Propofol for Screening Colonoscopy in Low-Risk Patients: Are We Paying Too Much?

Use of propofol for sedation for screening colonoscopy in low-risk patients has increased markedly recently. In the United States, propofol is administered only by anesthesiology providers, which can substantially increase cost (typically $600-$2000). Given the number of screening colonoscopies performed every year, additional health care costs associated with this practice are substantial. The advantages of propofol over standard moderate sedation using a narcotic and/or benzodiazepine include quicker onset of action, a shorter half-life, and deeper level of sedation. However, evidence supporting the potential benefits of propofol is limited. For screening colonoscopy in low-risk patients, the question thus becomes, what is propofol worth? For a patient who has never had a colonoscopy, this is a very difficult question to answer, since it is challenging to associate a dollar amount to comfort without knowledge of the likely degree of discomfort. Hence, we approached this question by asking those who are most familiar with colonoscopy and sedation medications—namely gastroenterologists and endoscopy nurses.

Methods | We validated a 3-question questionnaire by interviewing and asking 20 endoscopy physicians and nurses from 3 different endoscopy units to answer questions in an open-ended manner; responses were used to construct the final questionnaire, which was then reviewed by additional gastroenterologists. The questions were as follows:

1. If you were to have screening colonoscopy, what sedation would you prefer?
   - Unsedated.
   - Midazolam-fentanyl (moderate sedation).
   - Propofol (deep sedation).

2. If you prefer propofol, how much extra would you be willing to pay out of pocket?
   - $0
   - $1-$100
   - $101-$200
   - $201-$300
   - $301-$500
   - More than $500
   - Doesn’t matter

3. I prefer propofol because (check all that apply):
   - I do not want to feel anything.
   - My recovery time will be faster.
   - I want to be taken care of by an anesthesiologist/certified registered nurse anesthetist.

The questionnaire was placed on SurveyMonkey.com and the link emailed to specific gastroenterology division directors asking them to distribute it to their faculty. Responses were also obtained by direct distribution and/or interview at the Digestive Diseases Week (the major national gastroenterology meeting). To obtain nurse responses, we attended 6 Society of Gastroenterology Nurses Association meetings and distributed paper questionnaires at the beginning of random oral sessions; responses were collected immediately after the session.

Results | Responses were received from 451 gastroenterologists and 460 nurses. The response rate for nurses, calculated as number of questionnaires with responses divided by number of questionnaires distributed, was 84%. For the gastroenterologists, the response rate was 87% for directly distributed questionnaires and 23% by web (SurveyMonkey.com).
Gastroenterologists and nurses preferred propofol vs moderate sedation, but most were willing to pay less than $100 (Table). Interestingly, many gastroenterologists and nurses preferred unsedated colonoscopy. When propofol was preferred, reasons given by gastroenterologists and nurses (respectively) were as follows: don’t want to feel anything (78% and 91%), faster recovery time (89% and 69%), and prefer that anesthesiology provider administer anesthesia (11% and 35%). As expected, most individuals had more than 1 reason for desiring propofol compared with moderate sedation (Figure).

Discussion | Deep sedation with propofol was preferred by most of gastroenterologists and endoscopy nurses surveyed. However, most were unwilling to pay more than $200, far less than is currently charged to patients. Thus, why are gastroenterologists performing so many colonoscopies with propofol when they value it at less than current cost? The answer is undoubtedly complex. First, since recovery is faster after propofol (by approximately 21 minutes3), it may increase endoscopy unit efficiency. Notably, for the patient, earlier discharge offers only a limited advantage since discharge instructions are the same for propofol and standard moderate sedation. Some have argued that pain may be less with propofol; however, a recent meta-analysis demonstrated that pain scores were no different than with moderate sedation.3 Finally, depending on the business model and anesthesiologist contracting, professional and facility fees associated with propofol can be quite financially lucrative.5

Insurers often do not cover the entire cost of propofol administration, and patients often end up paying considerable (> $1000) amounts for this service.4,6 Thus, it behooves us to ask, is it fair for a gastroenterologist to ask a patient to pay more for a service than what she or he is willing to pay? Would patients react differently if they were told that many gastroenterologists prefer moderate sedation or that 70% would not pay more than $100 for propofol? Perhaps information such as this should be part of the informed consent process. Furthermore, even when patients may not have to pay extra, is the additional expense to the health care system justifiable? As one respondent physician stated, “I will fly first class if I don’t have

Table. Responses to Questionnaire on Sedation During Colonoscopy

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Preferred Sedation</th>
<th>%</th>
<th>Extra Amount Willing to Pay, $*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Propofol</td>
<td>Versed/Fentanyl</td>
<td>Unsedated</td>
</tr>
<tr>
<td>Gastroenterologists (n=451)</td>
<td>53</td>
<td>34</td>
<td>13</td>
</tr>
<tr>
<td>Endoscopy nurses (n=460)</td>
<td>70</td>
<td>26</td>
<td>14</td>
</tr>
</tbody>
</table>

*For those whose preference was propofol.

Figure. Euler Diagrams Depicting Provider Reasons for Preferring Propofol

A. Gastroenterologists (n = 451). B. Endoscopy nurses (n = 460). The color-coded panel shows the key for the specific preference reasons. The letters represent a key for the specific reasons, and the numbers given represent percentages.
to pay for it.” It seems that many are flying first class when we cannot really afford it.

Although these data demonstrate that endoscopy nurses and physicians prefer propofol, it seems that there is a large difference between actual cost and perceived value.

Deepak Agrawal, MD, MPH
Don C. Rockey, MD

Author Affiliations: Division of Digestive and Liver Diseases, University of Texas Southwestern Medical Center, Dallas (Agrawal); Department of Internal Medicine, Medical University of South Carolina, Charleston (Rockey).

Corresponding Author: Don C. Rockey, MD, Department of Internal Medicine, Medical University of South Carolina, 96 Jonathan Lucas St, Ste 803, Charleston, SC 29425 (rockey@musc.edu).

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Study concept and design: Both authors.

Acquisition of data: Agrawal.

Analysis and interpretation of data: Both authors.

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Privacy Threats When Seeking Online Health Information

Patients increasingly use the Internet to access health-related information for which they are not charged.1 In turn, websites gather information from those who browse their sites and target advertisements to them. Yet this business model masks a more complicated picture.

A patient who searches on a “free” health-related website for information related to “herpes” should be able to assume that the inquiry is anonymous. If not anonymous, the information knowingly or unknowingly disclosed by the patient should not be divulged to others.

Unfortunately, neither assumption may be true. Anonymity is threatened by the visible Internet address of the patient’s computer or the often unique configuration of the patient’s web browser.2 Confidentiality is threatened by the leakage of information to third parties through code on websites (eg, iframes, conversion pixels, social media plug-ins) or implanted on patients’ computers (eg, cookies, beacons).

Many third parties use the information they collect only to target advertising (eg, DoubleClick). However, nearby 300 third parties use the information to track consumers,3 delivering advertising related more directly to the user’s known or inferred interests, demographics, and prior online behavior.

These weaknesses in privacy practices have been detailed in the news media.4 The Federal Trade Commission has called for consumer privacy legislation.5 Online privacy guidelines for searches on health topics have been published.6 But privacy threats are poorly understood because of the technical nature of online data collection and aggregation.

Methods | I therefore explored this potential problem between December 2012 and January 2013 using a convenience sample of 20 popular health-related websites. I used freely available privacy tools (DoNotTrackMe [www.abine.com] and Ghostery [www.evidon.com]) to detect third parties. These tools are downloadable and installed as add-ons to a web browser. I purchased and installed commercial interception software (Charles [www.Charlesproxy.com]) to intercept hidden traffic from my computer to the websites of third parties.4-7 On each site I browsed 10 pages randomly and searched for content related to “depression,” “herpes,” and “cancer.”

Results | I found that all 20 sites had at least 1 third-party element, typically 6 or 7. Most of these elements had nontracking functions. Thirteen of the 20 websites had 1 or more tracker elements (Table). Unlike most of the commercial and mass media sites sampled, I found no tracking elements on physician-oriented sites closely coupled to professional groups. Social media networks use plug-in buttons (eg, Facebook’s “Like” button) to allow tracking on websites even if the online user is not logged into social media, and even if the user does not actually press the social button. Five of the 13 sites that had tracker elements had also enabled such social media button tracking.

Using the interception tool, I found that my searches on websites for the 3 terms were leaked to third-party tracking entities by 7 websites. The search terms were not leaked to third-party tracking sites when I browsed US government sites or 4 of the 5 physician-oriented sites.

Discussion | In general, the information gathered by websites and their third-party affiliates enhances the online user’s experience and allows targeted advertisements, which support a free business model. However, threats to privacy are real and are insufficiently addressed in current legislation and regulations.5 Were such risks to be realized, the ramifications could span embarrassment, discrimination in the labor market, or the deliberate decision by marketers not to offer or ad-