

Addressing Overuse of Medical Services

One Decision at a Time

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More than one-third of medical care is thought to be wasteful, and much of the unnecessary care stems from overuse of services that do not appear to improve clinical outcomes.¹



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The rising cost of health care in the United States has prompted interest in reducing wasteful spending. Policymakers and professional societies have proposed and implemented numerous strategies to decrease overuse (eg, the publication of evidence-based guidelines, developing Top Five lists, alternative payment models such as accountable care organizations that aim to reward quality rather than volume, and pay-for-performance programs); however, unnecessary care persists.

Examining day-to-day clinical decision making processes can reveal how patterns of overuse develop. Two studies in this issue give us some clues. Weinstock et al² studied a cohort of more than 7000 patients presenting to the emergency department with low-risk chest pain syndromes. All patients in the study potentially had ischemic chest pain but normal electrocardiographic findings, stable vital signs, and normal results on 2 troponin blood tests. They found that for such patients, the rate of clinically relevant adverse cardiac events was extremely low (0.06%). Yet many of these low-risk patients are admitted to the hospital for observation and further testing, leading to unnecessary expenditure of resources and exposure of the patient to the potential harms of hospitalization, which may be higher than the actual event rate.³

In another study in this issue, Rothberg et al⁴ analyze data from 59 audio recordings of cardiologists discussing treatment for stable coronary artery disease with their patients. The recordings reveal that most consultations are short and percutaneous coronary interventions are usually suggested as the main form of treatment. In addition, physicians rarely fully discuss the harms, benefits, and alternative treatment for stable coronary artery disease with their patients; only 3% of consultations included all elements required for full informed decision making, including discussion of the patient's role in decision making, the nature of the decision, and alternatives, as well as the patient's preferences. The more elements of informed decision making that were fulfilled, however, the less likely patients were to choose an invasive procedure.

Both studies demonstrate that physician decision making processes are a driver of increased use. This finding is consistent with what we learned when we conducted focus groups of internists and cardiologists concerning the decision mak-

ing process for patients with suspected coronary artery disease.^{5,6} We found that cognitive biases such as anticipated regret for missing a diagnosis and commission bias—ie, the tendency toward action rather than inaction—invariably led to the recommendation for more testing and, ultimately, invasive treatment of coronary artery disease. In fact, physicians said that they would feel more regret about patients experiencing adverse events if they did not perform a procedure (cardiac catheterization with possible stent placement) than if the patient experienced harm from undergoing a procedure. A previous study by Rothberg et al⁷ underscores this bias; even when cardiologists knew there was no benefit to percutaneous coronary intervention for a particular patient, 43% would still proceed with the intervention.

In addition, physicians are often poor estimators of patient risk: 75% of physicians overestimated a patient's risk for myocardial infarction in one study⁸; another study found that not using validated cardiac risk indices resulted in incorrect estimations of perioperative risk.⁹ What the current study by Rothberg et al⁴ adds to our understanding of the decision making process is that physicians tend to convey their inaccurate risk perceptions to patients, leading to overstatements about the benefits and minimization of the risks of treatment. These misleading statements by physicians, in addition to some unbalanced media reporting¹⁰ and a belief that more medical care is better, help to explain the findings of a recent systematic review of all studies that have quantitatively assessed patients' expectations of the benefits and/or harms of any treatment, test, or screening test. Hoffman et al¹¹ found that the majority of patients overestimate the benefits of many tests or treatments, and at least 50% underestimated the risks of tests or treatments. Given accurate and complete information about harms and benefits of certain interventions, many patients would make different choices.¹²

There are some promising solutions to better inform clinical decision making. Making accurate risk prediction tools available at the point of care for a given patient may be helpful. Kline et al¹³ found that providing physicians with pretest probabilities for acute coronary syndrome and pulmonary embolism for patients with chest pain, along with suggested clinical actions based on those pretest probabilities, led to reduced radiation exposure and lower cost of care. The American Board of Internal Medicine Foundation's Choosing Wisely campaign (<http://www.choosingwisely.org/>) identifies areas where overuse of low-value services may be taking place. Widespread adoption of the recommendations could have a beneficial effect on improving clinical decision making by help-

ing to decrease the use of tests and procedures that are not likely to affect clinical outcomes.

There are also tools available to assist physicians in educating patients about treatment options and the benefits and harms of a test or procedure. Fully informed patients are less likely to want testing or procedures that do not have clear net benefits. For example, Hess et al¹⁴ tested a decision aid in patients presenting to the emergency department with low-risk chest pain. Patients who received the decision aid had a decreased rate of admission to an observation unit for stress testing. Likewise, patients who received a decision aid before undergoing elective coronary angiography were approximately 20% less likely to choose the procedure,¹² demonstrating that involving patients in the decision making process can decrease overuse, particularly for situations with clinical equipoise.

Finally, structural changes to reimbursement may be helpful in promoting greater evidence-based clinical decision making. Currently, fee-for-service structures pay physicians more

if they order more tests and procedures, decreasing the motivation for limiting such use. However, linking reimbursement to quality of care, as in an accountable care organization model, is associated with lower spending in Medicare beneficiaries.¹⁵ Misaligned incentives may also explain why physicians are typically quick to adopt newer technologies and have difficulty with “de-innovation” (stopping use of older, less effective tests or treatments) and show “indication creep” (using new technologies for indications where effectiveness has not yet been proven).¹⁶ An alternative payment model that reimbursed proportionally to expected net benefit would better align incentives toward high-value care and encourage physicians and patients to carefully consider whether medical care of questionable or minimal benefit should be undertaken.

As we move toward creating a high-value health care system, incentives for better informed physician and patient decision-making processes must be a cornerstone of this system.

ARTICLE INFORMATION

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REFERENCES

- Smith M, Saunders R, Stuckhardt L, et al, eds. *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*. Washington, DC: National Academies Press; 2013.
- Weinstock MB, Weingart S, Orth F, et al. Risk for clinically relevant adverse cardiac events in patients with chest pain at hospital admission [published online May 18, 2015]. *JAMA Intern Med*. doi:10.1001/jamainternmed.2015.1674.
- Zhan C, Miller MR. Excess length of stay, charges, and mortality attributable to medical injuries during hospitalization. *JAMA*. 2003;290(14):1868-1874.
- Rothberg MB, Sivalingam SK, Kleppel R, Schweiger M, Hu B, Sepucha KR. Informed decision making for percutaneous coronary intervention for stable coronary disease [published online May 18, 2015]. *JAMA Intern Med*. doi:10.1001/jamainternmed.2015.1657.
- Lin GA, Dudley RA, Redberg RF. Why physicians favor use of percutaneous coronary intervention to medical therapy: a focus group study. *J Gen Intern Med*. 2008;23(9):1458-1463.
- Lin GA, Dudley RA, Redberg RF. Cardiologists' use of percutaneous coronary interventions for stable coronary artery disease. *Arch Intern Med*. 2007;167(15):1604-1609.
- Rothberg MB, Sivalingam SK, Ashraf J, et al. Patients' and cardiologists' perceptions of the benefits of percutaneous coronary intervention for stable coronary disease. *Ann Intern Med*. 2010;153(5):307-313.
- Pignone M, Phillips CJ, Elasy TA, Fernandez A. Physicians' ability to predict the risk of coronary heart disease. *BMC Health Serv Res*. 2003;3(1):13.
- Devereaux PJ, Ghali WA, Gibson NE, et al. Physician estimates of perioperative cardiac risk in patients undergoing noncardiac surgery. *Arch Intern Med*. 1999;159(7):713-717.
- Schwitzer G. A guide to reading health care news stories. *JAMA Intern Med*. 2014;174(7):1183-1186.
- Hoffmann TC, Del Mar C. Patients' expectations of the benefits and harms of treatments, screening, and tests: a systematic review. *JAMA Intern Med*. 2015;175(2):274-286.
- Barry MJ. Health decision aids to facilitate shared decision making in office practice. *Ann Intern Med*. 2002;136(2):127-135.
- Kline JA, Jones AE, Shapiro NI, et al. Multicenter, randomized trial of quantitative pretest probability to reduce unnecessary medical radiation exposure in emergency department patients with chest pain and dyspnea. *Circ Cardiovasc Imaging*. 2014;7(1):66-73.
- Hess EP, Knoedler MA, Shah ND, et al. The chest pain choice decision aid: a randomized trial. *Circ Cardiovasc Qual Outcomes*. 2012;5(3):251-259.
- McWilliams JM, Landon BE, Cherner ME. Changes in health care spending and quality for Medicare beneficiaries associated with a commercial ACO contract. *JAMA*. 2013;310(8):829-836.
- Ubel PA, Asch DA. Creating value in health by understanding and overcoming resistance to de-innovation. *Health Aff (Millwood)*. 2015;34(2):239-244.