

Reducing Overtreatment without Backsliding

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Quality improvement is a key component of hospital medicine. The naïve assumption implicit in many quality improvement efforts is that physicians are highly trained scientists who, when shown a better way with a new practice guideline, will logically change their practice accordingly. In real life, mere education often doesn't change behavior. This human quirk is an endless surprise to some physicians but is just standard fare for those with a Master's of Business Administration.

This has especially been true when the change involves eliminating ineffective practices when there are no economic incentives to replace them with a new drug or test. For instance, the prescription of inappropriate antibiotics for adults with bronchitis¹ remained unchanged despite 40 years of scientific evidence that the practice is ineffective, although there is clear evidence that it leads to dangerous antibiotic resistance, and regardless of 15 years of educational efforts by the government.

A common paradigm for progress is Everett Rogers' theory on the diffusion of innovation.² There are innovators and early adopters for any new idea and also laggards. When the innovation involves clinical decision making, research shows that human thought processes are not necessarily linear or logical.³ Changing prescribing habits is difficult. Various methodologies can be used to nudge⁴ people to modify their behavior. I recommend that all hospitalists who perform quality improvement read the 3 books cited in this paragraph. (Better yet, read an executive summary of each of the books. The original books are long and repetitive.)

The Value in Pediatrics (VIP) bronchiolitis collaborative created a virtual peer group to share experiences, benchmark process measures, and collectively problem solve issues in order to provide evidence-based care for infants with bronchiolitis. Their efforts were successful and published in January 2016.⁵ The multicenter project markedly reduced use, at their home institutions, of unnecessary and ineffective treatments. Those bootstrap efforts in hospital medicine compare favorably with the gigantic 4-year study⁶ published a month later, which documents similar efforts of a Primary Care Practice Research Network project to reduce inappro-

appropriate prescribing of antibiotics for simple upper respiratory infections in the outpatient world. There are many parallels between those 2 projects. Both yield insight into management methods that can reduce overtreatment.

The next logical question that a skeptical hospital Chief Executive Officer would ask is, "Will these improved behaviors continue once the research projects are over?" All doctors are familiar with backsliding when it comes to alcoholism, smoking, and dieting. Bad habits often return.

The first sentence of the discussion section in the article by Shadman et al.⁷ says it all. "To our knowledge, this is the first report of sustained improvements in care achieved through a multiinstitutional quality improvement collaborative of community and academic hospitals focused on bronchiolitis care." The history of medicine has many examples where a multicenter study has led to the adoption of new treatments or new diagnostic tests. The typical progress of medicine has been the replacement of less effective treatments with better ones. But it is rare and difficult to eliminate, without substitution, ineffective treatments once they are in widespread use. This is the challenge facing the Choosing Wisely™ approach. Established habits of overtesting, overdiagnosis and overtreatment are refractory to correction, other than by replacing retirees with a new generation of physicians.

The confirmation that the previously announced improvements are being sustained will encourage other hospital groups to adopt some of the management methodology of the VIP bronchiolitis collaborative. The collaborative aimed to change medical practice but didn't identify which of the many management techniques it employed led to behaviors being sustainably changed. The aforementioned much larger (and far more expensive) outpatient project by Meeker et al.⁶ was designed to tease out which of 3 management methodologies promoted the most change. I anticipate those authors will publish their sustainability data in the near future.

The Shadman et al.⁷ article is limited by weak statistical measures. The *P* values for the sustainability in the bottom row of Table 1 probe whether any backsliding was statistically different from 0. Because there are no corresponding power calculations, I don't find those helpful. Given that only 9 centers continued to submit data, the lack of statistical significance may reflect wide error bars rather than small changes in clinical behavior. However, by comparing the confidence intervals for the process measures during the sustainability period to the means at baseline, one can deduce that clinically significant changes were achieved and that clinically significant backsliding did not occur over the following year.

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Another limitation is that the 9 hospitals involved were still collecting and submitting data. As a result, the Hawthorne Effect (people behave differently when they know they are being observed) is still very active and may temporarily be preventing regression in behavior.

The study authors admit the limitation that there may be selection bias in the groups that chose to work the extra year. The authors do a reasonable job trying to find evidence of that selection bias and don't find it. However, all participants in the original study were self selected and dedicated to a cause, so extrapolating these results to less motivated physician groups may be suspect. Despite those limitations, the evidence for sustainability in eliminating overtreatment is encouraging for anyone involved in Choosing Wisely™ endeavors.

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