creased state funding for higher education, including an $8.76 million increase in its GME-funding formula and additional sums for brain-injury research and psychiatric services.

On a national level, the American Academy of Family Physicians (AAFP) argues that the administration's cut to Medicare GME funding could imperil family-medicine residency programs. Glen Stream, chair of the AAFP board, said, "If GME funding must be reduced, we call on Congress to preserve explicit support for primary care residency programs to make sure we continue to reverse the downward spiral." The 2013 results of the National Residency Matching Program continued the pattern of only small increases in applicants opting to train in family medicine, although primary care activists report that some of the best medical students are now applying for primary care residency positions. By comparison, of the 11,764 advanced-practice registered nurses who graduated in 2012, 84% specialized in primary care,[4] but only about one third of students who become physician assistants pursue careers in primary care after graduation.

Given enrollment growth, it may soon be impossible for all graduates of U.S. medical and osteopathic colleges to secure GME slots unless there is a sizable increase in the number of training positions. Currently, there are 117,604 residency-training posts accredited by the Accreditation Council for Graduate Medical Education. In the 2013 main residency match, according to the National Resident Matching Program, 25,463 positions were filled with 17,119 graduates of U.S. medical schools, 6307 graduates of international medical schools (2706 U.S. citizens and 3601 non-U.S. citizens), 2019 graduates of colleges of osteopathic medicine, 14 graduates of Canadian schools, and 4 from Fifth Pathway programs.[5] The large cohort of international medical-school graduates who seek U.S. training positions every year will be in even greater jeopardy. The absence of health-workforce planning, a hallmark of the free-wheeling U.S. market economy, may come back to haunt policymakers, particularly when physician shortages become more apparent as the ACA's coverage expansion takes hold.

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Accountable Prescribing

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Physicians spend a lot of time treating numbers — blood pressure, cholesterol levels, glycated hemoglobin levels. Professional guidelines, pharmaceutical marketing, and public health campaigns teach physicians and patients that better numbers mean success. Unfortunately, better numbers don't reliably translate into what really matters: patients who feel better and live longer. Often the health benefit gained by reaching a goal depends on how it is reached. When physicians strive for numerical goals without prioritizing the possible treatment strategies, patients may get less effective, less safe, or even unnecessary medications.

Many quality measures reinforce a focus on numerical goals. For example, performance-measure targets for hypertension control, as defined by the Healthcare Effectiveness Data and Information Set (HEDIS) and the Physician Quality Reporting System (PQRS), are met if a blood pressure below 140/90 mm Hg is reached after treatment with any antihypertensive medication, without a trial of dietary and exercise interventions (see table). Medications are the quickest and easiest way to reach the goal. Targets for cholesterol-control measures are met if a low-density lipoprotein (LDL) cholesterol level below 100 mg per deciliter is achieved in patients with coronary artery disease using ezetimibe before trying simvastatin, even though only the latter has been shown to reduce myocardial infarction risk. Simi-

Selected Quality Measures That Encourage Different Levels of Accountable Prescribing.*

Measure	Goal	Comment
Measures encouraging underaccountable prescribing		
Controlling high blood pressure (HEDIS, PQRS)	Blood pressure of <140/90 mm Hg in patients 18 to 85 yr of age	Reward a trial of diet and exercise for newly diagnosed high blood pressure. Use evidence-based guidelines to assign drug classes as first-line, second-line, or third-line treatment, accounting for coexisting conditions (e.g., diabetes or heart failure). Modify treatment goals to patient age (e.g., <150/80 for age ≥80 yr)
Cholesterol management for patients with cardiovascular conditions (HEDIS, PQRS)	LDL cholesterol control (<100 mg/dl)	Reward first-line use of statins over other lipid-lowering drugs. Penalize initial use of ezetimibe products or other drugs that do not have proven clinical (vs. surrogate) benefit.
Comprehensive adult diabetes care (HEDIS)	Glycated hemoglobin control (<8.0%)	Reward a trial of diet and exercise for newly diagnosed diabetes.
	Glycated hemoglobin control (<7.0%) for a selected population	Reward first-line use of metformin. Penalize initial or disproportionate use of drugs that do not have proven clinical benefit or drugs with black-box warnings.
Use of aspirin or another antithrombotic in ischemic vascular disease: (ACO, PQRS)	Documented use of aspirin or other antithrombotic agent	Reward first-line use of aspirin over other antithrombotic agents (e.g., clopidogrel).
Measures encouraging partially accountable prescribing		
Lipid control in coronary artery disease (ACO, PQRS)	Either LDL cholesterol level of <100 mg/dl or both LDL cholesterol level of ≥100 mg/dl and a documented plan to achieve LDL cholesterol level of <100 mg/dl, including, at a minimum, the prescription of a statin; plan may include documentation of a discussion of lifestyle modifications	Reward first-line use of statins that have been shown to reduce mortality.
Measures encouraging fully accountable prescribing		
Persistence of beta-blocker treatment after myocardial infarction (HEDIS)	Prescription for nonselective or cardioselective beta-blocker, or both, at discharge (at least a 135-day supply in the 180 days after discharge)	Evidence-based prescription of any beta-blocker has been proven to reduce mortality after myocardial infarction; the measure accounts for persistence, not just initiation.
Beta-blocker therapy for left ventricular systolic dysfunction (ACO)	Prescription for beta-blocker (bisoprolol, carvedilol, or sustained-release metoprolol)	Evidence-based prescription of specific medications has been proven to reduce mortality among patients with congestive heart failure.
Avoidance of antibiotic treatment in adults with acute bronchitis (HEDIS, PQRS)	No antibiotic prescription on, or within 3 days after, the episode start date	This is an evidence-based approach to acute bronchitis (e.g., the avoidance of antibiotic treatment for viral infections). Flexibility allows for revision of the plan after 3 days.
Avoidance of potentially harmful drug–disease interactions in the elderly (HEDIS, PQRS)	No tricyclic antidepressants, antipsychotics, or sleep agent prescription for patients with history of falls No tricyclic antidepressant or anticholinergic agent prescription for patients with dementia No NSAID or COX-2 selective NSAID prescription for patients with chronic renal failure	This measure illustrates the level of detail achievable in quality measures, for both specific drugs and specific patient populations.

* COX-2 denotes cyclooxygenase 2, LDL low-density lipoprotein, and NSAID nonsteroidal antiinflammatory drug. Accountable Care Organization (ACO) 2012 Program Analysis Quality Performance Standards measures are available at www.cms.gov/medicare/medicare-fee-for-service-payment/sharedsavingsprogram/downloads/aco_qualitymeasures.pdf. Healthcare Effectiveness Data and Information Set (HEDIS) measures are available at www.ncqa.org/tabid/1415/Default.aspx. Physician Quality Reporting System (PQRS) measures are available at www.cms.gov/apps/ama/license.asp?file=/PQRS/downloads/2013_PQRS_MeasuresList_ImplementationGuide_12192012.zip.

larly, for patients with diabetes, the performance target can be met if the glycated hemoglobin level drops below 8.0% with pioglitazone treatment before metformin has been tried — so clinicians are rewarded for using a less effective, less safe drug. Pioglitazone and the other thiazolidinediones carry black-box warnings indicating that they may cause or exacerbate congestive heart failure; they have never been shown to improve outcomes, and they cost more than seven times as much as generic metformin.[1]

The first line of defense against poor prescribing should be clinicians' commitment to responsible, evidence-based practice. Unfortunately, clinicians frequently prescribe medications that improve numbers without necessarily improving health. According to IMS Health data, in 2011, U.S. clinicians wrote 14.6 million prescriptions ($2.5 billion in sales) for ezetimibe products, as compared with 98 million prescriptions ($391 million in sales) for simvastatin. They also wrote 13.8 million prescriptions for thiazolidinediones ($4.3 billion), as compared with 67 million ($1.4 billion) for metformin. More than 500,000 thiazolidinedione prescriptions were for rosiglitazone, which is banned in Europe and restricted in the United States because of safety concerns. U.S. formularies increasingly include new medicines that were approved, like these, on the basis of surrogate outcomes and have side effects that are incompletely understood.

To avoid rewarding poor prescribing, we could more closely align quality measures with evidence. The table highlights widely used quality measures that span a spectrum in terms of encouraging accountability; we suggest revisions for those that we believe don't adequately require prescribers to pursue evidence-based, cost-effective choices. Although some physicians may disagree with specific suggestions, our main interest is in the principle of moving beyond numerically driven quality measures to measures that match treatment goals to the best evidence and encourage use of the safest, most effective, and lowest-cost drugs or nondrug treatments.

Measures for blood-pressure control, for example, could be revised to encourage greater accountability. Targets are currently met if the most recent blood-pressure reading is below 140/90 mm Hg. Since blood pressure in some patients — particularly those with mild hypertension — improves adequately with changes in diet and exercise habits, the measure should reward clinicians for attempting nondrug treatment for a defined period first; this approach might be most appropriate in patients with newly diagnosed hypertension. Then, if the goal is not met, the measure could specify first-line drug classes (e.g., thiazide diuretics) according to evidence-based guidelines. It also ought to account for patients' coexisting conditions — for example, by specifying first-line use of an angiotensin-converting–enzyme inhibitor for patients with diabetes. Furthermore, goals might be modified according to the patient's age: for example, a goal of 150/80 mm Hg for patients 80 years of age or older is supported by the reduction in all-cause mortality in the Hypertension in the Very Elderly Trial.[2]

Similar revisions are needed for performance measures for diabetes. Since little consensus exists regarding the best treatment option after metformin, measures could reward clinicians for its initial use and penalize them for use (or disproportionate use) of drugs such as pioglitazone, given the black-box warning. To accommodate variation in physician and patient preferences, penalties might target physicians' use of pioglitazone for a very high proportion of their diabetic patients (e.g., exceeding the 75th percentile for similar providers).

Some existing quality measures provide a model for accountable prescribing. Some call for the use of medicines with proven effectiveness — for example, the use of statins for lipid control in coronary artery disease or beta-blockers after myocardial infarction. Another measure requires the prescribing of specific drugs within a class (bisoprolol, carvedilol, or sustained-release metoprolol) for patients with left ventricular systolic dysfunction, because these medications reduce mortality. Other measures reward the avoidance of medicines when they don't help or could cause harm — for example, not prescribing antibiotics within 3 days after diagnosis of an upper respiratory infection, or avoiding tricyclic antidepressants, antipsychotics, or sleep agents in patients with a history of falls. These are examples of the level of detail and precision that is possible in quality measures and that will promote evidence-based prescribing.

Payers could accelerate implementation of accountable prescribing. The table provides a starting point for revising exist-

ing measures. In addition, payers could advance and facilitate less onerous measures through claims analysis. Although claims and surveys are the basis of some quality measures, much performance is assessed through Web reporting: payers provide practices with measure-specific lists of eligible patients, and physician groups or institutions review records and report performance for each patient according to definitions of the target care. This is the approach used by the Centers for Medicare and Medicaid Service (CMS) for accountable care organizations (ACOs) and by the PQRS. Because organizations such as ACOs are responsible for defined populations, payers could monitor quality through claims analysis. Prescribing quality may be particularly amenable to this approach. Performance measures based on prescriptions claims could include, for example, the population-level ratio of second-line treatments to first-line options or the ratio of brand-names to generics in drug classes in which ample generics exist. Monitoring could permit efficient determination of clinicians' response to new drug warnings, and claims analysis could quantify long-term adherence to safe, effective drugs.

Accountable prescribing measures could also incorporate cost. Though some payers may hold providers accountable for prescription spending, CMS programs do not yet do so. CMS shared-savings calculations are currently based on inpatient and outpatient expenditures only, but that doesn't preclude the inclusion of prescription spending in quality measures. Although prescribing decisions should be driven primarily by safety and effectiveness, cost can be an appropriate tiebreaker among drugs that are equally safe and effective. Considering costs may also discourage use of newly approved brand-name drugs that lack safety or efficacy advantages — drugs with potential shortcomings that have had less time to emerge.

As insurance coverage expands, we must ensure that greater access to prescription drugs confers better health, not harm. The need to advance performance measures as health care reform proceeds is well recognized.[3] Ideally, we should assess outcomes valued by patients, but for reasons of feasibility, many measures focus instead on surrogate end points. To improve health, such end points must be based on strong evidence, and how you get there matters. Refining measures to incorporate best evidence and the notion of accountable prescribing could promote use of the safest and most effective drugs, better align measures with our professional responsibilities, and maximize the chance that meeting goal-driven performance measures will translate into improved population health.

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Observation Care — High-Value Care or a Cost-Shifting Loophole?

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A 2012 *New York Times* article told the story of Miriam Nyman, an 83-year-old Rhode Island woman who was hospitalized after a fall in 2009.[1] Mrs. Nyman broke her neck and spent 4 nights in the hospital, so she was shocked to learn that the entire hospitalization was classified as an outpatient visit and billed as an observation stay. That meant that her subsequent stay in a skilled nursing facility was not covered by Medicare, and she was left with more than $35,000 in out-of-pocket expenses. Similar cases reported elsewhere in the United States highlight a critical and overlooked Medicare policy that requires reform — hospital payment for "observation care."

Originally developed for chest pain, protocolized observation care in dedicated units has been