likely to be funded by the National Institutes of Health.8,9 Panic physicians underrepresented among medical school faculty and care for many underserved women with complex medical needs. Not only are black and Hispanic physicians in providing health care for underserved populations. N Engl J Med. 1996;334(20):1305-1310.


Undermeasuring Overuse—An Examination of National Clinical Performance Measures

Clinical performance measures, designed both to evaluate and motivate clinician and institutional performance, have assumed a central role in efforts to improve the quality of US health care. Concerns have been raised, however, about the collective power of such measures to influence practice on a large scale.1,2 In particular, some worry that if measures predominantly target underuse of care—and incentives tend to reward clinicians for doing more—this could inadvertently contribute to the problem of overuse.3 We sought to determine whether and to what extent outpatient process measures preferentially target underuse compared with overuse.

Box. Examples of Clinical Performance Measures, by Target Issue

<table>
<thead>
<tr>
<th>Measures targeting underuse: “Has too little care been provided?”</th>
</tr>
</thead>
<tbody>
<tr>
<td>The percentage of patients for whom a lipid panel is ordered within 3 months after being prescribed lipid-lowering medication (goal: high percentage)</td>
</tr>
<tr>
<td>The percentage of patients with deep vein thrombosis prescribed anticoagulation for at least 3 months after the diagnosis (goal: high percentage)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measures targeting overuse: “Has too much care been provided?”</th>
</tr>
</thead>
<tbody>
<tr>
<td>The percentage of patients undergoing back imaging within 28 days of a visit for new low back pain (goal: low percentage)</td>
</tr>
<tr>
<td>The percentage of patients dispensed an antibiotic within 3 days of diagnosis with bronchitis (goal: low percentage)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measures targeting misuse: “Has care been provided incorrectly?”</th>
</tr>
</thead>
<tbody>
<tr>
<td>The median time from emergency department arrival to time of transfer to another facility for acute coronary intervention (goal: shorter time)</td>
</tr>
<tr>
<td>The percentage of patients 18 years or older with pneumonia who receive their first dose of antibiotics within 6 hours after arrival at the hospital (goal: high percentage)</td>
</tr>
</tbody>
</table>
Methods | We identified all outpatient and emergency department (ED) process measures contained in major national measure programs and clearinghouses (eg, National Quality Forum) as of mid-2012. We excluded measure collections addressing exclusively inpatients and collections of other measure collections, and excluded measures if they pertained to outcomes, settings other than outpatient office or ED, or non-clinical aspects of care. Across 16 measure collections, we identified 1037 unique measures, of which 521 (50.2%) met inclusion criteria. Institutional review board approval was not sought because no human subjects were involved.

Three coders independently categorized each measure according to target issue (underuse, overuse, or misuse; κ = 0.73) and clinical service addressed (eg, laboratory testing). Measures targeting underuse were defined as those asking “Has too little care been provided?”; overuse, “Has too much care been provided?”; and misuse, “Has care been provided incorrectly?” (Box). Coding rules were specified a priori. Coding discrepancies were reconciled by periodic consensus conference or, rarely, arbitrated by a fourth coder. We determined measure frequencies by target issue—overall, within each measure collection, and within each clinical service category. Analyses were performed using Stata statistical software (version 11.2; StataCorp).

Results | Of 521 unique measures that met inclusion criteria, 477 (91.6%) targeted underuse while 34 (6.5%) targeted overuse; 14 (2.7%) addressed misuse (4 measures addressed 2 target is-
Of 16 measure collections, just 3 contained an appreciable (≥10%) representation of overuse measures; nearly half (7 of 16) contained no overuse measures (Figure).

Most overuse measures (82.4%) addressed either diagnostic imaging or medication prescription (Figure). By comparison, underuse was well represented (over half of measures) as a target of measures across all categories of clinical service.

**Discussion** Providing high-quality health care requires both providing beneficial care and reducing nonbeneficial care. Increasingly, primary care clinicians and others worry that performance measurement may, through an emphasis on identifying and penalizing underuse, foster a culture of “more is better” and inadvertently encourage overuse. To our knowledge, our study is the first to systematically examine and quantify the existence of such an emphasis: current outpatient clinical process measures, both overall and within nearly all major measure collections, overwhelmingly target underuse of clinical services.

Performance measurement is well positioned to address both underuse and overuse—if, in the aggregate, clinicians are encouraged to ask themselves, “Am I doing enough for this patient without doing too much?” We believe our findings highlight the need to anticipate and monitor the aggregate effects—both intended and unintended—of measure program implementation. We would, moreover, advocate the development and implementation of a prospective underuse/overuse taxonomy as one means by which to promote greater balance across measure collections—or within individual measures—that simultaneously address underuse and overuse. Such a Goldilocks approach to performance measurement, as has been previously proposed, could encourage clinicians and institutions to target a balance of care that is just right.

Notwithstanding certain limitations of the present study, which focuses on measures themselves rather than on the putative connection between measure balance and physician behavior, we have shown that the current state of outpatient clinical performance measurement fails to address overuse—and may inadvertently reward it.

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**Study concept and design:** Newton, Sirovich.

**Acquisition, analysis, or interpretation of data:** All authors.

**Drafting of the manuscript:** Newton.

**Critical revision of the manuscript for important intellectual content:** All authors.

**Statistical analysis:** Newton, Sirovich.

**Administrative, technical, or material support:** Newton.

**Study supervision:** Sirovich.

**Conflict of Interest Disclosures:** None reported.

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**LESS IS MORE** Urinalysis Orders Among Patients Admitted to the General Medicine Service

Urinalysis (UA) is a frequently ordered rapid screening test to exclude the presence of a urinary tract infection (UTI) among patients admitted to the general medicine (GM) service from the emergency department. Despite its excellent negative predictive value, a positive UA result is nonspecific because it occurs in as many as 90% of asymptomatic elderly patients. We hypothesized that overuse of UA in the emergency department contributes to overdiagnosis and excessive use of antibiotics for UTI among patients admitted to the GM service.

**Methods** We conducted a prospective cohort study of consecutive adult patients to assess the appropriateness of UA orders on admission to the GM service of a large tertiary care center for 4 consecutive weeks in September to October 2014 and 3 consecutive weeks in January 2015. Each patient was assessed within 24 hours for indications for UA, including symptoms of UTI based on guidelines for patients with and without urinary catheters or acute kidney injury, defined as a 2-fold rise in serum creatinine levels. We recorded the frequency of empirical therapy for UTI, orders for urine culture (UC), and antimicrobial prescriptions based on UC results. We compared the proportion of patients who underwent UC or received antibiotic treatment (empirical or by UC result) using χ² tests based on a positive or negative UA result. We assessed predictors of UA orders without indication (UTI or acute kidney injury) using a multivariable logistic regression model with 75 years or older, sex, residence in long-term care, diabetes mellitus, dementia, or presence of 3 or more comorbidities as variables. We obtained approval from the research ethics board of Stonybrook Health Sciences Center. All data were deidentified and informed consent was waived.

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