmology, cardiology, neurology, cancer care, and mental health. It became evident from many presentations at the WMIF, that this engine of AI innovation is moving forward rapidly. What is less clear is who will manage these huge and invaluable bodies of knowledge; how will AI will be regulated and controlled, (which must happen, if there is to be any semblance of equity for all); how will we build a sustainable model/infrastructure that can benefit everyone in the system and not just the select few. If it is indeed the place of AI not to merely replicate human tasks, but to extend human knowledge to benefit mankind, then let's ensure that during this evolutionary process, all stakeholders, including: clinicians, healthcare institutions, rehab specialists, technologists, pharmacists and patients are included at the table, as these thorny issues are ironed out.