The Problem of Health Care as Technique

by Raymond Downing

Abstract: Healthcare is a consummate example of the technological system that Ellul described. Yet popular commentary dwells on the problems that healthcare has – particularly financing in the USA – far more than the problem that it is. Through examining the Hebrew story of the Bronze Serpent, and considering the contemporary focus within healthcare of risk analysis, I will propose that modern healthcare as technique is a problem.

Bio: Raymond Downing (MD, New York) has spent about 1/3 of his professional career as a medical doctor in the USA and 2/3 in several countries in Africa, currently in the Department of Family Medicine at Moi University in Eldoret, Kenya. His fifth book on healthcare, *Biohealth*, was published in mid-2011.

The Bronze Serpent

Rustom Roy, co-founding editor with Jacques Ellul of *The Bulletin of Science, Technology, and Society*, said about healthcare that it was “the world’s most pervasive technology problem.” What is it about this healthy sector of our economies, this enterprise dedicated to healing, that makes it a problem? Is it that healthcare *has* problems, or that healthcare *is* a problem? Thirty-five years ago Ivan Illich declared that it *was* a problem: “The medical establishment has become a major threat to health” was the opening sentence in *Medical Nemesis*. Since then, most analysts have assumed only that it *had* problems. Ellul undoubtedly would have agreed with his disciple Illich.

So what is the problem with healthcare? Consider first the story of Moses and the bronze serpent, a very old story of healthcare, with tentacles that reach all the way to the Gospels.

The story itself is short and simple: the Israelites were suddenly confronted in their travels by a population of poisonous snakes. Enough people were bitten, envenomated, and died to warrant classification as a public health problem needing intervention from the government. Moses made a bronze model of one of the snakes and put it up on a pole. Those who had been bitten were instructed to look at the bronze serpent, and when they did, they survived.

The setting of this story is rich with epidemics. When the Israelites were enslaved in Egypt, it was a series of Ten Plagues that eventually convinced the Egyptians to free them. However, when the Israelites started traveling on foot through the desert and began complaining about the trek, the tables were turned and they began to experience deadly epidemics: fire, a couple of unnamed plagues, an earthquake – and the snakes. In each case the epidemic was a direct consequence of their complaining or rebellion or greed or debauchery. These were not random plagues or meaningless slaughters. When people began corporately complaining about or ignoring the plan God had laid out for them (and in the process acting against their own interests), there were consequences to their own health. God had spelled it out right after they left Egypt (Ex 15:26): following God’s plan would prevent all the diseases the Egyptians had experienced, because health is God’s business.

In this serpent story we are considering, the people were again complaining – at least for the eighth recorded time since leaving Egypt. Most of the previous epidemics had been consequences of these public complaints. But the consequence this time was different. Now God sent “fiery serpents” – the
word is saraph, the same word that is translated “seraphim” in Isaiah 6. Both meanings come from a root word meaning “to burn,” and in fact the seraphim in Isaiah touched Isaiah’s mouth with a burning coal to take his iniquity away. The Israelites, however, may not have gotten this connection between an angelic being and a deadly snake, and they asked Moses to do something to remove the snakes (nachash – an entirely different word; the one used for the Satan-snake in Genesis 2). So Moses prayed, and God told him to make a saraph and put it on a pole for all to see. Moses then made a snake (nachash) out of bronze (nechosheth), two words that are related to each other – more on this shortly. And it came about that all who had been bitten, if they looked at the bronze serpent, they lived.

This redemptive event apparently had a more profound effect on the people than the few sentences in Numbers 21 betray, for there are no more recorded episodes of complaining until after they entered Canaan. The did have a major run-in with debauchery and idolatry later at Peor resulting in their largest yet epidemic – 24,000 dead from a plague. But the problem of complaining, which had dogged them from the beginning of their wilderness trek, did not recur. They accepted Moses as their leader, and the next time they were without water they dug a well instead of complaining. Then they asked permission to pass through the land of the Amorites, but instead of being given permission, they were attacked. They fought back, won, and settled for a while in Amorite land. When they moved on again they had the same experience with the people of Bashan: Bashan attacked Israel, Israel fought back, and won. By this time their reputation had grown, and the next people in line, the Moabites, were worried. Their king Balak hired the prophet Baalam to curse Israel, and he tried. Four times he tried, but each time the only thing that came out of his mouth were blessings.

We don’t know if the Israelites attributed this string of successes (prior to Peor) to the healing power of God during the snakebite outbreak. But we do know that they at least respected the bronze serpent because they saved it – for 500 years! And during that time they apparently did what any of us do with an object or method that in one situation was so remarkably effective: they began honoring the thing instead of what it represented. Maybe they even kept trying to use it for healing. They named it – Nechushtan, not Saraph – and offered sacrifices to it. One of the first things King Hezekiah did in his reforms was to smash it, just as he smashed the sacred pillars and poles that honored other gods, because the people were treating Nechushtan the same way.

Once again, the words used in the brief narrative in Numbers 21 tell an interesting story. God simply told Moses to “make” a snake on a pole, and the word for “make” is a very common word, the one used in Genesis 1 for all that God created. It was the same word used when Adam and Eve made loincloths for themselves out of fig leaves, and when Noah made the ark. God is the creator, and we too make things: homo faber. And we often use metal to make these things.

Moses decided to make the snake out of bronze (nechosheth), a metal first mentioned in connection with Tubal-cain, only 7 generations down from Adam. The word is used frequently in the Pentateuch, and always refers there simply to the metal itself. However, beginning with the bronze chains that bound Samson after his hair was cut, there are several uses in the Old Testament where nechosheth is translated as chains or fetters. The connotation of the word had begun to change from the material (a common metal used for the furnishings of the tabernacle in Ex 25) to one of its apparently increasing uses: fetters. Eventually, in Ezekiel 16:36, there is a use of the same Hebrew word nechosheth, but by now the meaning is clearly different; no longer bronze itself, but idolatry (presumably another of the uses of bronze) and filth or harlotry. Could this hint at the link between nachash (which came to mean practicing divination as well as serpent) and nechosheth (bronze, which became idolatry)?
Perhaps it was this Ezekiel use of *nechosheth* that Hezekiah saw in the way the people were treating Nechushtan. But he could not smash what Nechushtan originally represented. Over 700 years later John raised that serpent again – or rather Jesus did – but this time more as Saraph than Nechushtan. Jesus was explaining to Nicodemus that the Son of Man who had *come down* from Heaven would be *lifted up* in the same way that Moses lifted up the serpent in the wilderness. And the purpose was the same: so that everyone who saw and believed would live – eternally. It is interesting to speculate how Nicodemus – who surely knew the story of the bronze serpent, and knew of its destruction by Hezekiah – would have understood what Jesus just told him. It is even more poignant to wonder what Nicodemus was thinking as he and Joseph *lifted* Jesus *down* from the cross.

We too may be left with some questions, especially if we work backwards and ask the story of Jesus to throw light on the story of the bronze serpent. Why would people bitten by deadly snakes be asked to gaze at a model of one of those snakes in order to live? Why not focus their attention on something beautiful, or something more powerful than a snake? How could the word for fiery serpent be the same word for an angel? All these questions are related to the fundamental one: What could it mean that those who believe in a dying man end up with eternal life? These are indeed paradoxes, ones we are meant to wrestle with.

The Gospels are full of this sort of paradox, and we have even become used to them: the last shall be first, the one who loses life will find it, etc. We on some level understand that spiritual life is larger than physical life, and that losing or renouncing some of the latter may enhance the former. It is that same grasp of paradox which allows us to glimpse the broader view of healing in the story of the bronze serpent. The snake epidemic, remember, was a consequence of the people’s corporate behavior. God sent fiery serpents of the very same sort that he sent to Isaiah, *saraphs* to burn away iniquity. Isaiah saw his iniquity in the context of the holiness and glory of God: to him the *saraphs* were angels. The Israelites saw no glory or holiness, and only saw snakes.

But God did not leave them in their ignorance; he offered them, not a healing flower or eagles to eat the snakes, but a snake that did heal. The solution to the epidemic was not in battling it and eliminating the snakes, but in seeing and accepting where they came from. God had sent snakes that really were angels, snakes that did not need to kill. Embedded in the consequence of their complaining was a fiery bite that could burn away their iniquity. And more: the death-dealing snake, when transformed by Moses and raised on a standard, became the life-giving snake. It was, as in the Catholic mass, consecrated the way common bread and wine are consecrated “to become for us the body and blood of our Lord, Jesus Christ.” Indeed, the “violent” serpent-like Son of Man who came to bring not peace but a sword that would separate people, was lifted up to save the world. The same way, says John, that Moses lifted up the death-dealing snake to become a life-giving healer.

The essence of healing in this story, then, is in accepting the snake-angels that God sent, and in recognizing the deliverance from their fatal bite that God provided. The essence is emphatically not in making visual contact with a bronze snake – yet it was precisely this contact that facilitated the healing. There was, in other words, a source of healing (God), and a technique to access that healing (looking at the bronze snake on the pole). The difference was clear to Hezekiah, but apparently not to the people: they had focused on the technique instead of the source.

This difference between technique and its source or goal provides us with an opportunity to review some of Jacques Ellul’s fundamental assertions about technique, and then apply them to contemporary
medicine. The first is the difference between technique (“the totality of methods…having absolute efficiency”\(^3\)) and technology (the study or discourse of technique). His 3 major studies have the word “technology” in the English titles, but the first 2 are really about technique (La Technique ou L’enjeu du Siecle in 1954 and La Systeme Technicien in 1977) and only the third (Le Bluff Technologique in 1988) is specifically about technology. In this last one he makes clear the difference. There is no technical bluff, he says; techniques deliver what they promise. However, there is a “gigantic technological bluff in which discourse on techniques envelops us, making us believe anything and, far worse, changing our whole attitude towards techniques…”\(^4\) The importance of this distinction will become clear shortly.

The second major assertion – not just about technique, but recurring throughout his writings – is the difference between means and ends. He made this clear in The Presence of the Kingdom: “everything has become ‘means’; there is no longer an ‘end’.”\(^5\) All techniques are means; the technological bluff is the proclamation that techniques are all that matter anymore. Now the bronze serpent was a technique, a means; a very effective means to deal with a snakebite epidemic. But the ‘end’, the purpose for both the snake angels and the bronze snake, was to confront the people with their iniquity, burn it away, and heal them. The entire means-and-end process, we saw, was quite effective.

However, the people saved the ‘means’, the bronze serpent, for 500 years – but without the ‘end’, the purpose or meaning, it became an idol. On the other hand, 1200 years after the bronze serpent incident, Jesus returned not to the technique (the means) but to the meaning (the end), and said that as Moses lifted up the serpent for the healing of his people, so the Son of Man must be lifted up for the healing of the world.

These fundamentals, together with the story of the bronze serpent, provide us with some tools to examine modern biomedical healthcare, and to approach the question of what is the problem with healthcare as technique. Ellul listed many other characteristics of technical systems – autonomy, self-augmentation, universality, totalization, the lack of feedback – and all of these apply exactly to biomedical healthcare. But for this story, the ends-means point is sufficient to start us off making some observations. And to avoid too much abstraction, let us choose an example.

There is a group of non-communicable chronic diseases – especially cancer, diabetes, heart disease/stroke, and chronic lung diseases – which are now quite common world-wide, and used to be called “diseases of civilization”, though diseases of industrialization or technology is more accurate.\(^6\) They are the “leading cause of death and disability in both the developed and developing world”\(^7\), and account for 87% of the disease burden in high income countries\(^8\) like the US. That they have become the leading causes of death on almost all continents might be seen as an indicator of how widely industrialization – or more specifically the technological society – has spread.

Now the “risk factors” for these most common chronic conditions are well known and often interrelated: tobacco use, unhealthy diets, harmful use of alcohol, and physical inactivity.\(^9\) Note that this is the way these diseases are discussed: not as consequences of technology or industrialization, but occurring more often in certain groups of people, those subject to the “risk factors” listed. This biomedical formula for discussing diseases – locating them in the context of risk factors – is a very effective way to highlight the immediate causes and indicate interventions. It is equally effective in masking the more proximal reasons for these risk factors. Inactivity and eating processed foods may be behaviors that lead to several of these diseases, and they are modifiable. But why do so many people eat processed foods? Why is so much processed food manufactured? Why are so many people inactive? Why do so many people use tobacco and alcohol? It is in asking these deeper questions that
we begin to see the link between “risk factors” and the larger technological system that Ellul described so well.

Our technological system does things for us, things that throughout the rest of history we have had to do for ourselves. It prepares our food and propels us, both using complex machines that apparently get the job done better – or at least more efficiently – than when we cook and walk. But something is lost when we don’t prepare our own food and use our own energy to go places. Furthermore, a system devoted to machine and task efficiency such as ours creates a great deal of stress for the people who live in that system; that stress is also unhealthy, whether on its own or leading to the other two “risk factors”: increased use of tobacco and alcohol.

So, we approach this “chronic disease” epidemic – even though it is caused ultimately by the technological system – with products of that same technological system: drugs and surgical procedures. And they do work to ameliorate the diseases. In addition, we make clear the need for people, each individual person, to take responsibility for changing how they eat and move. But we “preach” this in a society designed for automatic movement and processed food. We have a bronze snake that permits access to bio-medical curative power, but no snake-angel to burn away our corporate nutritional and transport “iniquity”. We chip away at our epidemics, piece by piece, but peace – shalom – eludes us.

Shalom, besides meaning peace, also means completeness and soundness, and includes “health” – a word related to both “whole” and “holy”. This in fact is the ‘end’ we are missing when we focus only on means. We cannot attain partial health (partial wholeness?); disease elimination is not enough: In the story of the bronze snake, Moses forms the healing snake after the killing snakes become active. The killing snakes from God are angels, literally messengers to tell people of their iniquity and burn it away. They are part of, and must precede, the healing snake. The true healing, the return to shalom, was not just because people looked at the bronze snake. It was because their iniquity had been burned by snake-angels, burned enough so that if they had no bronze serpent to gaze at, they would die. The Israelites remembered this link in Hosea’s time (6:1): “Come let us return to the Lord, for He has torn us, but He will heal us; He has wounded us, but He will bandage us.” Their repentance then may have been short-lived and shallow, but they did understand on some level the link between God’s wounding and God’s healing.

Let us recapitulate:

1. The Bronze Serpent story demonstrates a continuum between the root cause, the symptoms, the consequence, the treatment, and the prevention. This is a natural system at work.
2. The contemporary chronic diseases epidemic demonstrates the rupturing of this continuum. The technological society is the root cause, which we ignore. We consider the “risk factors” to be the cause, and put the responsibility to avoid them on the patient, a form of victim-blaming. But when that patient does experience symptoms, we employ the methods and products of the same technological society to manage the symptoms. This is an artificial system at work - the technological system that Ellul described.
3. Focusing on health (as a healthcare system must) will never produce health, because ill health does not arise from lack of healthcare, but rather (in the case of the modern chronic diseases epidemic) from the technological society.
4. Yet since medical techniques are very effective in ameliorating symptoms and even halting some diseases, we maintain the illusion that we are dealing with the epidemic.
5. Thus healthcare, as a subsystem of the larger technological system, shares all of its characteristics. It is not only a microcosm of the larger system, it also provides a window into how that larger system deceives us by its very successes. Technique is the means by which modern empire maintains its power.

**The Problem of Risk as Technique**

Come back for a moment to *shalom*. *Shalom* could be our “end” for which medical techniques would be our “means”. However, *shalom* is not our end. In fact, we do not have an overall end. Instead we have many small ‘ends’, ends derived directly from the means we have available to accomplish them: We have painkillers, so we reduce pain; we have antibiotics, so we eliminate some infections; we have drugs to lower blood pressure and blood sugar, so we lower them; we can perform surgery, so we remove tumors.

In this world of multitudinous means – or options, as they might be called today – but without an overarching end, we face a great deal of uncertainty:\[11\]: which means do we use? how well do they work? for which goals? While there is a natural tendency to use all available means, we would still welcome guiding principles to help us make sense of them all. But the uncertainty is profound. We don’t know fully why, or even how, some diseases happen, and we certainly don’t know which individuals will get them. These uncertainties bother us, because we *want* to know how diseases happen, how to stop them – and even more, who will get them so we can intervene early and prevent them.

Nevertheless we are flooded with techniques, with means. And since many are quite effective, we end up acting as if our overall end was to predict and eliminate all disease and death. But the gap between that unstated end and what common sense tells us illustrates, and deepens, our uncertainty. We want to do what is impossible: eliminate death; we want to know what is unknowable: the future. Our techniques, our means, have led us to the brink of a chasm we cannot cross.

But we do not try to cross that chasm, at least not directly. Our profound uncertainty does not paralyze us. We confront the uncertainty head-on – we measure it. Measuring this uncertainty then becomes another technique, another means, a very attractive one. In fact it begins to have a unifying effect on all our means. We use this technique to help us develop and evaluate all our other biomedical techniques: this is called biostatistics, the principal tool of risk analysis.

Come back to the group of non-communicable diseases to illustrate this. With some of these diseases we have a very clear understanding of causes: essentially everyone who smokes two packs of cigarettes a day for 30 years will get some emphysema; everyone who drinks a bottle of whiskey a day for 30 years will get liver damage. Alcohol and tobacco in these situations are not *risks*, they are *hazards*. But what about a half a pack of cigarettes a day from age 15 to 21? What about three glasses of wine every night for only the last 10 years? We have entered uncertainty.

Likewise with heart disease and many cancers: as shown above, we know the “risk factors” people are exposed to, but we cannot predict with certainty which person will get which disease when, nor which exposed people will *not* get any of the diseases. So we move into the realm of probability: we determine relative and absolute *risk* for getting the diseases, we speak of *confidence intervals*, we calculate *likelihood* ratios and *odds* ratios, and then we perform cost-benefit analyses of the diagnostic processes.
Then we do the same with the treatments we develop. None of the treatments actually eliminate these diseases, but each has some small effect – on some of the affected people. So we are back to probability: we speak of the effectiveness of the treatments with likelihood and odds ratios, with calculations of the Number Needed to Treat: the number of patients we need to treat in order to prevent a single disease outcome in a population. These numbers can be quite high, sometimes over 100 – which means that 99 of the 100 people we treat do not benefit, yet we cannot predict the one that will. And then, again, we do cost-benefit analyses, unabashedly assigning a monetary value to human life.

Now these statistical tools, and this whole concept of risk, have been particularly useful for these non-communicable chronic diseases: trying to pin down exactly where they come from, what causes them, how to treat them, and how to prevent them. These diseases are more complicated than, for example, a simple pneumonia caused by a bacteria we can eliminate, or a ruptured appendix we can remove surgically. We are now confronting diseases that often do not kill immediately, but also do not go away despite our treatments; diseases that gradually destroy vital organs. Yet our treatments keep these people alive. We have created a whole new category of illness: people alive, but dependent on the medical system to stay alive.

We confront a different conundrum on travelling upstream to try to uncover where these diseases came from. We had become used to “the germ theory of disease”, an approach to disease causation that looked for a single agent – germ, gene, toxin, injury, etc. – that caused a disease. But these single agents were very elusive in the 20th century’s group of chronic diseases. Industrialization (the technological society) may have been the ultimate cause, but it did not kill immediately, like the Black Plague, and there was no single agent or toxin responsible. We had to conclude that many of these diseases had causes that were “multifactorial” – so we began looking for these multiple factors.

Initially, scientists still treated these many factors as part of a single “mass phenomenon, the result of a shift in ‘ways of life’” – that is, the exponential growth of industrialization and the technological society. Consequently “individual responsibility or blame was almost entirely absent from their discussion of risk factors during the 1950s and 1960s.” To the epidemiologists then, it was obvious that some of these diseases grew out of that “mass phenomenon”, and not from irresponsible individual choices.

However, as we fine-tuned our search, we began to forget about – or was it ignore? – this “mass phenomenon”. By around 1980 we had entered a fundamentally new era. Socialism was dying, unfettered capitalism reigned – and our views toward the public’s health began to follow suite. There was now a ”New Public Health” which, among other things, focused on these chronic diseases and their prevention. In previous epochs, public health addressed community health problems such as sanitation and vector control with collective action. But now even public health was becoming individualized, seduced by the drive to identify and eliminate individual risk factors. Despite the “mass phenomenon” behind the chronic conditions which made up 87% of our disease burden, our health had become our own responsibility. Risk had become our pilot; life had become a crapshoot.

We still haven’t pinned down exactly how these diseases come about, and we still can’t we cure most of them. We still live with profound uncertainty. It becomes very clear why we have chosen risk and statistical analyses as our orienting science. There is no technical bluff here. Biostatistics do exactly what they claim – measure probability – and they do it well. Bit by bit (or byte by byte) they help us
make incremental changes uncovering the details of how these diseases develop, and how we can live a little bit longer with them.

But is this shalom?

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2 Ellul develops a concept like this in “Positions bibliques sur la medicine” in Les deux cités: Cahiers des associations professionnelles protestantes, vol. 4 (1947). For example, “the physical only seems like a sign of that which is spiritual”; “health isn’t a combination of remedies, but a way of living according to the laws that God willed for our life. My medicine will be therefore above all hygiene, but not naturalistic: a hygiene of which the first act is repentance from sin—and conversion”; “To cure illness without the forgiveness of sins is only an adjournment, a whitewash, a fleeting crack of the whip: it isn’t health. This deliverance from illness isn’t of value in itself: it could mean being better only temporarily.”


8 Lopez AD et al, Global Burden of Disease and Risk Factors (World Bank and Oxford University Press, 2006), Table 1.1, p. 8.

9 “NCD Alliance analysis of the draft Political Declaration, 12 August 2011”

10 Stivers, Richard, Shades of Loneliness (Rowan & Littlefield, 2004), Ch. 2 “Technology and Stress”.

11 “Uncertainty” is Ellul’s subtitle for Part 1 of The Technological Bluff.

12 Note: this is not technical bluff; the NNT is not a lie. This is technological bluff.

13 Oppenheimer,” Profiling risk” p. 725.