Contextual Errors and Failures in Individualizing Patient Care

A Multicenter Study

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Background: A contextual error occurs when a physician overlooks elements of a patient’s environment or behavior that are essential to planning appropriate care. In contrast to biomedical errors, which are not patient-specific, contextual errors represent a failure to individualize care.

Objective: To explore the frequency and circumstances under which physicians probe contextual and biomedical red flags and avoid treatment error by incorporating what they learn from these probes.

Design: An incomplete randomized block design in which unannounced, standardized patients visited 111 internal medicine attending physicians between April 2007 and April 2009 and presented variants of 4 scenarios. In all scenarios, patients presented both a contextual and a biomedical red flag. Responses to probing about flags varied in whether they revealed an underlying complicating biomedical or contextual factor (or both) that would lead to errors in management if overlooked.

Setting: 14 practices, including 2 academic clinics, 2 community-based primary care networks with multiple sites, a core safety net provider, and 3 U.S. Department of Veterans Affairs facilities.

Measurements: Primary outcomes were the proportion of visits in which physicians probed for contextual and biomedical factors in response to hints or red flags and the proportion of visits that resulted in error-free treatment plans.

Results: Physicians probed fewer contextual red flags (51%) than biomedical red flags (63%). Probing for contextual or biomedical information in response to red flags was usually necessary but not sufficient for an error-free plan of care. Physicians provided error-free care in 73% of the uncomplicated encounters, 38% of the biomedically complicated encounters, 22% of the contextually complicated encounters, and 9% of the combined biomedically and contextually complicated encounters.

Limitations: Only 4 case scenarios were used. The study assessed physicians’ propensity to make errors when every encounter provided an opportunity to do so and did not measure actual error rates that occur in primary care settings because of inattention to context.

Conclusion: Inattention to contextual information, such as a patient’s transportation needs, economic situation, or caretaker responsibilities, can lead to contextual error, which is not currently measured in assessments of physician performance.

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Clinical decision making has been described (1) as answering the question, “What is the best next thing for this patient at this time?” To be effective and safe, care plans must be tailored to a patient’s individual circumstances. Intensifying the medication regimen for a patient with poorly controlled asthma who cannot afford his or her current medications is an example of ordinarily appropriate provider behavior that represents inappropriate care under the circumstances.

According to the Institute of Medicine (2), an inappropriate plan of care is a medical error. We refer to decision-making errors that occur because of inattention to patient context as contextual errors (1, 3). By patient context, we mean those elements of a patient’s environment or behavior that are relevant to their care, including their economic situation, access to care, social support, and skills and abilities. Contextual errors represent a failure to individualize care (4). All other decision-making errors may be classified as biomedical errors (3).

Decision-making errors can occur if clinicians do not identify clinically essential information or do not correctly incorporate essential information into the plan of care. In a previous study (5), we developed and tested a method for assessing physician propensity to make contextual or biomedical errors in clinical encounters with standardized patients. In this study, we applied that method in a multicenter field experiment by using unannounced, standardized patients to assess how well-experienced internal medicine physicians can probe for contextual and biomedical factors in response to hints (red flags) and incorporate their findings into the plan of care.

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**Context**

Understanding a patient’s individual situation or context is essential to planning appropriate care.

**Contribution**

In this study, standardized patients visited physicians, reported a medical problem, and gave hints of contextual and biomedical complicating factors. Their responses to probing revealed no complicating condition or an underlying contextual or biomedical issue (or both) that would lead to management errors if overlooked. Physicians probed fewer contextual than biomedical hints. They provided error-free care more often in the uncomplicated encounters (73%) than in the biomedically (38%), contextually (22%), or biomedically and contextually (9%) complicated encounters.

**Implication**

High error rates may occur when physicians face complicated situations that require attentiveness to individual patient context.

—The Editors

**METHODS**

Eight actors were trained by the University of Illinois at Chicago Dr. Allan L. and Mary L. Graham Clinical Performance Center, a specialized facility for standardized patient training and testing, with 2 actors (1 white, 1 black) assigned for each of 4 cases. The actors presented as real patients and followed scripts that contained hints of clinically significant biomedical or contextual issues that, if confirmed, would be essential to address to avoid error. The only way a physician could know whether the hints were clinically significant was to recognize them as red flags that warranted follow-up and probe for additional information. A video describing the study methods is available at www.annals.org.

We designed our study to track whether biomedical or contextual errors occurred because of a physician’s failure either to notice the hints or to incorporate what they had heard into the plan of care. We also sought to explore potential predictors of error, including physician demographic characteristics, such as practice experience; visit characteristics, such as time spent with a patient; and 1 patient characteristic—whether the actor was black or white.

During the consent process, we informed the participants that this was a study of “decision making” and that up to 4 incognito standardized patients would visit them over the next 18 months and surreptitiously make audio recordings of each encounter. Actors were entered into the scheduling system as actual patients. All visits occurred between April 2007 and April 2009. The institutional review boards of the University of Illinois at Chicago, the Jesse Brown Veterans Affairs Medical Center, and all site affiliates approved the study.

**Physician Sample**

We approached 152 attending physicians in primary care internal medicine at 14 practice locations, including 2 medical center–based academic clinics, 2 community-based groups with multiple sites, a core safety net provider, and 3 large primary care facilities within the U.S. Department of Veterans Affairs (VA) system, situated in 2 metropolitan areas. After each encounter, a copy of the physician’s note was forwarded to the project team, and we then contacted participants by e-mail and asked whether they believed the patient had been real or an actor (6).

**Case Scenarios**

Each case had 4 variants: uncomplicated, biomedically complex, contextually complex, or both biomedically and contextually complex. Each actor was trained to present all variants of a case and instructed on which one to enact on any given visit.

At the beginning of any variant, the actor presented a baseline story that suggested a common ambulatory condition that warrants pursuing a standard evaluation or treatment. For example, one case involves a man, aged 42 years, with long-standing asthma that has worsened recently despite the prescription of a low-dose inhaled glucocorticoid (video available at www.annals.org). With no other clinically relevant information, appropriate care would include intensifying the treatment (for example, by prescribing a higher dose of medication) or adding a second agent, such as a long-acting β-agonist.

In addition to the baseline story, the actor also mentions both a biomedical and a contextual red flag, each suggesting a more complex presentation that requires an alternative approach to care. For the biomedical red flag in the asthma case, the actor says, “Sometimes I wake up wheezing or coughing at night,” which suggests that his worsening asthma is due to the onset of gastroesophageal reflux symptoms. This red flag is intended to prompt the physician to probe further on whether confirmatory symptoms of reflux are present, including heartburn; hoarseness; cough; or increased symptoms after large, fatty meals. For the contextual red flag, the actor says, “Things have been tough since I lost my job,” which suggests that his symptoms are worsening because he cannot pay for medications. This red flag is intended to prompt the physician to probe further on whether the patient has become medically indigent and cannot adhere to the prescribed pharmacotherapy. The Appendix Table, available at www.annals.org, provides an overview of each of the 4 cases and their biomedical and contextual red flags.

For the uncomplicated version of each case, if the physician attempts to elicit more information about either red flag, the actor provides reassurance that the complicating condition is not present. In the asthma example, questions...
about reflux yield a negative review of symptoms. The intended conclusion is that the patient does not have reflux, only nocturnal symptoms related to poorly controlled asthma. Questions about possible loss of health insurance yield a reassuring response that the patient is covered by his wife’s plan and is not having difficulty affording his medications as prescribed.

In the biomedical variant, elicitation yields confirmatory evidence of the complicating biomedical condition: The patient reports having sufficient symptoms of gastroesophageal reflux disease to warrant a management plan for that condition. In the contextual variant, elicitation yields confirmation from the patient that he cannot take his medication daily because of the cost, which indicates that instructions to take a higher dosage or more medication would not be effective or appropriate. In the combined biomedical and contextual variant, probing for each red flag is rewarded with the clinically significant information. For these complicated case variants, failure to attend to any relevant underlying biomedical or contextual issue that the patient presents constitutes inappropriate care (or error) for that variant.

Our criteria for appropriate versus inappropriate care for the uncomplicated and biomedically complex variants reflect current standards of care. For example, we based our criteria for inadequately controlled asthma that warrants intervention on international guidelines (7). We developed our criteria for appropriate versus inappropriate care for the contextually complex variants on the basis of an iterative process that involved 16 experienced internal medicine primary care physicians who were not part of the study population. We randomly assigned them to review scripts independently until each physician agreed with all the others who reviewed the same case variant and disagreed with those who reviewed different variants of the same case regarding appropriate management, when all contextual information was revealed. We considered a case to be a valid determination that a sample size of 52 physicians would provide.

The Appendix Table illustrates the errors that would result from continuing to provide baseline care in the setting of a biomedically or contextually complicated variant. For example, not treating the patient with asthma for gastroesophageal reflux disease despite 4 symptoms of the condition would constitute a biomedical error. Similarly, recommending increased dosages of asthma medication despite 4 indicators that the patient cannot afford his current therapy would constitute a contextual error. The Appendix Table also summarizes baseline errors that occurred, such as taking no action to address inadequately controlled asthma in the baseline version of that case; such errors were relatively uncommon.

Allocation and Outcomes Assessments

We used an incomplete randomized block design. Physicians were assigned by computer-generated random number to 1 of 16 permuted blocks that combined 4 cases and variants in a partial factorial arrangement, so that each physician was assigned to receive 1 of each of the 4 cases with a different variant in each (a total of 4 visits per physician). To reduce suspicion, we typically scheduled the first visit for several months after a physician was enrolled. We scheduled the remaining visits over approximately 1 year on the basis of appointment availability.

We report 2 primary outcomes: success or failure to probe contextual or biomedical red flags and success or failure to implement the appropriate care plan for the case variant. We also assessed the costs of errors (data not shown).

Trained coders used checklists to score the probing from the audio recordings of the encounters. The coders audited the actor’s portrayal to ensure that scripts were precisely followed. Physicians were given credit for probing with either closed or open-ended questions in response to red flags. For example, when the patient with poorly controlled asthma volunteered that “Things have been tough since I lost my job,” a physician would get credit for either “Are you having trouble affording your medications now?” or “How has it been tough for you?” but not for “I’m sorry to hear that.”

The care plan was scored from the physician’s note (or from his or her recorded statement of the plan of care to the patient when the note was unavailable), again by coders who used a checklist and were blinded to the case variant—although the variant could be inferred when physicians correctly adapted their care plan to the case variant. We predefined the criteria for appropriate care as avoiding particular errors (Appendix Table).

We sent physicians questionnaires to collect data on potential predictors of physician performance, including age, race, sex, medical school location (United States, Canada, or other), previous formal communication training (yes or no), years since residency, and number of half-days of clinical time. We sent the questionnaires after each physician’s final completion of study visits. For all visits, total and face-to-face times were documented, as was actor ethnicity and physician–actor concordance of ethnicity (when physicians provided demographic data).

Statistical Analysis

We compared rates of probing of contextual and biomedical red flags across cases by using the McNemar test of correlated proportions, with particular attention to the uncomplicated baseline variant. We compared the proportion of correct treatment plans among uncomplicated, biomedically complicated, contextually complicated, and combined biomedically and contextually complicated variants by using chi-square tests. On the basis of pilot studies, we determined that a sample size of 52 physicians would provide
80% power to detect an absolute difference of 25 percentage points in the rate of biomedical versus contextual probing. Similarly, 25 visits per condition would provide 80% power to detect absolute differences between variants of 20 percentage points in correct treatment plans; on the basis of the assumption that probing would not occur on all visits, we sought to perform at least 75 visits per condition.

In addition, we fitted 3 mixed-effects logistic regression models that predicted biomedical probing, contextual probing, and treatment plan outcomes to test the independent effects of multiple predictors while controlling for case differences and clustering of visits within clinicians. We used the PROC GLIMMIX command in SAS, version 9.2 (SAS Institute, Cary, North Carolina), to fit the models, with physicians as random effects and compound symmetry in the working covariance matrix (8). We fitted the models with full likelihood estimation (METHOD = QUAD). Fixed design effects in the models included whether the physician responded to the follow-up e-mail and the amount of face time during the visit. We tested demographic predictors, as well as a dummy variable that represented failure to return the demographic questionnaire, for their relationship with design and outcome variables; because we found none, we did not include demographic predictors in the model.

Statistical analysis was performed primarily by 1 investigator. We did not exclude any participants. If a physician could not participate in all 4 planned visits, we included the data from those in which he or she did participate in the mixed model analysis. We also included a dummy variable for each physician in the analysis to indicate whether the physician had completed all 4 visits. Usually, when physicians did not complete all 4 visits, it was because they had moved or changed practices; however, 4 physicians requested to discontinue seeing further standardized study patients (1 after a single visit and 3 after 2 visits). We treated missing visits as resulting from a missing-at-random mechanism, because we found no relationship between completing all visits and other model variables, no effect from requesting to discontinue the study, and substantially similar results from an analysis that included only physicians who completed all 4 visits (not reported).

**Role of the Funding Source**

Our study was funded by the VA Health Services Research and Development Service. The funding source was not involved in the formulation of study questions, data collection, statistical analysis, manuscript preparation, or decision to submit the manuscript for publication.

**RESULTS**

**Participants and Visits**

Eighty-six percent of eligible physicians agreed to participate in the study, but we could not schedule visits with 20 of them because they closed their practice or relocated after study initiation (Figure 1). The Table shows the demographic characteristics of the remaining physicians who returned the questionnaire (96 of 111 [86.5%]). We coded 399 unannounced standardized patient visits for probing of biomedical and contextual information. Coding was based on the audio recordings (380 visits) or, if the recorder failed, on checklists completed by the actors (19 visits). Coding of plan of care was based on physician notes (382 visits) or, if the recorder failed, on checklists completed by the actors (19 visits). Coding of plan of care was based on physician notes (382 visits) or, if the note was missing (16 visits); visits for which neither the note nor the recording was available (because of recorder failure) were not coded.

A second rater reviewed a sample of 15% of the recordings (63 visits) from all cases and variants to score the probing. We resolved minor discrepancies in the coding of
Physicians probed fewer contextual red flags (51%) than biomedical red flags (63%) across all visits (McNemar test chi-square, 12.4; \( P < 0.001 \)) and also fewer contextual red flags (32%) than biomedical red flags (53%) in the 107 baseline or uncomplicated variant visits (McNemar test chi-square, 10.4; \( P = 0.001 \)). Figure 2 shows that the unadjusted rates of probing varied among the 4 case scenarios. The overall rate of contextual probing was higher than the rate of biomedical probing in contextual variants, whereas the opposite was true in biomedical variants. This resulted from standardized patients responding to open-ended questions with a comment related to that variant, which often prompted physicians to probe if they had not done so already. For instance, in the contextual variant of the asthma case, in response to “Any other problems?” the standardized patient could elaborate on his or her financial situation but not on symptoms of gastroesophageal reflux disease that were not present. This disclosure, in turn, would often precipitate a probe for which the physician would receive credit.

Results of mixed logistic regression models showed no effect of site, patient ethnicity, or physician belief that they had seen an actor on outcomes. Of note, physicians who probed contextual (but not biomedical) red flags were more likely to respond to the follow-up e-mail, regardless of whether they believed they had seen an actor. Greater face time increased the likelihood of probing both the biomedical red flag (adjusted odds ratio [OR] per minute of time, 1.08 [95% CI, 1.03 to 1.12]) and the contextual red flag (adjusted OR per minute of time, 1.05 [CI, 1.02 to 1.09]). As suggested by the unadjusted rates, probing differed for the case scenarios \( (P < 0.001) \). Also, biomedical probing was higher in the biomedical variants \( (P < 0.001) \) and contextual probing was higher in the contextual variants \( (P < 0.001) \).

### Plan of Care

Overall, physicians provided error-free care in 73% of the uncomplicated baseline encounters, 38% of the biomedically complicated encounters, 22% of the contextually complicated encounters, and 9% of the combined biomedically and contextually complicated encounters (overall, chi-square, 100 \( [P < 0.001] \); for the comparison between biomedical and contextual variants, chi-square, 6.07 \( [P = 0.014] \)). Figure 3 shows that the unadjusted rates of appropriate treatment plans varied among cases.

Eliciting biomedical or contextual information was usually necessary but not sufficient for appropriate treatment in complicated variants. Of the 191 biomedically complicated encounters, physicians planned appropriate treatment in 42 of the 136 encounters (31%) in which elicitation occurred and 3 of the 55 (6%) in which it did not. Of the 185 contextually complicated encounters, physicians planned appropriate treatment in 24 of the 120 encounters (20%) in which elicitation occurred and 2 of the 65 (3%) in which it did not.

Our mixed logistic regression model found that error was more likely when the variant included a biomedical qualifier

### Table. Demographic Characteristics of Participating Physicians

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Physicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, n (%)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>48 (50)</td>
</tr>
<tr>
<td>Female</td>
<td>48 (50)</td>
</tr>
<tr>
<td>Age, n (%)</td>
<td></td>
</tr>
<tr>
<td>25–34 y</td>
<td>13 (15)</td>
</tr>
<tr>
<td>35–44 y</td>
<td>56 (60)</td>
</tr>
<tr>
<td>45–54 y</td>
<td>17 (18)</td>
</tr>
<tr>
<td>55–64 y</td>
<td>10 (10)</td>
</tr>
<tr>
<td>Race or ethnicity, n (%)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>57 (59)</td>
</tr>
<tr>
<td>Asian</td>
<td>28 (29)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4 (4)</td>
</tr>
<tr>
<td>Black</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Native American</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Multiracial or other</td>
<td>3 (3)</td>
</tr>
<tr>
<td>Medical school location, n (%)</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>81 (83)</td>
</tr>
<tr>
<td>Canada</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Other</td>
<td>13 (14)</td>
</tr>
<tr>
<td>Time since completion of residency, n (%)</td>
<td></td>
</tr>
<tr>
<td>1–5 y</td>
<td>20 (21)</td>
</tr>
<tr>
<td>6–10 y</td>
<td>29 (30)</td>
</tr>
<tr>
<td>11–15 y</td>
<td>29 (30)</td>
</tr>
<tr>
<td>16–20 y</td>
<td>5 (6)</td>
</tr>
<tr>
<td>21–25 y</td>
<td>12 (13)</td>
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<tr>
<td>&gt;25 y</td>
<td>1 (1)</td>
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<td>Formal communication training, n (%)</td>
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<tr>
<td>Yes</td>
<td>9 (9)</td>
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<tr>
<td>No</td>
<td>87 (91)</td>
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<tr>
<td>Mean half-days of clinic per week (SD), n</td>
<td></td>
</tr>
<tr>
<td>6.0 (2.4)</td>
<td></td>
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<tr>
<td>Practice site affiliation, n (%)</td>
<td></td>
</tr>
<tr>
<td>U.S. Department of Veterans Affairs</td>
<td>36 (32)</td>
</tr>
<tr>
<td>Other</td>
<td>75 (68)</td>
</tr>
<tr>
<td>Board-certified in internal medicine, n (%)*</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>104 (94)</td>
</tr>
<tr>
<td>No</td>
<td>7 (6)</td>
</tr>
</tbody>
</table>

* On the basis of American Board of Internal Medicine Web site verification.

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The table provides demographic characteristics of participating physicians, including sex, age, race or ethnicity, medical school location, time since completion of residency, formal communication training, and mean half-days of clinic per week.
We found that physicians frequently recommended only adjustments in insulin dosing. Two fifths of the time, contextual errors occurred because physicians did not probe in response to contextual red flags. In the remainder of these instances, physicians adhered to a standard, algorithmic approach to care despite eliciting additional evidence of overriding contextual issues.

A MEDLINE search of the English-language literature from the past 5 years reveals instances in which the term contextual error has been adopted by others (10, 11) to describe failures to “incorporate patient-specific information into systematic and structured evidence” and as “mis-construing guidelines as standards to be followed rather than knowledge to be incorporated.” Breslin and colleagues (12) refer to the avoidance of contextual error through attention to patients’ circumstances as “contextualization,” and Stange (13) describes it as “the personalized application of the best scientific evidence, tempered by the best evidence from personal context.” Kim and colleagues (14) postulate that “[i]ndividualizing clinical decisions based upon the contextual knowledge of a patient’s beliefs and values as well as responsibilities at work, home, or school” has particular importance for certain high-risk groups of patients, such as those with addiction problems.

Sackett and colleagues (15) define evidence-based medicine as “the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.” A conscientious and judicious approach requires that physicians investigate indicators of clinically important patient contextual factors and adapt their care plan accordingly. Our study illustrates that physicians frequently fall short of this goal.
The high error rates we observed could be explained in several ways. First, we designed our study to assess physician propensity to make errors when every encounter provided an opportunity to do so, not to measure actual error rates. We do not know the proportion of encounters in which inattention to context would lead to medical error in, for example, primary care. Second, we developed and validated only 4 cases for this experiment, and probing outcomes varied across cases. These cases may have been unusually challenging or atypical of most patients seen in primary care. Nevertheless, the contextual issues we selected—low health literacy, inability to afford medications, caretaker responsibility, and nutritional deprivation—are all well-documented problems in large segments of the American population (16–19). Third, the hints that the actors offered of underlying contextual issues may have been too subtle. When we developed the cases, we did not have a mechanism to validate whether our expectation that physicians would pursue the red flags was reasonable, only that the underlying contextual information was indeed essential to avoiding an error when planning the patient’s care. Fourth, because all of our unannounced standardized patients presented as new patients, we examined physician performance at individualizing care only during first encounters. Error rates could be different in a long-term physician–patient relationship. Finally, we could not fully overcome the logistical challenges of conducting an unannounced, standardized patient study, which resulted in some missing data and loss of suberfuge.

Although tracking physician adherence to guidelines as a quality indicator is straightforward, determining whether physicians are appropriately individualizing care is not. Broadening the assessment of physician performance to include this metric unmasks serious performance problems. Strategies that address the challenge of individualizing clinical decisions through both provider education and new measures of performance are urgently needed.

From Veterans Affairs Center for the Management of Complex Chronic Care, University of Illinois at Chicago, Jesse Brown Veterans Affairs Medical Center, Feinberg School of Medicine, Northwestern University, John H. Stroger, Jr. Hospital, and Rush University Medical Center, Chicago, Illinois; Edward Hines Veterans Affairs Medical Center, Hines, Illinois; and Clement J. Zablocki Veterans Affairs Medical Center and Medical College of Wisconsin, Milwaukee, Wisconsin.

Disclaimer: The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the U.S. Department of Veterans Affairs or the U.S. government.

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Statistical expertise: A. Schwartz.
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Administrative, technical, or logistic support: S.J. Weiner, F. Weaver, J. Goldberg, G. Sharma, A. Binns-Calvey, M.M. Schapira, E. Jacobs, R. Abrams.

Appendix Table. Case Presentations With Criteria for Defining Errors*

<table>
<thead>
<tr>
<th>Case Presentation</th>
<th>Biomedical Red Flag</th>
<th>Contextual Red Flag</th>
<th>Criteria for Medical Error for Each Variant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man aged 43 y with recent persistent asthma symptoms despite being prescribed a low dose of a high-cost, brand-name, inhaled glucocorticoid</td>
<td>“Sometimes I wake up wheezing or coughing at night.”</td>
<td>“Things have been tough since I lost my job.”</td>
<td>No intervention to address inadequately controlled asthma symptoms</td>
</tr>
<tr>
<td>Woman aged 47 y presenting for preoperative assessment of hip replacement reports mild hypertension and overweight</td>
<td>Mentions recent weight gain, constipation, and heavy menses</td>
<td>“I’m looking forward to the surgery so I can take better care of my son.”</td>
<td>No discussion of possible risk factors of surgery</td>
</tr>
<tr>
<td>Diabetic man aged 59 y presents with 2 presyncopal episodes after previous physician increased insulin dosage</td>
<td>“Felt some pounding in my chest when it happened.”</td>
<td>Confuses dosages and says, “It’s hard for me to keep numbers straight.”</td>
<td>No adjustment of insulin dosing or discussion of changes in diet to prevent hypoglycemia</td>
</tr>
<tr>
<td>Man aged 72 y with unexplained weight loss</td>
<td>Shows signs of being depressed</td>
<td>Seems impoverished and possibly homeless</td>
<td>No evaluation for cancer in patient with unexplained weight loss for whom depression and malnutrition have been ruled out</td>
</tr>
</tbody>
</table>

* Presentations and red flags were the same for all variants of a case. The biomedical and contextual variant (not shown) was always a combination of the biomedical and contextual variants.
CORRECTION

In the recent article by Weiner and colleagues (1), there were 2 errors in the Editors’ Notes sidebar. The Contribution section should have begun with “In this study,” and should have included the paragraph in the Caution section. The online version has been corrected.

Reference