

"If the only tool you have is a hammer..."

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"If the only tool you have is a hammer, everything looks like a nail."

This old adage has been applied in many contexts, and sometimes appropriately to the work of medical specialists, particularly those who do procedures. It is something that family physicians and other primary care doctors are only too well aware of; before referring a patient to a specialist equipped with their hammer, we like to do our best to make sure that this is the right tool for the job. Perhaps, metaphorically, the family physician has the full range of tools on their belt and can thus address most medical problems, but sometimes the complexity of the treatment that a patient needs requires someone with great expertise. Pushing the metaphor, a general contractor might think that a particular job needs a skilled electrician.

Sometimes, really a lot of the time, subspecialists are consulted for their opinion of a problem, because it is an area in which they have in-depth knowledge. This is not a bad thing at all, as long as that opinion is guided by the evidence that exists and not by the doctor having limited their knowledge to the extent that they know only one approach, or, worse yet, are guided by the potential to make money doing a procedure. This happens, but, thankfully, less often than it could. Most commonly, the issue is not lack of knowledge on the part of the specialist, or even greed, but rather a sense of what others expect of them.

If you present to a primary care doctor with chest pain that sounds like acid reflux, they'll probably prescribe treatment for acid reflux, with caution about changes in the character or frequency of the pain. If the pain sounds a little more suspicious for cardiac angina, they might refer you to a cardiologist. After examination, history and physical, the cardiologist might think it is probably acid reflux. But – and it is a big but – because they are a cardiologist there is a good chance that they will maybe do more tests, expensive and possibly invasive, because, since they are a cardiologist, missing a potential cardiac diagnosis would look worse.

Plus, even if the cardiologist is not greedy (or is even on salary, not paid per procedure) the organization they work for might want them to run profitable tests.

For the society, this means a lot of extra tests are done, and this is costly. For the individual, especially if they are uninsured or poorly insured with a big deductible or co-payment, it can be particularly costly. Plus, for the individual, it can be risky – few procedures have no risk of harm, and the more extensive and invasive the greater the risk. That said, they can also be beneficial or even life-saving. The key is to do them when they are necessary, or the evidence suggests that the probability of benefit outweighs the risk of harm, and not otherwise. Of course, we ourselves, patients (or, to use the English word, people) often demand an "answer", even if the answer is not going to be clear and/or the methods for obtaining it not without risk. When I tell people that the results of their tests to rule out potentially dangerous causes of their symptoms are normal (I try to not use "negative", which sounds, unsurprisingly, negative!) they often respond "But what is it?" I have to tell them that I still don't know, but I have discovered it is not something that is really bad. That is always a good thing. Finding out that the cause of your symptoms is not cancer, for example, doesn't tell you what it is, but it is lot better than finding out that it is cancer!

Of course, this whole incentive to intervene, to do more sophisticated, high-tech, complex, invasive, and expensive tests or treatments, applies only to that segment of the population that is well-insured or rich. It is an incredible source of inequity, because a different set of decision rules is applied to different groups of people depending on their ability to pay rather than their medical need (or lack thereof). Yes, people with good coverage may get too many tests, which not only cost a lot and have some risk of harm in themselves, but also can snowball into needing to repeat tests or do more complicated ones if there is a suggestion of abnormality in the first set. [Think of the math in terms of something as "simple" as panels of laboratory tests. "Normal" is usually based on 2 standard deviations from the mean value in that lab, 95%, so 5% of normal people might have an "abnormal" test result. But if 20 tests are done – and their results are independent of each other – the probability that someone's results are "normal" on all 20 might be $.95^{20}$ or about 35%!] This can result in harm to people with money.

However, it is still more common for people without money or good insurance to suffer harms because they do not get the testing and treatment needed. And, unsurprisingly in the US, racism enters into the mix; Black

Americans are less likely to get recommended diagnostic and treatment interventions for heart disease than White, even when they are insured!

What can be done? Changing medical education to teach that interventions should be done based on the overall evidence, not evidence selected to lead in a particular direction, could help. This has actually improved; when I was in medical school most of the surgical literature, for example, was case series (“We did this procedure on X people, and this many got better and that many died or got worse”) without control groups or controlling for how sick people were. (A famous study in my medical youth compared surgical intervention for coronary artery disease with medical treatment. Surgical was better. Of course, all the people with other diseases that made them at higher risk for surgery were allocated to the medical treatment group!)

Another very big thing would be to make sure EVERYONE is adequately insured. Not more people, but everyone. And, best, with the same insurance, so there is no gaming the system to get the folks whose insurance pays the most. If everyone has the same insurance – most simply, improved and expanded Medicare for All, there is no financial reason to do, or not do, tests or treatments on anyone (racism would, of course, not be cured by this).

Also, more primary care doctors would be great. As research presented by Etz and Stange at the recent Society of Teachers of Family Medicine (STFM) conference, and published in the *Annals of Family Medicine* has shown, currently primary care sees 50% of all physician visits (500,000,000) with only 30% of the workforce and <7% of the dollars (and, for the academic researchers, 0.2% of NIH funding). More primary care physicians, which would almost certainly result from (and probably require) a lot larger portion of the money spent on health care to be directed to primary care, would almost certainly lead to more equitable and higher quality care for everyone.

A highly-placed non-medical health care executive once asked me (a family doctor) why he would go to me with a prostate problem instead of a well-known urologist. Skipping over “how do you know it’s a prostate problem?” I said “I guess it depends upon whether you want surgery or not.” Oversimplistic, perhaps, since urologist might provide other options, but not entirely unrealistic. The urologist’s job may be, in part, to care for prostate problems, but their training is to operate.

By the way, the executive had no follow up questions.