

EDITOR'S PAGE

Tipping Points and Cardiology

In a previous Editor's Page (1), I wrote of the role of instinct in medicine, or the ability to instantaneously and subconsciously assess the presence, nature, and severity of an illness. I found support for the existence and importance of such instantaneous appraisals in a book by Malcolm Gladwell entitled *Blink* (2). Gladwell had authored another bestseller entitled *The Tipping Point* (3), so I thought that I would read this book and see how it applied to the field of cardiology. However, I found fewer concepts in this book that were applicable to cardiology than in *Blink*.

A "tipping point" can be defined as that dramatic moment when an idea, behavior, or product crosses a threshold and spreads like wildfire, changing things all at once. To a certain extent, tipping points can be likened to infectious disease epidemics. Examples of tipping points given by Gladwell (3) include the sudden increase in sales of Hush Puppy shoes, a relatively precipitous decrease in crime in New York City, and the dramatic spread of fax machines and cell phones. The concept generally implies that the product or behavior has existed at some lesser level before reaching a critical mass or boiling point of diffusion.

Gladwell (3) delineates the requisite conditions to reach a tipping point. A small number of innovators who are willing to initiate something wildly different are typically necessary. The entity must have what is described as "stickiness," or the ability to persist after introduction. Finally, the ability to reach a tipping point often depends upon the context in which events occur. Three types of individuals are said to be necessary for the process: "mavens" are experts who actively and aggressively share their detailed knowledge; "connectors" are people with a broad range of social contacts; and "salesmen" are those with tremendous persuasive abilities. The convergence of these individuals and an idea or product with the above characteristics should produce the tipping point.

As I read the book I was continuously searching for parallels in medicine in general, and cardiology in particular. I must admit that I found only a few. Medicine, especially cardiology, has always been data driven, and has become even more so recently. The application of diagnostic tests, pharmacologic agents, or surgical procedures reaches a tipping point when the evidence is available to support such action. Increasingly, sufficient evidence requires a randomized clinical trial. When cardiac ultrasound is shown to be able to measure aortic valve area, beta-blockers are found to ameliorate heart failure, or coronary bypass surgery is demonstrated to relieve refractory angina, these modalities are incorporated into practice. In a similar vein, when antiarrhythmic agents were found to increase rather than decrease mortality, their use was abandoned. The rationale is straightforward; the adoption of technology is primarily based upon the existence of evidence. We should take great pride in this.

We must admit, however, that the diffusion of effective management strategies is sometimes very slow. As is apparent from the experience with the application of antihypertensive drugs, angiotensin-converting enzyme inhibitors for heart failure, and lipid-lowering agents for atherosclerosis, many patients with clear indications for effective therapies are not receiving them long after the benefit has been proven. Likewise, some treatments continue to be



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utilized even after evidence of a lack of benefit is demonstrated. We should probably be embarrassed by this.

There are, of course, some good explanations for inertia in the diffusion of effective medical strategies. Clearly, widespread application of beneficial drugs and procedures requires not only the existence of evidence, but also education of practitioners regarding the data. Providing interpretation of the meaning of studies and guidance as to when and how to apply the findings is important. Also, many of us reasonably want some assurances of long-term safety. These issues require time, and the fact that changes do not occur in "one dramatic moment" is understandable. As I indicated in a prior Editor's Page (4), the physician may not feel that the data from a clinical trial applies to an individual patient. The patient may refuse therapy or have adverse effects. Finally, the finances may not be available to provide the new modality. So, we must be sure not to interpret the absence of treatment as inappropriate care. Still, it is generally believed that beneficial therapies are often underutilized.

It is in the rate of diffusion of new management approaches that I see some analogy between medicine/cardiology and the concepts in *The Tipping Point* (3). In discussing the spread of products or behaviors, Gladwell refers to the classic book *Crossing the Chasm* by Geoffrey Moore (5). In this book, Moore places everyone into 5 categories in regards to the uptake of inventions: "innovators," "early adopters," "early majority," "late majority," and "laggards." Innovators and early adopters are pushing technology forward; they are risk takers at the leading edge of new developments. The laggards are at the opposite end of the spectrum and resist any change. The early and late majorities represent the bulk of humanity, and adopt new modalities only when they are fully proven or become the standard, respectively. They want to avoid technologies that appear promising but are never successfully developed. The chasm in diffusion usually exists between the early adopters and the early majority.

I believe that we physicians can generally be placed into the same 5 categories. Some of us are dedicated to pushing the envelope, while others, typically with a large established base, are more risk averse and demand unequivocal evidence of long-term efficacy and safety. Similarly, a chasm, or perhaps just a delay point, exists in this continuum, although probably at the late majority to laggard stage.

The parallels become even more apparent when considering the type of individuals whom Gladwell (3) credits for crossing any chasm or delay. He attributes a crucial role to the previously described mavens, connectors, and salesmen. In a play on a term that is currently ubiquitous in medicine, he describes the role of these individuals as "translation," specifically, translating the value of the new

behavior or product to the majority. Without this translation, a tipping point cannot be reached.

I believe translators exist in medicine, and are important to the rapid diffusion of effective management strategies. They are often termed "thought leaders," and consist primarily of mavens and connectors rather than salesmen. The most obvious, of course, are those luminaries who give lectures or write manuscripts or textbooks. They are clearly capable of spreading the word to large groups. Their credibility in the medical community and scholarly presentations convey extra weight to their message. In fact, it is a concern that such individuals not be drafted to endorse suboptimal modalities. As important as these luminaries may be, however, I believe that the local experts in any community are even more influential. I am convinced that local authorities play a key role in reaching any tipping point for medical technology by incorporating it into their own practice. We are much more likely to adopt what another physician who we respect does than what he/she says. I am reassured by this behavior and believe that we are best led by those with the strongest credentials. However, it must be acknowledged that diffusion of effective modalities may be delayed if the local experts are in the late majority.

If, as contended by Gladwell (3), the tipping point resembles an infectious epidemic, I am not sure that the concept applies well to cardiology. I believe our discipline is fundamentally data driven and evidence based. I think we can take pride that we validate new modalities and introduce them briskly into practice. However, we must admit that there is some inertia in adopting new technology and some underutilization of proven therapies. In this respect, there is something we can learn from Gladwell (3) and Moore (5). Perhaps we can build upon our existing system of translation to insure that the tipping point at which beneficial behaviors and products are rapidly adopted, and detrimental modalities swiftly eliminated, is reached even more quickly and completely.

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