



Miracles Cost Money

Modern medical technology can keep tiny, fragile, extremely premature babies weighing only a pound alive. Modern medical technology can then provide lifetime services to even the smallest of these premature infants, many of whom have permanently underdeveloped lungs, inadequate kidneys, and, in some cases, life-long brain function difficulties. A decade ago, these tiniest children would have died. Today, we can perform miracles.

Those miracles cost money. And sometimes those miracles can cost money for a very long time. The cost of prolonging many lives for long periods of time is a relatively new factor in health care expenses. Very sick people used to die. Now, many partially recover—and become permanent patients of one kind or another.

Being a permanent patient used to be a rare event. When kidney dialysis was invented to keep people with failed kidneys from dying, the actuaries who predicted future insurance costs were completely off the mark on their expense projections for kidney patients. They very accurately predicted the cost differences for the first year by adding up the new treatment costs for all of the kidney dialysis patients who would otherwise have died that year. What the actuaries forgot to take into account, however, was that most of the dialysis patients were now going to live for many additional years. The actuaries were accustomed to a world in which all kidney failure patients died relatively quickly. So the actuaries simply did one-year

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noncumulative expense projections. The total annual costs of treating all patients with failed kidneys turned out to be, in just a few years, four to five times higher than the actuaries had initially projected.

Saving those lives is a great accomplishment. It is truly miraculous, in fact, that dialysis could so successfully prolong lives. That is particularly wonderful news for the dialysis patients. The long-term costs, however, were a real shock to the people pricing health insurance. A powerful lesson was revealed about projecting the full long-term cost impact of specific new technologies. Only a few health insurance actuaries, however, learned that lesson. It was invisible to the public.

New technologies can improve health, improve functioning, and make life a lot better for patients in many areas. And the cumulative impact of all of those technologies puts a huge relatively new cost burden on the overall system.

The public at large remains ignorant of that cost impact. We see the impact of that miraculous care on individual patients' lives, but no one talks in any useful way about the impact of that miraculous care on cumulative community health care costs. Because no one ever presents the cost data to the public, the American people believe that today's medical miracles are free. They're not.

We are fortunate to live in a world where care is improving every day. Almost without exception, each improvement is more expensive than the care it replaces. In many instances, better care keeps people alive longer and, as a result, prolongs the time in which those people will receive care and incur expenses.

It can easily cost a million dollars to save a one-pound premature baby from death. If that child turns out to be permanently physically impaired, it can then cost anywhere from \$50,000 to \$200,000 annually to keep that child alive.¹ It will often take life-long medical support services to provide each impaired child with acceptable levels of function and interaction. Each life saved is a miracle. The cost impact of those miracles is cumulative. One such

child might cost \$200,000 a year. Five similar cases then might cost a given community, in total, a million dollars a year for maybe fifty years. Let's say that we add ten such children every year to a local health care expense pool. Do the math. It's fascinating.

What's even more fascinating is that no one actually does the math. These cost issues are invisible.

When the famous McCaughey septuplets were born in 1997, one part of the story that was almost totally ignored or overlooked by the news media was the cost of the care needed to keep those babies alive. Conservatively, total expenses incurred in helping those seven tiny babies survive to their first birthday exceeded \$2 million.

That was money well spent. All seven of those babies seem to have benefited immensely from the wonderful care they received. Miracles were accomplished. We Americans are very good at those miracles.

Nowhere else in the world would the odds have been in favor of all seven of those babies living to see their first birthday—or even in favor of all seven babies living for a full week after their birth. We truly do miracles here. Those miracles cost money. None of the news stories about those babies bothered to total up the costs. To the public, the McCaughey miracle seemed to be free, a gift, maybe, from the care system. Not true. Bills were incurred. An insurer paid those bills. Millions of dollars changed hands: \$2 million just for starters.

Premature infants tend to be some of the more extreme cases on the cost continuum. They are good examples, though, of what American medical science can now do. Miracles happen every day and in many areas of care.

A few years ago, if a patient suffered from severe and persistent tremors, the result was often a lifetime of discomfort, embarrassment, and even pain. More recently, these patients could use powerful but inconsistently effective drugs that affected brain and body function in many ways while achieving only limited relief from the tremors.

Now, thanks to technology, care has improved for many of those patients. Today, a skilled surgeon can implant a tiny device called an Activa into the deep brain, turn on a switch, and, wonder of wonders, tremors cease.

Life for those patients immediately becomes much better. It's a miracle. It costs more than \$17,000 for the device and approximately \$25,000 more for the surgeon and hospital. Battery replacement for the device is required every three to five years for approximately \$7,000. Other care costs are ongoing.²

That's a set of expenses that didn't exist five years ago. Health care premiums charged five years ago didn't have to collect any money to pay for neurostimulator devices, so health care premiums five years ago were lower.

How should we as Americans think about that particular care situation? If we believe that we each live only once and quality of life is important, is it worth the extra cost to have that amazing device implanted? Or should we as a society condemn that patient to a lifetime of tremors so we can save the money and keep insurance premium costs down?

Obviously, we will do the implants. When something works, we Americans use it—and pay the price. We perform miracles, and we expect them to be covered by our insurer.

The list of miracles goes on and on. Exciting new gamma knife therapy can target and destroy small tumors in the brain using highly focused gamma rays. The equipment costs \$3.4 to \$5 million to install. The treatment, done in either an outpatient or inpatient setting, costs \$20,000 to \$90,000 per procedure.³ It's incredible technology. For some patients, it's the difference between life and death.

Lung volume reduction is used as a palliative surgical treatment for late-stage emphysema, enabling the patient to ventilate the remaining lung tissue more effectively. Hospital charges for this surgery range from \$30,000 to \$55,000.⁴

Transplants of bone marrow from another person for cancer treatment cost about \$200,000 each.⁵ People are alive today because of that treatment. But many of those survivors will have cancer relapse in a few years, triggering another round of miraculous care and significant expenses.

Islet cell transplantation for the treatment of diabetes helps the patient produce insulin and may reduce or eliminate the need for insulin shots. The procedure costs nearly \$150,000.⁶

People whose hips fail get new hips inserted. New knees are becoming a commonplace surgery. Prosthetic ankles have allowed people whose lower limbs were lost to become joggers, even competitive runners.

These are all miracles. And they are all expensive.

700,000 Heart Stents a Year

New devices are developed all the time. If they work, they are used. That's the American way. Coronary artery stents, for example, are now being inserted into 700,000 hearts each year.⁷ Vice President Dick Cheney was a highly publicized stent patient.

The stents are tiny tubes made of webbing. Their job is to keep vessels open and blood flowing in order to delay or avoid second heart attacks. Is that a good goal? Ask anyone who has had a first heart attack. Of course, it's a good goal. No one wants a second heart attack.

However, from 15 to 20 percent of these initial stents fail within six months because the stent gets clogged with scar tissue. These patients then must undergo further major treatment.⁸ That clogging is a serious short-term setback. We really don't know at this point if there are any long-term setbacks. Because the procedures are relatively new, no one knows how many of those 700,000 stents will need surgical removal in ten years or twenty. The newest version of the stents is chemically coated. They seem to work twice as

well.⁹ They may also cost more than twice as much. And we also don't know how many of them will need to be pulled out and re-done at some point in the future.

For now, however, putting all of those stents in people's chests seems like a very good risk to take. Why? Because second heart attacks are being measurably delayed for a high percentage of people.

The intent of the device is wonderful, and the immediate return is good 80 to 90 percent of the time. They achieve a miracle: an extension of life (an extension that, not incidentally, creates additional care expenses for the overall system).

Each of those stents, of course, costs money. The total market just for stents is now nearly \$2 billion per year.¹⁰ That's another new expense. Five years ago, stents were quite rare. Ten years ago, they didn't exist. Now they help millions of people stay alive.

So does the ventricular assist device, or heart pump, a device that helps patients with failing hearts maintain blood flow until the patient is ready for a heart transplant.

If the authors of this book personally had the need for a heart transplant, we'd definitely consider one of those pumps. The cost per pump per patient is roughly \$75,000, nearly half the current cost of a full heart transplant. The introduction to the health care technology market of one new device, in other words, added 50 percent to the current cost of a heart transplant. It also slightly increased the number of transplants being done, because it keeps more people alive until a matching donor heart is available. That is yet another miracle that adds to the cumulative community cost of care.

Heart transplants themselves are a particularly good example of how technology and medical science constantly improve. Transplants were once an exotic, last-ditch, often unsuccessful, and always extremely expensive attempt to, at best, very briefly prolong lives. They were relatively rare. Today transplants are a common medical procedure and successful far more often than not when the right match is found between a patient and a donor heart. Patients survive for years, sometimes decades.

The transplants now cost anywhere from \$150,000 to \$500,000 per patient. Again, as with the tiny premature babies and the dialysis patients, that up-front cost gives us an expanded capability to keep people with failed hearts alive a lot longer so they can receive even more care. Transplant patients can live for a very long time. The post-transplant follow-up care—including ongoing antirejection drugs, anti-infection drugs, and biopsies to monitor for graft rejection—now runs roughly from \$14,000 to \$95,000 per year for the rest of that patient's life.

That ongoing cost is significant and far exceeds the actual individual health insurance premium paid each month by the average heart transplant patient. But when you look at the overall costs of the procedure and realize that people are benefiting immensely—living for many additional years and leading relatively normal, comparatively pain-free lives after the transplant—then it's pretty hard to argue that we as a society should save money by not doing that procedure and simply letting those people die.

The Six Million Dollar Man

If you start at the top of the head and move down the body, we can now insert enough prosthetic devices (knees, hips, ankles) and transplanted organs (hearts, lungs, kidneys, corneas) to create a six million dollar man or woman. It's hard to find a body part that can't be reconfigured, significantly repaired, or replaced. In almost all instances, the result is a better quality of life for the recipient of those prosthetics or procedures.

Miracles come in chemical versions as well as mechanical. We now have an array of amazing new drugs that make real differences in people's lives. The new drugs generally cost a lot more money than the drugs they replace.

Zofran, for example, is a wonder drug that helps prevent the nausea and vomiting associated with cancer chemotherapy. It costs \$56.00 per day, replacing a less efficient drug that cost \$3.25 per day.¹¹

For people undergoing the miseries of cancer treatment, the reduction in suffering is another miracle, a fifty dollar per day miracle.

New antipsychotic agents such as Zyprexa and Risperdal are replacing older drugs that are generically available. The new drugs are more than ten times the daily cost of the old generics. Why are the new drugs used? Because, for some patients, they work better.

Until relatively recently, severe depression was not treated very effectively by drugs. Today we use a wonderful new class of antidepressants known as selective serotonin reuptake inhibitors (SSRIs). SSRI use has exploded. These drugs are now used by so many people that they frequently are a health plan's top cost in terms of total drug expenditures. These antidepressants, such as Prozac and Zoloft, have replaced generic drugs such as Elavil at approximately ten times the daily cost (\$.25 per day compared to \$2.64 per day).¹² Prozac and Zoloft are also given to millions of additional people who never would have received Elavil.

Deep vein thrombosis (DVT) can lead to pulmonary embolism. In the past, patients with DVT, or at high risk for DVT, were hospitalized to receive intravenous therapy. Now a drug, Lovenox, given subcutaneously can be used in an outpatient setting. The cost of Lovenox is about \$40 to \$75 per day.¹³

Looking ahead, we can see a huge potential drug cost looming for new antibiotic drugs. Overuse of the less expensive antibiotic drugs has resulted in several frightening strains of bacteria that are now drug resistant. People are suffering greatly and even dying from some of the staphylococcus strains that eat their flesh. Those germs laugh at the old pharmaceuticals that used to fight them off. Entertainer Rosie O'Donnell's battle with staphylococcus was well publicized.

Even the current drugs of last resort, like vancomycin, are not working consistently against the new diseases. At one point, we could stop those diseases with ampicillin at \$0.39 per dose. Then we had to fall back on cefazolin at \$0.90 per dose. Now we need to

use linezolid (Zyvox) at \$58.10 per dose—and even it doesn't always work.¹⁴

The drug costs are just a fraction of the total care cost for patients who are attacked by these new disease strains. These antibiotic-resistant staph patients can easily run up hospital bills in the tens of thousands of dollars before discharge. Bills for some patients exceed \$100,000. Some patients die. Many are crippled for life or seriously disfigured.

New drugs are under development. Some may work. None will be cheap.

The drugs that used to kill off tuberculosis and staphylococcus easily and inexpensively are all now useless against some of the newer and more virulent strains of those bacteria. The new drugs cost thousands of dollars and work inconsistently at best. If infections caused by staphylococcus and tuberculosis ever become rampant in this country, we will see another cost explosion, one with far fewer miracles and many truly tragic outcomes. Likewise, if diseases like the West Nile virus become common in our country, our approach to care will create increased costs for the entire economy. In the rest of the world, most of these patients die because effective, proven therapy is unavailable. In the United States, heroic, high-intensity, and high-cost care will be the order of the day in response to epidemics.

But those are next year's problems. For now, we're primarily paying for today's miracles. Today's miracles work. We are constantly seeing major improvements in just about every area of care. It's all extremely encouraging if you are a patient.

Surgical techniques have also gotten better. Lasers have replaced scalpels for hernia repair and removing skin cancer. Gallbladder removal used to require opening up the abdomen for major surgery. That surgery can now be done laparoscopically, through a very small incision using a miniature camera. The new procedure involves fewer risks or complications. It also speeds recovery by four weeks,

sometimes resulting in real savings to employers for less time lost from work.

That particular new procedure costs only slightly more per patient than the old. That's not the major cost driver. The cost issue is volume. Because the new approach is less invasive and works so well, many more people, especially the elderly, now undergo this procedure. That ease of use has, for example, significantly increased the total cost of gallbladder surgery in this country.¹⁵

Is that good care? Yes—for people who need gallbladder removal. It's another medical miracle and, like most other medical miracles, it costs money. Every insurance company is paying an additional price for that care.

The list of expense increases goes on and on. Today we are facing a shortage of a crucial medical product: blood. Thirteen million units of blood were used in 2000, and demand is increasing at 6 to 8 percent while donations are up by just 2 to 3 percent.

Again, technology is coming to the rescue. Soon we may have the option of using artificial blood, which would have a much longer shelf life and would eliminate the need for matching blood types. That would be another medical miracle. But the cost impact of this new product is also probably going to be high. The average unit of donated blood now costs about \$130. Prices for artificial blood are estimated to be anywhere from \$300 to \$1,000 per unit. Don't bet on \$300.¹⁶

If It Works, We Use It

Think of the whole process this way: every time a wonderful new procedure is proven to work, it gets used. If it works, it is paid for by our insurance process. We each then share in the costs of the procedure through our premium. Care is continuously better because the money to pay for that care is now readily available. The pooling process and insurance premium increases let us all work together to make that money and care available.

The question is, Are all of those medical technology improvements worth the cost?

None of us would want to return to the health care tool kit of only a decade ago. New implants, new procedures, new drugs, and new imaging technologies help doctors diagnose more accurately and treat more effectively. Earlier intervention in the lives of people with chronic conditions can help prolong lives and reduce discomfort and pain. Almost all of the innovations improve care. That's indisputably good.

Some of the new procedures actually don't work. A recent study showed that the most common arthroscopic surgery done on knees had no more impact than a placebo surgery done on knees with comparable problems.¹⁷ More than 80,000 of those surgeries were done last year, which may well have been wasted money for everyone involved. (The whole issue of valid, science-based care is discussed later in this book.)

The point to keep in mind here is that most of the new drugs and procedures add real value to people's lives. We need to recognize as a society, however, that just about every one of those innovations is expensive. We use all of them because that is the way the system is set up in this country today. Once we use them, we have to pay for them. (In some cases we probably pay too much, a topic explored in a later chapter.)

Looming just ahead of us is a highly likely explosion of costs that will result from the new genetic sciences. We may soon be able to tailor drugs, treatments, and even gene transplants that are specific to individuals with both dire and chronic diseases. The curative potential for those treatments is huge. The potential costs are even higher. It's possible to imagine a doubling of total treatments costs from that one area of science alone.

We are just seeing the beginning of that trend. We have some serious decisions to make as a society about the overall cost of care and our expectations about the maximum use of care that will need to guide us all as that whole new world of genetic science reaches



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full bloom. Those miracles could make today's miracles look relatively unimpressive, and cheap.

But that's for tomorrow.

For now, one key fact to consider is that medical miracles happen every day in this country, every minute, in fact. They all cost money. Another key fact to consider is that American health care, good as it is when we are really sick, leaves a lot to be desired when it comes to consistency, safety, and giving us all the value we pay for.

So how inconsistent and unsafe is U.S. health care? You might be surprised.

