

HEART ATTACK TREATMENT; THEN AND NOW

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Armchair Treatment

Before I entered medical practice fifty years ago, patients who suffered heart attacks (myocardial infarctions) usually were confined to strict bed rest for four to six weeks. Sitting in a chair was prohibited and patients were not allowed to turn from side to side without assistance. During the first week they were fed; moving their bowels or urinating required a bedpan; some physicians prohibited their patients from listening to the radio or reading a newspaper and visits by family members were strictly limited. Patients were heavily sedated, there was a sense of hopelessness and depression and about one in three died, many from blood clots migrating to the lungs. Physicians convinced themselves that all this was the price of survival and in those simpler times physicians' judgments were trusted to make crucial decisions. (See Appendix)

But by the 1950s conventional wisdom was starting to change. Dr. Bernard Lown, then a cardiology fellow at Peter Bent Brigham Hospital under the mentorship of Dr. Samuel Levine, suggested to his boss that they experiment by permitting newly admitted patients after heart attacks to spend increasing amounts of time in a chair starting on the third hospital day. Writing nearly six decades later, Dr. Lown recalled the initial reaction:

Although I knew the project would be a chore, I didn't expect it to be an act of martyrdom. Little did I realize that violating firmly held traditions can raise a tsunami of opposition. The idea of moving critically ill patients into a chair was regarded as off-the-wall. Initially the house staff refused to cooperate and strenuously resisted getting patients out of bed. They accused me of planning to commit crimes not unlike those of the heinous Nazi experimentations in concentration camps. Arriving on the medical ward one morning, I was greeted by interns and residents lined up with hands stretched out in a Nazi salute and a "heil Hitler!" shouted in unison.

(Lown, B. *The Lost Art of Healing*, Ballantine Books 1999)

Despite dire predictions of serious complications, Lown and Levine's patients did remarkably well. Compared with recumbent patients they needed fewer narcotics, sedatives or hypnotics; moods improved and they began to harangue their doctors to let them walk and pressed for early discharge. Their radical "Armchair Treatment" was published in 1952 (*JAMA*, 148: 1365) and within a few years bed pans were abandoned, walking was permitted earlier, hospital mortality fell by about a third and the

period of hospitalization was cut in half. Bed rest had seemed a logical treatment to reduce the burden on a damaged heart. (Such simplistic reasoning also once was responsible for blood letting, X-ray treatment of peptic ulcers and lobotomies for the mentally ill.) Lown quoted the theologian Reinhold Niebuhr who wrote, "We mean well and do ill, and justify our ill-doing by our well-meaning." In effect, when good answers are unavailable, bad answers may replace them:

When a new paradigm takes hold in medicine, its acceptance is extraordinarily rapid. Few acknowledge that they once adhered to a discarded method. This was succinctly captured by the German philosopher Schopenhauer. He maintained that all truth passes through three stages; first, it is ridiculed; second, it is silently opposed; and finally, it is accepted as having always been self-evident.

Nevertheless, when President Eisenhower (a four pack a day smoker) had a heart attack in 1955 at age 64, his doctors consulted Harvard's Paul Dudley White who favored his colleague Sam Levine's chair rest treatment. Soon after Ike was lifted into a chair there was a recurrence of chest discomfort, the approach was abandoned and he was returned to bed. At least Eisenhower took the advice of Dr. White, who famously advocated a vigorous life style, so the president was spared a life of invalidism after all - he continued to golf and he stopped smoking.

Length of Stay

In 1974 my partner and I published a review article about the treatment of acute myocardial infarction (*Medical Clinics of North America*, March, 1974) in which we noted that responses to a questionnaire sent to 2,206 American physicians indicated that the median hospital stay for all patients after uncomplicated myocardial infarction was 21 days with a median time to return to work of 2 to 4 months. However, we cited a more recent prospective study which found that the duration of bed rest after infarction prescribed by various physicians varied widely from 7.4 to 15.2 days. No clear reasons for this disparity were detected and we concluded:

It is likely that many patients are kept in bed for excessive and arbitrary periods of time that are not dictated by known facts about the course of the disease....many reports have advised reduction of the duration of bed rest ...and it is our opinion that in patients with uncomplicated infarction, permission to sit in a chair may be granted during the first week. Chair time is gradually increased thereafter and followed by progressive ambulation, with hospital discharge generally between 2 and 3 weeks.

Nearly a decade later (1983) I published another article with what I thought was a bold and provocative title: "Optimum length of hospitalization for uncomplicated myocardial infarction is **ten** days." (*J. Med. Soc. New Jersey* 80: 421.) However, throughout the 1980s and 90s and into the 21st century studies from around the world showed a progressive decline in the length of hospitalization. By 2003 a report concluded that extending hospital stays beyond day 3 was of negligible benefit but added much cost. By 2011 a study of more than 1,500 patients with a first heart attack found that the average length of stay was down to 2.9 days and concluded that discharge "at day 2 or sooner" in low-risk patients was the new standard of good care. (*Amer J. Cardiol.* Feb 15, 2018) That's quite a change from four to six weeks in bed!

Value vs. Volume

A half century ago, we fledgling doctors rather naively understood our jobs to be providing what in our best judgement would benefit our patients. Everything else was secondary. After all, that was the core of the Hippocratic Oath that we had pledged at medical school graduation. But that was long before commercial interests supplanted traditional doctor-patient dynamics which brings us to the current state of health care economics. For the sake of relative simplicity, I'll focus on this subject of heart attacks from the perspective of hospital care which nowadays is based on the still unproved premise that unnecessary hospitalization can be avoided at great cost saving without sacrificing efficacy or safety. (Remember Niebuhr and Schopenhauer?)

Let's start by considering some statistics from 2013 which reflected the situation just before the Affordable Care Act ("Obamacare") was implemented. Every year more than 750,000 Americans suffer a heart attack and coronary artery disease (myocardial infarction and coronary atherosclerosis) is among the most expensive hospital conditions. In 2013 heart attacks accounted for 3% of admissions and cost more than \$22 billion (MI \$12 billion, ASHD \$9 billion). Other causes of chest pain were far down the list. Although only about 7% of the population are hospitalized each year, the mean cost for each stay is more than \$18,000. The challenge has been and remains how to incentivize providers (both doctors and hospitals) to maintain or improve quality of care while reducing systemic costs. This has led to experiments with alternate payment models, including "bundling" everything into a single package. Soon the industry's new mantra became "value over volume" but true value is in the eye of the beholder - patient, doctor, hospital, insurer, pharmaceutical company, government - and all may not see eye to eye. After all, who defines "value" and how?

The Fine Art of Medical Coding

Now let's shift the narrative to consider the arcane world of medical billing. If your mind is already spinning, don't try to understand the differences between DRG, ICD-10 and CPT coding. Indeed, hospitals and other large providers employ squads of professional coders in order to squeeze every penny they can out of each patient service and there's a constant tug-of-war between providers and payers who negotiate, deny, justify and compromise. The arcane system invites shading the truth. It's all based on what the doctor's chart notes say - conveniently documented electronically so need to read their illegible handwriting - but then the pros get to work - "up-coding" and employing "strategic billing."

So now let's return to heart attacks as an example. In the past when a patient developed acute chest pain and heart disease was considered to be a possible cause, the default reaction was to hospitalize for observation until a myocardial infarction was ruled in or out. There was no agonizing about details; "rule out MI" was diagnosis enough. Reimbursement both to the doctor and the hospital was based on what services were provided and how long the patient remained in house - so-called "fee-for-service." That was easy and understandable, but it contributed to rising costs and there was a perverse invitation to game the system - stay a few more days "just to be sure and meantime we'll do a few more tests." The patient rarely minded - better to be safe than sorry - and, after all, someone else was paying.

However, there is often a gray area when distinguishing between those well enough to go home but not sick enough to be admitted. Insurers and CMS (Medicare/Medicaid) were concerned that under the old payment system doctors and hospitals were abusing the option, so the rules of play and pay were changed. These days when a patient presents to an emergency room with chest pain of uncertain cause, they may be admitted to a holding unit for two midnights during which appropriate tests are performed to rule out an incipient heart attack. After two midnights if there is reasonable evidence that infarction has occurred, hospitalization (and mega-billing) becomes justified. But for patients who remain in this diagnostic limbo, Medicare will reimburse only as an *outpatient* service, meaning that the patient might be responsible for sizable co-payments and for whatever the hospital charges (hugely inflated) even for the same medications that they usually take at home.

Some would argue that this is a good thing because unless patients have "skin in the game" they always will choose the more expensive option. Hospitals have developed strategies for how to compensate for new regulations and either employ or contract with

coding specialists to craft the most favorable combination of diagnostic codes and in the ensuing tug-of-war between CMS and insurers, the physician's clinical judgement and the patient's best interest are likely to get lost.

Bundling

In 2000 CMS changed the financial incentives by initiating a so called Prospective Payment system. Now hospitals would receive a predetermined fixed price for the entire hospitalization based on the national average of resources expended for the same condition and age group. It was based on Diagnostic Related Groups - DRGs - which is a classification system originally introduced in 1983 that has evolved and been incorporated into Medicare's hospital payment system. No longer were hospitals paid more the longer patients stayed and the more things done to them. Now each DRG was assigned a dollar value that is derived by an opaque formula understood almost by no one. Medicare's final payment also is effected by local cost factors, changes in technology or practice patterns.

Six of currently more than 740 DRGs apply to acute myocardial infarction, each depending on whether or not the patient died in the hospital and the complexity of care. The basic DRG for an uncomplicated heart attack is #280 for which the average nationwide payment to the hospital is slightly over \$10,000. For example, let's compare the data for Rockland County's two acute hospitals for DRG 280 in 2016 (uncomplicated myocardial infarction not requiring invasive surgery):

	<u>Hospital Charge (avg)</u>	<u>Total Received</u>	<u>Medicare Payment</u>
Good Sam (49 cases)	\$70,021	11,937	11,152
Nyack (27 cases)	\$63,001	12,287	11,480

Without attempting to delve into how these numbers were derived, note that hospital charges far exceeded what Medicare considered to be reasonable by a factor of five or six fold. (Incidentally, average cost for a comparable condition in Canada is 40% what it is here.) How hospital's price their services is a mystery beyond the comprehension of most well-educated people? Presumably they multiply their costs to set their charges but frequently the charge is inflated by outrageous amounts. Discrepancies in charges for the same procedure in different areas of the country and even between neighboring hospitals is commonplace. Countless studies have been done but with no clear explanation for the phenomenon - true, sometimes there was fraudulent billing but that can't account for all the differences. The national average of hospital charges runs

about three to four times greater than Medicare's allowable cost (sometimes 10 x greater in for-profit hospitals.)

But most public and private insurers don't use hospitals' costs, real or inflated, to set their rates so there is constant negotiation to establish a final figure. In the process, those without insurance or "out of network" are especially vulnerable and may be charged the full or at least a large portion of the the total charge - some call this "soaking the poor." To be sure, some hospitals at their own discretion may provide free or discounted care to selected populations and CMS has established some programs to compensate hospitals who provide a great deal of charity or uncompensated care. In 2004 hospitals actually received only about 38% of their "charges" from patients or their private insurers. Moreover, an individual hospital may be paid by a dozen or more distinct third-party payers, each with its own set of rules. The larger the network the more market "leverage" which accounts for the phenomenon of small hospitals being absorbed into large systems. The billing departments of U.S. hospitals have become huge enterprises - often off site - that require cadres of highly skilled workers backed by sophisticated computer systems and with physicians employed to ferret out violations.

Out of Network, Out of Luck

Pity the uninsured, self-pay patient who inadvertently finds himself at an out-of-network facility. Patients experiencing an emergency are at particularly high risk and, increasingly, people are learning to their dismay that their local community hospital may no longer accept their insurance. In a recent survey, 57% of Americans said that they'd received a surprise bill when they thought they were covered by their insurance. Currently Nyack Hospital is one of eleven acute care hospitals in Montefiore's health care system that recently was dropped from Aetna's network because the two giants were unable to agree upon what constitutes reasonable fees. Several states (including New York) mandate protections to shield consumers from surprise bills, but these safeguards generally don't apply if patients have employer provided health benefits.

What might happen if a patient is treated at Nyack Hospital but has health insurance provided by Aetna which is the country's third largest health insurer? (Aetna and Montefiore/Nyack settled their differences several weeks after this was written but no details were revealed.) Federal law requires that no one can be turned away from the emergency room - although those without insurance may get transferred out ASAP. Perhaps some accommodation might be made - or not. Sometimes it may depend on how aggressively they contest the bill. Consider the following case:

In April 2017 a 44 year old high school history teacher in Texas developed severe chest pain while at home and a neighbor rushed him to the emergency room of a nearby hospital that wasn't in the school district's health plan. An acute myocardial infarction was diagnosed and emergency surgery implanted four stents. The man worried about whether the hospital would accept his insurance that was provided by Aetna, but was reassured that there would be no problem. Then the bills came. The total bill for a four-day hospital stay, most of the time in an ICU, was \$164,941 (including \$42,944 for four stents and \$10,920 for room charges.) Aetna paid \$55,840 to the out of network hospital and the patient was charged the balance of \$108,951 which was twice his annual pay as a teacher. (Independent estimates suggests that an appropriate charge would be about \$36,800.) There's a happy ending. The story was reported on NPR and as a result of the adverse publicity, the hospital agreed that the teacher qualified for a financial assistance discount and accepted \$332. But should people have to resort to media publicity in order to be treated fairly? How many others like this teacher will be faced with similar surprises as networks continue to narrow in the near future?

These days most hospital CFOs are frightened of impending mega-mergers such as Walmart/Humana or CVS/Aetna that are designed to shift to cheaper care at clinics and pharmacies. Of course these would cut into spending on hospital services and, feeling the pressure, most hospitals are expanding outpatient services and/or cutting back staff. Nationwide, many hospitals are going bankrupt and not just vulnerable rural hospitals but prestige institutions such as NY Presbyterian and the Cleveland Clinic are having trouble keeping up with expenses. A recent study found 450 hospitals of 6000 US hospitals are at risk of closure - that's about 15% of all US hospitals! Inevitably, those figures are bound to rise as Federal and State support gets whittled away.

Conclusion: Obviously there've been tremendous advances in medical knowledge and treatment with consequent reductions in mortality and greater longevity. It's equally evident that our current system is seriously flawed. As a retired physician (and aging curmudgeon) I'm nostalgic for an era when doctor-patient relationships were more personal and the practice of medicine less business oriented. No doubt more medical services will - and should - be provided out of hospitals but the economics of health care are irrational and the costs unsustainable. Is a single-payer system in our future? I hope so.

Appendix: Two Cases

Molly M: Not long after I opened my medical practice in northern New Jersey fifty years ago, one of my favorite patients was a cheerful woman by the name of Molly M. She may have been in her 70s but seemed very old to a 30 something young doctor. One day Molly came in for her annual “complete examination” and afterward, when I told her that everything was normal, she confided that when she was much younger - perhaps in her thirties - she’d suffered a heart attack. It would have been unusual for a woman that young having a heart attack and having just checked her normal electrocardiogram, I was surprised and asked for more detail. She said that when she’d developed some chest pain she went to her doctor who examined her and, like me, assured her that she was fine. I knew that her former physician, Dr. Samuel Alexander, had practiced between 1911 and 1952, was well respected by colleagues and beloved by patients. As Molly related the story, when the doctor reassured her that all was well, she’d replied, “Thank goodness. I thought that I had a heart attack.” The doctor gave her a long look and then said, “Let me listen again.” He applied his stethoscope (through her clothing) listened carefully and said, “You know, I believe that you were right. You *did* have a heart attack. You must go home and stay in bed for *six weeks*.” That encounter must have taken place sometime during the 1930s when doctor’s “orders” were taken seriously so Molly did what she was told and now, so many years later, she was convinced that Dr. Alexander had saved her life! After all, she’d recovered hadn’t she? I replied, “Yes, he must have been a very wise doctor.” But I snickered to myself that was a great example of the so-called “art of medicine” that was all the old-timers had to offer. Perhaps she may have thought, “They don’t make them like they used to.”

Louise B: At about the same time another older woman presented who had a different kind of tale to tell. In June 1941 she’d visited a friend at Holy Name Hospital in Teaneck who had a real heart attack and whose subsequent death was attributed to a three-week delay in hospitalization. Her physician confirmed that there was a shortage of beds in Bergen County. Why? Because most beds in the county’s three acute-care hospitals were filled with patients recuperating from heart attacks, the conventional length of stay being six weeks. Louise was outraged and became an annoying gadfly, visiting local politicians and doctors and organizing a woman’s auxiliary to raise funds for a new hospital. She gathered enthusiastic support and although the onset of World War II caused a temporary setback, afterward the availability of Federal funds plus local contributions resulted in an 80 bed facility Pascack Valley Hospital which opened in 1959 and that’s where I cared for my patients throughout my long career.

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