magnets, medical center advertising for cancer services unless a specific cancer center was mentioned, or charitable promotions placed by affiliated organizations. For example, City of Hope, a leading cancer center in Duarte, California, was recently highlighted in The New York Times for millions of dollars in annual health care advertising. According to Kantar Media, that advertising was to promote donations to City of Hope and not placed by the cancer center. Our search strategy did not capture such promotional spending. For some patients and families, cancer-center advertising may constitute a major source of information, raising concerns in view of evidence that the content of some advertising lacks balance. Spending on advertising is not a measure of quality of care, and physicians and cancer-care organizations should help patients make informed cancer treatment decisions. The effect of cancer-center advertising on the quality and costs of cancer care should be better understood.

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LESS IS MORE

Pattern of Inpatient Laxative Use: Waste Not, Want Not

Constipation is common: present in up to 15% of healthy adults,3 39% of medical inpatients on admission, and develops over the course of hospitalization in 43% Given the frequency of bowel symptoms and provider diligence in treating constipation, laxative use in the hospital is common. While relatively inexpensive themselves, the indirect costs of laxatives include: pharmacy inventory management and distribution; nursing administration time; a contribution to polypharmacy; and downstream investigations (eg, Clostridium difficile testing) in the case of laxative-induced diarrhea. Evidence supporting the efficacy of certain laxatives is lacking, particularly docusate sodium/calcium,2 and so we quantified local patterns of laxative use, and estimated some of the associated costs.

Methods | We used pharmacy distribution data for fiscal year 2015 from the McGill University Health Centre (832 beds, Montreal, Canada). Based on the first 11 complete months, we extrapolated annual oral laxative use in terms of doses and drug costs (Canadian dollars) for medical and surgical units. Nursing time was estimated at 45 seconds4 for each administration and we used the Quebec base salary for university-trained nurses. We used data from the ongoing Right Rx clinical trial5 of electronic medication reconciliation to determine the proportion of patients discharged on oral laxatives during that time. The McGill University Health Centre Research Ethics Board approved this study.

Results | The number of doses and associated pharmacy and nursing costs for fiscal year 2015 are summarized in the Table. Docusate products were most common, with over 165,000 doses, requiring an estimated 2065 nursing hours for administration. Overall, more than 258,000 doses of laxatives were dispensed requiring an estimated 3233 nursing hours. Among 1480 discharged patients, 738 (49.9%) received exit prescriptions for docusate products, 163 (11%) for sennosides, and 142 (9.6%) for lactulose.

Discussion | In our institution more than 250,000 doses of laxatives are administered annually, requiring the equivalent of almost 2 full-time nursing positions to dispense. Sixty-four percent of use involved docusate-based softeners, for which there is little quality evidence supporting efficacy in constipation prevention or treatment.3 These medications contribute to inpatient pill burden, which is particularly troublesome in cases of polypharmacy or in patients who have difficulty swallow-
ing. Moreover, docusate use was perpetuated into the community in nearly 50% of patients. Since all medications are usually given equal urgency on most exit prescriptions, the pill burden caused by docusate products may increase the chance of nonadherence to other more important medications. Furthermore, some of these patients will become long-term users. While this may seem like a minor issue, the societal costs are striking, when taking into account the frequency of outpatient laxative use. Among the 2.8 million governmentally-insured beneficiaries in the province of Ontario (population 13.6 million), spending on laxatives exceeded $28 million Canadian dollars (CAD) in 2012 with nearly $9.7 million (CAD) spent on stool softeners, including docusate. A loose extrapolation to North America would suggest spending on docusate products is easily hundreds of millions of dollars.

Our single-center study may lack generalizability. It relies on pharmacy dispensing data, potentially overestimating doses given to patients; however, because our hospital policy restricts ward stock quantities, the estimates are likely close. Our discharge data does not guarantee that an exit prescription was filled, nor were we able to evaluate patient symptoms and cannot definitively infer a lack of benefit. Nonetheless, we believe that laxative use likely represents a common area where low-value health care is practiced.

Inpatient laxative use is common and frequently persists following discharge. While seemingly trivial, the routine use of docusate products in a constrained health care system is wasteful. Perhaps it is time for a trial to address the efficacy of docusate products in a constrained health care system is following discharge. While seemingly trivial, the routine use of laxatives such as docusate and bisacodyl cannot definitively infer a lack of benefit. Nonethe-

### Table. Laxative Consumption on Inpatient Units for Fiscal Year 2015

<table>
<thead>
<tr>
<th>Drug</th>
<th>Medical (7828 Annualized Admissions)</th>
<th>Surgical (9326 Annualized Admissions)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Doses</td>
<td>Drug Cost, $*</td>
<td>Nursing Hours</td>
</tr>
<tr>
<td>Docusate</td>
<td>70 079</td>
<td>5771.33</td>
<td>876</td>
</tr>
<tr>
<td>Lactulosea</td>
<td>18 224</td>
<td>6003.20</td>
<td>228</td>
</tr>
<tr>
<td>Sennosides</td>
<td>25 564</td>
<td>734.72</td>
<td>320</td>
</tr>
<tr>
<td>Bisacodyl</td>
<td>8769</td>
<td>311.42</td>
<td>110</td>
</tr>
<tr>
<td>Psyllium</td>
<td>2907</td>
<td>769.04</td>
<td>36</td>
</tr>
<tr>
<td>Magnesium hydroxideb</td>
<td>1768</td>
<td>246.48</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>127 311</td>
<td>13 836.19</td>
<td>1592</td>
</tr>
</tbody>
</table>

Abbreviation: NR, not reported.

* All values in Canadian dollars.

b Dispensed as 500 mL bottles, doses were inferred based on usual number of
doses per bottle. Note lactulose may also be used for treatment of hepatic encephalopathy in the absence of constipation.

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Drafting of the manuscript: Lee.

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

Statistical analysis: Lee, Bonnici.

Administrative, technical, or material support: All authors.

### Conflict of Interest Disclosures:

None reported.


3. Rapid Response Reports CADTH. Dioctyl Sulfosuccinate or Docusate (Calcium or Sodium) for the Prevention or Management of Constipation: A Review of the Clinical Effectiveness. Ottawa, ON: Canadian Agency for Drugs and Technologies in Health; 2014.


### Invited Commentary | LESS IS MORE

**Habitual Prescribing of Laxatives—It’s Time to Flush Outdated Protocols Down the Drain**

Constipation is a common and distressing symptom among those who are ill. In addition to adequate fluid intake and mobilization, the mainstay of constipation treatment has traditionally been the “bowel regimen,” a stimulant laxative such as sennosides combined with the stool softener docusate. Years ago, as trainees fatigued by endless pages alerting us to constipated patients, we too routinely ordered sennosides and...
Docusate has not been proven effective in any well-designed or placebo-controlled trials. A systematic review published in 2000 concluded that the evidence base for docusate use was inadequate, noting that the available randomized controlled trials were of low quality with flawed study designs and clinical heterogeneity precluding pooled data analysis. The call for better evidence was met by Tarumi et al in 2013, with their publication of the results from a randomized, double-blind, placebo-controlled trial—the highest-quality evidence to date—showing that docusate is no more effective than placebo when added to sennosides for the management of constipation in hospice patients. As for the commonly-held belief that docusate reduces the incidence of cramps in the treatment of constipation, a study of hospitalized patients diagnosed with cancer treated using a protocol of sennosides alone vs a protocol of sennosides plus docusate (with an initial docusate-only phase) found no difference between the 2 protocols in the incidence of cramps.

Many physicians are surprised to hear that there are downsides to docusate use. In fact, it is a burdensome medication for many patients—especially those who are ill and already suffering from dysphagia, nausea, poor appetite, polypharmacy, or confusion regarding their medications. Docusate comes as a large capsule or solution, and a therapeutic dose requires patients to take multiple capsules per day. The common workaround of mixing the medication into juice or applesauce does not work with docusate because of its unpleasant taste and lingering aftertaste. Docusate may affect the absorption of other medications, and is best taken 2 hours away from other medications. The most important unintended downstream consequence of docusate is that it delays more effective interventions to relieve constipation. In addition, other consequences include patient refusal of other medications owing to pill burden, decreased appetite and oral intake owing to the persistent aftertaste, and activities curtailed owing to the need for frequent medication administration. These adverse effects are not trivial.

In the current issue of JAMA Internal Medicine, Lee et al describe their analysis of oral laxative use and associated costs at McGill University Health Centre in Montreal, Canada, during the year 2015. They found that docusate products were most commonly prescribed, accounting for 165,000 doses (64%), requiring over 2000 nursing hours for administration. More than 258,000 total doses of laxatives were dispensed, requiring an estimated 3233 nursing hours. Of 1480 discharged patients, 738 (49.9%) received prescriptions for docusate, 163 (11%) sennosides, and 142 (9.6%) lactulose. Extrapolating to a societal scale, they conclude that health care spending on docusate products in North America likely amounts to hundreds of million dollars per year being “flushed down the toilet.”

What Needs to Change? Stopping the use of ineffective treatments such as docusate is an important issue for quality of care, safety, and cost. Yet, old habits die hard, which is why physicians continue to prescribe docusate 3 years after a clinical trial showed it to be ineffective, and hospital formularies continue to support them. Nonbeneficial medications like docusate should be eliminated from hospital formularies so that patients can receive effective treatments in a more timely fashion. Similarly, other practice habits that may be wasteful and harmful to patients include “magic mouthwash” for cancer treatment-induced mucositis, statins in hospice patients, and aggressive use of insulin to achieve tight glucose control in patients with poor prognosis. For treatments with insufficient evidence or guidelines, such as constipation prophylaxis with sennosides for hospitalized patients or nursing home residents, admission orders should be thoughtful and individualized, rather than reflexive and habitual. For example, a standing order for sennosides is reasonable for patients admitted with preexisting constipation or for those on standing opioid pain medications. However, treatment efficacy and the need for continued therapy should be frequently reassessed, including at the time of discharge. Reduction of inappropriate polypharmacy should be a key goal every time we perform medication reconciliation. It’s time to put ourselves in our patients’ shoes, and consider gathering our colleagues together for taste tests of medications like laxatives on our formulary. We guarantee that prescribing practices for medications like docusate will change quickly afterwards.

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LESS IS MORE

Patient and Physician Attitudes Toward Low-Value Diagnostic Tests

Many American physicians think unnecessary tests and procedures are a serious problem facing our health care system, but 53% order unnecessary tests if requested by patients. This discrepancy between appropriate and actual care suggests that patients’ perceptions of good care are not aligned with physicians’ commitment to care that optimizes quality while reducing unnecessary interventions. We assessed patients’ and physicians’ perceptions of high-value care.

Methods | We conducted a cross-sectional survey of patients and physicians from 3 academic primary care clinics in the northeastern United States. Eligible patients had a clinic appointment, could read English, and complete a survey independently. Patients received a self-administered paper survey and were given a $5 gift card or parking validation. Physicians completed an electronic survey and could enter a $50 gift card lottery. This study was approved by Partners HealthCare Human Research Committee.

Results | The response rate was 69% (218/318) among patients and 53% (151/283) among physicians (Table 1). In both vignettes, physicians were significantly more likely than patients to rate the care in a manner consistent with national guidelines (Table 2). However, providing information about the risks associated with CT scans and URI treatment guidelines increased the proportion of patients who gave a high rating to the appropriate care by 15% (Table 2).

Discussion | We found a significant discrepancy between what PCPs and patients view as high-value care for headaches and our surveys contained novel questions asking physicians and patients to rate the care provided in 2 clinical vignettes based on the Choosing Wisely Initiative. Questions were pilot tested for face validity and reliable interpretation. Respondents rated the care in each part of the vignette on a 5-point scale from “poor” to “excellent.”

The first vignette described a man with a headache who is worried about a brain tumor and requests a computed tomography (CT) scan. Initially, he is diagnosed with a tension headache by his primary care physician (PCP) and told that imaging is not warranted. In part 2, the PCP informs him of the risks of CT scans. In part 3, the patient seeks a second opinion from another doctor who orders a CT scan.

The second vignette described a woman with upper respiratory tract infection (URI) symptoms requesting antibiotics. Initially, her PCP does not prescribe antibiotics, diagnosing her with a viral infection. In part 2, the PCP refers to guidelines that recommend against antibiotics for viral infections.

We assessed differences in responses between physicians and patients using the Pearson χ² test and Fisher exact test. We used SAS statistical software (version 9.3, SAS Institute) and considered $P < .05$ statistically significant.

Table 1. Patient and Physician Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No. (%)</th>
<th>Respondents</th>
<th>Nonrespondents</th>
<th>$P$ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male sex</td>
<td>203 a</td>
<td>17 c</td>
<td></td>
<td>.79 d</td>
</tr>
<tr>
<td>Female sex</td>
<td>127 (63)</td>
<td>12 (71)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>125 (63)</td>
<td>10 (59)</td>
<td></td>
<td>.82 d</td>
</tr>
<tr>
<td>Black</td>
<td>43 (21)</td>
<td>4 (24)</td>
<td></td>
<td>.76 f</td>
</tr>
<tr>
<td>Hispanic</td>
<td>18 (9)</td>
<td>3 (18)</td>
<td></td>
<td>.21 f</td>
</tr>
<tr>
<td>Asian</td>
<td>8 (4)</td>
<td>0</td>
<td></td>
<td>&gt; .99 f</td>
</tr>
<tr>
<td>Other</td>
<td>6 (3)</td>
<td>0</td>
<td></td>
<td>&gt; .99 f</td>
</tr>
<tr>
<td>Unknown</td>
<td>3 (1)</td>
<td>0</td>
<td></td>
<td>&gt; .99 f</td>
</tr>
<tr>
<td>Age ≥ 55 y</td>
<td>102 (50)</td>
<td>12 (70)</td>
<td></td>
<td>.13 d</td>
</tr>
<tr>
<td>Education college degree</td>
<td>118 (58)</td>
<td>6 (35)</td>
<td></td>
<td>.06 d</td>
</tr>
<tr>
<td>Primary language: English</td>
<td>183 (91)</td>
<td>16 (94)</td>
<td></td>
<td>.67 d</td>
</tr>
<tr>
<td>Rating of own health as “very good” or “excellent”</td>
<td>87 (43)</td>
<td>7 (41)</td>
<td></td>
<td>.87 d</td>
</tr>
<tr>
<td>Physicians</td>
<td>151</td>
<td>132</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male sex</td>
<td>80 (53)</td>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduated from medical school in 2000 or later</td>
<td>35 (29)</td>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 20 h per week spent in a clinical setting</td>
<td>52 (42)</td>
<td>...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Letters