

# Recall-Promoting Physician Behaviors in Primary Care

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**BACKGROUND:** Effective treatments can be rendered useless by poor patient recall of treatment instructions. Studies suggest that patients forget a great deal of important information and that recall can be increased through recall-promoting behaviors (RPBs) like repetition or summarization.

**OBJECTIVE:** To assess how frequently RPBs are used in primary care, and to reveal how they might be applied more effectively.

**DESIGN:** Recordings of 49 unannounced standardized patient (SP) visits were obtained using hidden audio-recorders. All SPs presented with typical gastroesophageal reflux disease symptoms. Transcripts were coded for treatment recommendations and RPBs.

**PARTICIPANTS:** Forty-nine primary care physicians.

**RESULTS:** Of 1,140 RPBs, 53.7% were repetitions, 28.2% were communication of the rationale for a treatment, 11.7% were categorizations of treatments (i.e., stating that a treatment could be placed into a treatment category, such as medication-related or lifestyle-related categories), and 3.8% were emphasis of a recommendation's importance. Physicians varied substantially in their use of most RPBs, although no physicians summarized or asked patients to restate recommendations. The number of RPBs was positively correlated with visit length.

**CONCLUSIONS:** Primary care physicians apply most RPBs inconsistently, do not utilize several RPBs that are particularly helpful, and may use RPBs inefficiently. Simple principles guiding RPB use may help physicians apply these communication tools more effectively.

**KEY WORDS:** communication skills; medical education-communication skills; patient education.

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Even the most effective treatment recommendations can be rendered useless by poor patient recall. As noted by Ley and Spelman,<sup>1</sup> "if the patient cannot remember what he is

supposed to do, he is extremely unlikely to do it." It is not surprising that greater patient recall is associated with improved adherence<sup>1-3</sup> and health outcomes.<sup>4,5</sup>

Many studies have reported that patients forget a substantial proportion of medical instructions.<sup>1</sup> Fortunately, evidence suggests that simple communication tools can increase patient recall.<sup>1,6-16</sup> These recall-promoting behaviors (RPBs) are described in Table 1.

The objective of this study was to investigate how RPBs are used to reveal how they might be applied more effectively. We were particularly interested in the following hypotheses: (1) some potentially helpful RPBs are utilized rarely and (2) RPB use is correlated with visit length. Investigating these hypotheses may reveal which RPBs could be used more frequently to improve patient recall and suggest the importance of addressing time constraints when designing approaches to RPB use.

## METHODS

**Physician recruitment.** This work is a secondary analysis of data collected for a larger cross-sectional study (Agency for Healthcare Research and Quality R01HS10610, Ronald M. Epstein, PI). In 1999, physician-recruiters identified primary care physicians who belonged to a managed care organization in Rochester, NY, USA. Physicians were contacted in random order until 100 were recruited. All consented to participate in a study of "patient care and outcomes" and to have unannounced standardized patients (actors trained to portray real patients; SPs) visit at any time during the next year. Physicians and their office employees were compensated financially.

**SP presentations, role development, and training.** Each physician received 2 visits. One visit included presentation of ambiguous symptoms for purposes of the larger study, whereas the other included a presentation of unambiguous gastroesophageal reflux disease (GERD) symptoms. We analyzed only encounters in which SPs presented with GERD because unambiguous symptoms prompted less diagnostic and recommendation variance.

A clinical biography was developed by physicians and revised iteratively until it was judged by a consensus panel to be clinically credible (detailed role outlines are available from authors upon request). Professional acting coaches trained SPs to ensure realistic portrayals. SPs were given 100 items to convey, which related to symptoms, medical history, affect, and personal life. They were required to express 95% of these

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Table 1. RPB Definitions

RPB*	Definition
Repetition <sup>7,6,7</sup>	Physician implies that the patient should carry out a previously recommended behavior. The physician need not use the same words that were mentioned when the recommendation was first presented. For example, a physician might first suggest "avoiding food before bed" and then repeat the implied behavior by suggesting that the patient "not eat late at night."
Categorization <sup>7,8</sup>	Physician explicitly notes that recommendations can be categorized, for example, into medication-related recommendations and lifestyle-related recommendations.
Summarization <sup>9</sup>	Physician restates several previously mentioned recommendations toward the end of an interview.
Technical term avoidance <sup>7,11</sup>	Physician avoids terms that most high-school-educated patients are probably unfamiliar with. Examples include "H2 blocker," "proton pump inhibitor," " <i>H. pylori</i> ," etc.
Importance emphasis <sup>10</sup>	Physician emphasizes the importance of a recommendation.
Written materials <sup>12,13</sup>	Physician provides written materials to the patient or instructs the patient to obtain materials from the medical office.
Patient understanding assessment <sup>15</sup>	Physician asks the patient if he or she understands or has any questions about the recommendations. The physician might ask: "Do you have any questions about what I have suggested?" or "Has everything I've said been clear to you?"
Requested patient note taking <sup>1</sup>	Physician requests that the patient write down treatment instructions.
Requested restatement <sup>6,14</sup>	Physician requests that the patient verbally recall treatment instructions.
Rationale provision <sup>16</sup>	Physician provides information to help the patient understand why a recommendation may be helpful. For example, many physicians suggested elevating a portion of the patient's bed such that the patient sleeps with the head slightly higher than the feet. Many physicians then provided a rationale: propping up the bed may position the body such that stomach acid does not flow into the esophagus. Explaining treatment rationales may increase patient recall by promoting elaborative rehearsal (i.e., consideration of concepts' meaning and connections to related information).

\* For ease of communication, some terms were used that do not appear in the original literature. For example, "requested restatement" was used instead of "asking the patient to recall the information which the physician had given him/her."<sup>14</sup>

items in mock interviews before visiting physicians and were monitored to ensure role accuracy.

**Visit conduct and data collection.** SPs presented covertly with hidden audiorecorders. A fax was sent 2 days after each visit to determine whether, when prompted, physicians suspected that any of their recent patients were SPs. The fax notified physicians that a SP had visited in the past few days and asked them to describe any patient that they suspected was a SP. If physicians reported suspicion and could report any details regarding the SP, the visit was considered detected. Although prior analyses did not reveal differences between detected and undetected visits,<sup>17</sup> we did not want to risk that unmeasured

differences might exist, and thus excluded detected visits. Reasons for detection included closed physician practice and physician notification by staff.<sup>17</sup>

Of 100 physicians, 93 completed the unambiguous visit, and 59 (63%) of these visits were undetected. Eight were omitted because of equipment failures, and 2 were omitted because SPs identified themselves as such to avoid unpleasant tests. Thus, 49 of 93 interviews (53%) remained for coding. Of these interviews, 33 (67%) were conducted by male physicians. Twenty physicians (41%) specialized in family medicine, whereas 29 (59%) were Internists. The mean (SD) physician age was 42.3 (7.2).

**Coding.** The Atlas.ti 5.0 coding software (Scientific Software Development, Berlin) was used to code recommendation categories and RPBs. A recommendation was defined as any piece of information the physician provided that the patient would need to recall to adhere to treatment-related instructions. All recommendations were coded into one of the following categories: behavior/lifestyle (e.g., exercise), diagnosis (e.g., endoscopy), follow-up (e.g., return in 4 weeks), food/drink/tobacco (e.g., avoid coffee), or medication (e.g., antacids).

Before coding began, a literature search was conducted to identify simple communication techniques that had been shown to increase patient recall (Table 1). Detected interviews were used for coding practice but were not included in the final analyses. Initially, 2 coders (JS and RR) read transcripts of detected interviews to develop the RPB definitions (Table 1). These definitions guided the coding process when it was at all unclear if a passage should be coded as a particular RPB. For example, it was decided that repetitions would be coded if physicians referred to the same behavior using similar or different words, such as first suggesting "avoiding food before bed" and then "not eating late at night." After several rounds of practice coding, 2 researchers (JS and RR) independently coded transcripts and met regularly to reconcile discrepancies. Coding differences were addressed, discussing each in detail until coders reached agreement. A third researcher (AT) conducted audit coding of the first 10 undetected interviews, and 20% of coded transcripts were randomly selected for audit thereafter. Agreement between consensus coding (completed by JS and RR) and audit coding (completed by AT) was excellent ( $\kappa=0.92$ ).

## RESULTS

Of the 1,715 recommendations recorded, 747 (43.6%) were medication-related; 304 (17.7%) were related to follow-up; 272 (15.9%) were related to food, drink, or tobacco; 263 (15.3%) were diagnosis-related; and 129 (7.5%) were lifestyle-related. Of 1,140 RPBs, 404 (35.4%) were first repetitions (i.e., a recommendation was presented for the second time), 152 (13.3%) were second repetitions, 57 (5%) were third repetitions, 322 (28.2%) were treatment rationales, 133 (11.7%) were categorizations, 43 (3.8%) were emphasis of a recommendation's importance, 17 (1.5%) were written materials, and 12 (1.1%) were assessments of the patient's understanding. No physicians summarized, nor did any request the patient to take notes or restate recommendations. Physicians differed substantially in their use of RPBs (Table 2). Finally, a significant positive

Table 2. Between-physician Variance in RPB Use

RPB	RPB use index*	Mean index (%)	Index SD (%)	Index minimum (%)	Index maximum (%)
Repetition <sup>1,6,7</sup>	Physician repetition index	23	9	8	41
Categorization <sup>7,8</sup>	Physician categorization index	8	14	0	0
Summarization <sup>9</sup>	Physician summarization index	0	0	0	0
Technical term avoidance <sup>7,11</sup>	Physician technical language index <sup>†</sup>	5	7	0	34
Importance emphasis <sup>10</sup>	Physician importance index	2	2	0	9
Written materials <sup>12,13</sup>	No index calculated <sup>‡</sup>	n/a	n/a	n/a	n/a
Patient understanding assessment <sup>15</sup>	No index calculated <sup>‡</sup>	n/a	n/a	n/a	n/a
Requested patient note taking <sup>1</sup>	No index calculated <sup>‡</sup>	n/a	n/a	n/a	n/a
Requested restatement <sup>6,14</sup>	No index calculated <sup>‡</sup>	n/a	n/a	n/a	n/a
Rationale provision <sup>16</sup>	Physician rationale index	17	11	0	50

\*These indices indicate the percentages of a physician's recommendations that were associated with specific RPBs. A physician's repetition index, for example, indicates the percentage of recommendations that the physician repeated at least once. A physician repetition index of 50% indicates that a physician repeated half of all recommendations presented. Other indices provide analogous information with respect to other RPBs. A physician rationale index indicates the percentage of recommendations given by a physician that were accompanied by some rationale, a physician importance index indicates the percentage of recommendations for which importance was emphasized, etc.

†For the technical language index, unlike all other indices presented, lesser numbers were preferable. The mean technical language index of just 5% indicates that, on average, physicians used technical terms in association with just 5% of the recommendations they presented to patients.

‡No index was calculated for these RPBs because they were not coded in conjunction with specific recommendations. For example, for the written materials RPB, we coded only if materials were presented at any time during a given interview. The percentage of recommendations that were associated with written materials could not be determined.

correlation was observed between the number of RPBs a physician used and visit length ( $r=.32$ ,  $p=.01$ ). Put more concretely, physicians at the 25th and 75th percentiles of RPB use differed in visit length by 6.6 minutes with lengths of 12.9 and 19.5 minutes, respectively. The mean visit length was 17.1 minutes.

## DISCUSSION

Three findings presented herein may be particularly useful. First, there was substantial between-physician variation in RPB use. This inconsistency suggests the importance of developing standardized guidelines for the effective application of RPBs. Second, no physician summarized or requested that the patient restate recommendations; physicians may be missing opportunities to reinforce recommendations and help patients actively participate in their care. Finally, although it does not imply causal direction, the correlation between RPB use and visit length is consistent with our hypothesis that using RPBs increases the length of primary care visits. If this is the case, we may need to develop methods for using RPBs efficiently.

Previous guidelines for RPB use have been insufficiently specific,<sup>18</sup> have not been tailored for unique patient needs,<sup>18</sup> have required clinicians to allot time for patients to study written materials (which is probably infeasible for outpatients),<sup>19</sup> and have not been designed for efficiency.<sup>18</sup> Based on these and other findings, and in an effort to overcome inadequacies of previous guidelines, we suggest 3 principles for RPB use. First, physicians should summarize recommendations and then assess the need for further RPB use by requesting patient restatement. Second, if there are gaps in recall, RPBs can be used strategically to reinforce unrecalled recommendations, conserving time by foregoing RPBs for those recommendations that the patient recalls. Finally, when appropriate, physicians might use categorization to reinforce unrecalled recommendations; this RPB has shown slightly greater efficacy than others.<sup>20</sup> These principles may minimize the time required for recall promotion by allowing providers to

gauge how much RPB use is needed for each unique patient and to avoid unnecessary RPBs.

**Study limitations.** Three limitations are noteworthy. First, the small sample of physicians and narrow range of symptoms studied limits generalizability. Other symptoms, such as the ambiguous symptoms presented as part of the larger study, might have elicited different communication patterns. For example, ambiguous symptoms might have prompted physicians to explore the condition further, leaving less time for RPBs. Second, we could not assess the effects of observed RPBs on recall rates. No real patients were studied, and SPs' recall probably differs from that of real patients. Finally, interviews that were excluded because of SP detection may have systematically differed from those in which SPs were not identified. For example, the physicians who detected SPs may be more observant. These physicians may be more attuned to the patient's level of understanding, and thus more likely to repeat or explain recommendations when necessary.

**Conclusions and future directions.** The patient's ability to manage illness is limited by recall of treatment recommendations. However, physicians do not use tools for promoting recall consistently or effectively. Additional studies are needed to determine whether the principles suggested herein, or other principles, can be feasibly applied to promote recall, increase adherence, and improve health outcomes.

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## REFERENCES

1. **Ley P, Spelman M.** Communicating with the patient. London: Staples; 1967.
2. **Bartlett E, Grayson M, Barker R, Levine D, Golden A, Libber S.** The effects of physician communications skills on patient satisfaction, recall, and adherence. *J Chronic Dis.* 1984;37:755-64.
3. **Flocke S, Stange K.** Direct observation and patient recall of health behavior advice. *Prev Med.* 2004;38:343-9.
4. **Schillinger D, Piette J, Grumbach K, et al.** Closing the loop: physician communication with diabetic patients who have low health literacy. *Arch Intern Med.* 2003;163:83-90.
5. **Ley P.** Towards better doctor-patient communications: Contributions from social and experimental psychology. In: Bennet A, ed. *Communications in Medicine.* London: Oxford University Press; 1977:77-98.
6. **Kupst M, Dresser K, Schulman J, Paul M.** Evaluation of methods to improve communication in the physician-patient relationship. *Am J Orthopsychiatry.* 1975;45:420-9.
7. **Ley P.** Memory for medical information. *Br J Soc Clin Psychol.* 1979;18:245-55.
8. **Ley P, Bradshaw P, Eaves D, Walker C.** A method for increasing patients' recall of information presented by doctors. *Psychol Med.* 1973;3:217-20.
9. **King A.** Comparison of self-questioning, summarizing, and notetaking-review as strategies for learning from lectures. *Am Educ Res J.* 1992;29:303-23.
10. **Ley P.** Primacy, rated importance, and the recall of medical statements. *J Health Soc Behav.* 1972;13:311-7.
11. **Bradshaw P, Ley P, Kincey J.** Recall of medical advice: comprehensibility and specificity. *Br J Soc Clin Psychol.* 1975;14:55-62.
12. **Ellis D, Hopkin J, Leitch A, Crofton J.** "Doctors' orders": controlled trial of supplementary, written information for patients. *BMJ.* 1979;1:456.
13. **Bruera E, Pituskin E, Calder K, Neumann C, Hanson J.** The addition of an audiocassette recording of a consultation to written recommendations for patients with advanced cancer: a randomized, controlled trial. *Cancer.* 1999;86:2420-5.
14. **Bertakis K.** The communication of information from physician to patient: a method for increasing patient retention and satisfaction. *J Fam Pract.* 1977;5:217-22.
15. **Ley P.** Understanding, memory, satisfaction and compliance. *Br J Clin Psychol.* 1982;21:241-5.
16. **Lockhart R, Craik F, Jacoby L.** Depth of processing, recognition and recall. In: Brown J, ed. *Recall and Recognition.* Oxford, England: Wiley; 1976.
17. **Epstein RM, Franks P, Shields CG, et al.** Patient-centered communication and diagnostic testing. *Ann Fam Med.* 2005;3:415-21.
18. **Ley P, Whitworth M, Skilbeck C, et al.** Improving doctor-patient communication in general practice. *J R Coll Gen Pract.* 1976;26:720-4.
19. **Higgins L, Ambrose P.** Providing eye care education in the clinical setting. *Contemp Nurse.* 1995;4:83-8.
20. **Ley P.** *Communicating With Patients: Improving Communication, Satisfaction and Compliance.* New York: Chapman and Hall; 1988.