Medication nonadherence is a major—and remediable—contributor to poor outcomes, leading to approximately 125,000 preventable deaths,\(^1\) worsening of acute and chronic conditions, and billions of dollars in avoidable costs related to increased hospitalizations and emergency visits each year.\(^2,3\) Nonadherence rates are 20% to 30% among patients being treated for cancer and acute illness\(^4\) and 50% to 60% for chronic conditions, with an average of 50% of all patients taking their medication incorrectly—or not at all.\(^2,4,5\)

What’s more, nonadherence disrupts the physician-patient relationship\(^6\)—a serious problem, given that feeling understood is often the most critical component of recovery.\(^7,8\)

With that in mind, the words used to describe the problem have changed. Com-
pliance and noncompliance, the older labels, were based on the assumptions that patients are passive recipients of medical advice that they should follow without question and that they are to blame for not doing so. Adherence and nonadherence, on the other hand, emphasize mutual agreement and the patient’s freedom to follow the doctor’s recommendations or not, without blame if he or she decides not to do so.10

Many systemic approaches have been tried to maximize adherence, including disease management (eg, Web-based assessment tools, clinical guidelines, and call center-based triage), smart phone apps11 (for reminders and monitoring), and paying for or subsidizing the cost of drugs for those who can’t afford them. All have met with limited success.12 Based on a thorough review of the literature, we suggest a different approach.

Evidence-based efforts by clinicians are the key to effective prescribing and maximal adherence. In the text and table that follow, we summarize physician and patient factors that influence adherence and present optimal prescribing guidelines.

Listen carefully, then respond

Whether patients are seeing a primary care physician or a specialist, they want their doctors to spend more time with them and to give them more comprehensive information about their condition.13-15 The interaction should begin with the physician listening carefully to the patient before responding, but all too often this is not the case.

Family physicians have been found to interrupt patients 23 seconds after asking a question.16 To improve communication, listen quietly until the patient finishes presenting his or her complaints and agenda for the visit. Then ask, “Is there anything else that’s important for me to know?”17

Be more forthcoming

It is equally important for physicians to respond fully, but this is often not the case. A study involving internists found that in patient encounters lasting 20 minutes, physicians devoted little more than one minute, on average, to explaining the patient’s medical condition. The research showed that many physicians greatly overestimated the time they spent doing so.13

Studies have also shown that clinicians tell patients the name of the drug they’re prescribing 74% of the time and state its purpose 87% of the time, but discuss potential adverse effects and duration of treatment a mere 34% of the time. More than 4 in 10 patients are not told the frequency or timing of doses or the number of tablets to take.18

To improve communication, take the following steps when it’s your turn to talk:

Avoid medical jargon. Technical language (eg, edema) and medical shorthand (eg, history) is a significant barrier to patient understanding. In one study of more than 800 pediatrician visits, such speech was found to be detrimental more than half of the time. Although many mothers were confused by the terms, they rarely asked for clarification.19

It has been suggested that doctors and patients have engaged in a “communication conspiracy.”20 In one study, even after obstetricians and gynecologists had identified terms that they knew their patients did not understand, they continued to use them, and in only 15% of visits where unfamiliar terms were used did the patients admit that they did not understand them.21 Part of the problem may be that patients believe they must be seen as undemanding and compliant if they are to receive optimal attention from their physicians.22

Compounding the problem is the fact that clinicians’ use of highly technical language doubles when they are pressed for time,20 suggesting that this behavior could become more widespread as the demand for greater efficiency on the part of physicians increases.

Simplify the treatment regimen. It also helps to keep treatment regimens as straightforward as possible. Prescribing multiple medications simultaneously or giving patients a more complicated regimen decreases adherence. In one study, adherence rates of 84% were achieved when the regimen called for once-a-day dosing, but dropped to 59% when patients were instructed to take their medication 3 times a day.23

CONTINUED
### TABLE
Prescribing medication?
Maximize adherence with this evidence-based checklist

<table>
<thead>
<tr>
<th>Timing</th>
<th>Action</th>
<th>Suggested language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before writing a prescription</td>
<td>____ Summarize the patient’s story</td>
<td>Did I get it right? Is there anything else that’s important for me to know?</td>
</tr>
<tr>
<td></td>
<td>____ Explain how the story supports the diagnosis and gauge impact</td>
<td>The scientific name for these symptoms when they occur together is _______. What do you think when you hear this diagnosis?</td>
</tr>
<tr>
<td></td>
<td>____ Offer treatment options and state your preference</td>
<td>Here are the pros and cons of each treatment. I think ____ would be best because ____. I would be concerned about ____ occurring, but here’s how we would deal with it should that happen.</td>
</tr>
<tr>
<td></td>
<td>____ Ask about/screen for depression in all patients with chronic or severe illness*</td>
<td>Have you been feeling down, with little interest in doing things?</td>
</tr>
<tr>
<td></td>
<td>____ Allow additional time if needed; suggest bringing a friend or family member to next visit</td>
<td>This is a lot to digest. You might want to take the time to learn more about your diagnosis and treatment options. Let’s meet again in a few days to answer any questions you may have and to talk about what you think is the best option for you. You might want to bring someone you trust with you to help us get it right.</td>
</tr>
<tr>
<td></td>
<td>____ Remain available</td>
<td>Whenever you’re ready, we can discuss the details and options, pick the best one for you, and start the treatment that we agree upon.</td>
</tr>
<tr>
<td>Writing the prescription</td>
<td>____ Make an overt verbal contract and document it</td>
<td>Can you tell me what you have decided? Good, we both agree that ____ is the best option and that you will benefit from taking medicine for your _____.</td>
</tr>
<tr>
<td></td>
<td>____ Review effectiveness/adverse effects of 2 or 3 of the best choices and solicit patient input</td>
<td>Let me tell you about 3 medications in this class; all will be equally helpful but they have slightly different side effects. Which one seems most reasonable to you?</td>
</tr>
<tr>
<td></td>
<td>____ Once the patient chooses the drug, further empower him/her</td>
<td>This pill needs to be taken once a day. Try it at different times, such as in the morning or at bedtime, and let me know what works best.</td>
</tr>
<tr>
<td></td>
<td>____ Explain when benefits will begin to show, and discuss dosing, duration of treatment, and how to handle common and serious adverse effects</td>
<td>This medication works by ____ and sometimes this can cause ____, especially when you take it with other drugs or certain foods. It’s important to tell me about the side effects and not just the benefits, because they are often easily fixable. For example, ____ is usually mild and goes away in a day or 2. However, if you begin to feel ____, call me right away.</td>
</tr>
<tr>
<td></td>
<td>____ Ask the patient to repeat the agreement</td>
<td>Could you tell me what we’ve agreed upon in your own words?</td>
</tr>
<tr>
<td></td>
<td>____ Support the agreement and inquire about the likelihood of adherence</td>
<td>I support your decision to take this medication and together we will try to ensure that you take it every day. Realistically, how many days a week are you likely to take it?</td>
</tr>
</tbody>
</table>
**Ask the patient to summarize.** Using simple terms and clear, succinct explanations promotes understanding, but asking the patient to summarize what you’ve just said is an ideal way to find out just how much he or she grasped. “What will you tell your family about your diagnosis and treatment?” you might ask, or “Tell me what you plan to do to ensure that you follow the prescribed regimen.”

This is particularly important when patients are not native English speakers or when the news is bad. Patients find it particularly tough to understand difficult messages, such as a poor prognosis, and are often unaware of their poor comprehension. This was underscored by a study of emergency department (ED) patients, in which 78% demonstrated deficient comprehension in at least one domain (eg, post-ED care, diagnosis, cause) but only 20% recognized their lack of understanding.

Asking patients if they have any other questions is a crucial step in ensuring complete understanding.

**Take steps to maximize patient recall**

Even when patients understand what they’ve heard, research suggests they may not retain it. Overall, 40% to 80% of medical information is forgotten immediately, and almost half of what is retained is incorrect. This is a serious problem, as understanding and accurate recall increase patient satisfaction and the likelihood of adherence to treatment (see **FIGURE W1** at jfponline.com).

There are 3 basic explanations for poor recall: factors related to the clinician, such as the use of difficult medical terminology; the mode of communication (eg, spoken vs written); and factors related to the patient, such as a low level of education or learning disability.

Being as specific as possible and spending more time explaining the diagnosis and treatment has been shown to enhance patient recall. In an experiment in which patients read advice on how to develop self-control over their eating, the use of simple language and specific instructions, rather than general
rules, increased recall. Providing generic information by whatever means does little to improve recall and might even inhibit it.

Linking advice to the patient’s chief complaint, thereby creating a “teachable moment,” is also helpful. For example, you might tell a patient with a kidney infection that “Your backache is also because of the kidney infection. Both the backache and the burning during urination should be better about 3 days after you start these pills.”

- Watch your affect. How relaxed or worried you appear also influences patient recall. In a recent study, 40 women at risk for breast cancer viewed videotapes of an oncologist presenting mammogram results. Compared to women whose results were conveyed by a physician who appeared relaxed, those who had the same findings presented by a physician who seemed worried perceived their clinical situation to be more severe, developed higher anxiety, and recalled significantly less of what they were told.

- Use multiple means of communication. In a comparison study, patients who received verbal lists of actions for managing fever and sore mouth accompanied by pictographs—images that represented the information presented—had a correct recall rate of 85%; those who received the verbal information alone had a recall rate of only 14%. A review of recall in cancer patients also found that tailoring communication to the individual—providing an audiotape of the consultation, for instance, or having the patient bring a list of questions and addressing them one by one—is most effective. Another study assessed the retention of pediatric patients and their parents when they received either a verbal report alone or a verbal report plus written information or visuals. The researchers concluded that children and their parents should receive verbal reports only when such reports are supplemented with written information or visuals.

The large body of research on learning and memory has proven useful in designing educational materials for those with poor reading skills. When images were used to convey meaning to 21 adults in a job training program—all with less than fifth grade reading skills—they had on average 85% correct recall immediately after the training and 71% recall 4 weeks later. Although the impact on symptom management and patient quality of life has yet to be studied, these findings suggest that pictures can help people with low literacy recall and retain complex information.

Overall, while written or recorded instructions appear to improve recall in most situations, images have been shown to have the greatest impact.

Is the patient ready to adhere to treatment?

No matter how well or by what means you communicate, some patients are not ready for change. Patients in the “precontemplation” stage of change—who may not even recognize the need for change, let alone consider it—can benefit from supportive education and motivational interviewing, while those in the “contemplation” stage need support and convincing to reach the “preparation” stage. It is only in the “action” stage, however, that a patient is ready to collaborate with his or her physician in agreeing on and adhering to treatment.

Comorbid depression is a common condition, particularly in those with chronic illness, and one of the strongest predictors of nonadherence. Thus, depression screening for all patients who are chronically or severely ill or nonadherent is strongly recommended, followed by treatment when appropriate.

“Informed collaboration” is critical

Research shows that if both physician and patient agree on the individual’s medical problem, it will be improved or resolved at follow-up in about half of all cases. In contrast, when the physician alone sees the patient’s condition as a problem, just over a quarter of cases improve, regardless of the severity. Compounding this difficulty is the finding that patients fail to report up to two-thirds of their most important health problems. When physicians identify them, discord and denial typically result.

Thus, concordance (we prefer the term “informed collaboration”)—an overt agreement reached after a discussion in which the physician shares expert knowledge, then lis-
Perhaps the biggest problem of all is that even after a patient starts out fully adhering to his medication regimen, several issues can derail treatment. Inability to afford the medication is one potential problem.48 Adverse effects are another major reason for discontinuation. Sexual dysfunction, caused by a number of drugs, is embarrassing to many patients and frequently goes unaddressed.49 Thus, a patient may stop taking the medication without saying why—seemingly for no apparent reason. The best approach is to ask specifically why it was discontinued, including direct questions about sexual adverse effects.

**Prescribing recommendations**

We believe that the outcome of treatment is being determined from the moment a patient steps into your office. Thus, we’ve compiled an evidence-based checklist ([TABLE]42,33,40,41,47,49,50) with broad areas for discussion that constitute the art and science of prescribing. These fall into 3 main areas: 1) what to say before you write a prescription; 2) how to get patient buy-in (informed collaboration, rather than informed consent) when you’re ready to write the prescription; and 3) what to address to boost the likelihood of continued adherence at follow-up visits.

It is clear that allowing adequate patient participation and arriving at concordance and overt agreement lead to better clinical outcomes.51 The sequential steps we recommend may take a few extra minutes up front, but without them, nonadherence is highly likely. While physicians are supportive of shared decision making in theory, they are often less confident that this is achieved in practice.52,53

It may help to keep in mind that every step need not be carried out by the physician. Using other members of the health care team, such as a nurse, medical assistant, or health coach, to provide patient education and support and take the patient through a number of the steps that are included in a physician visit has become increasingly necessary—and is easily accommodated in this case.

As the physician, you bear the final responsibility to ensure that the critical elements—particularly the overt agreement—are addressed. Ultimately supporting your patient’s decision and reinforcing it will ensure continued adherence.

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**References**

FIGURE W1
Understanding and accurate recall increase patient satisfaction and adherence^{28,29}