

## Patients' Understanding of Their Treatment Plans and Diagnosis at Discharge

AMGAD N. MAKARYUS, MD, AND ELI A. FRIEDMAN, MD

**OBJECTIVE:** To ascertain whether patients at discharge from a municipal teaching hospital knew their discharge diagnoses, treatment plan (names and purpose of their medications), and common side effects of prescribed medications.

**PATIENTS AND METHODS:** From July to October 1999, we surveyed 47 consecutive patients at discharge from the medical service of a municipal teaching hospital in New York City (Brooklyn, NY). Patients were asked to state either the trade or the generic name(s) of their medication(s), their purpose, and the major side effect(s), as well as their discharge diagnoses. Patients were excluded if they were not oriented to person, place, and time, were unaware of the circumstances surrounding their admission to the hospital, and/or did not speak or understand English.

**RESULTS:** Of the 47 patients surveyed, 4 were excluded. Of the remaining 43 patients, 12 (27.9%) were able to list all their medications, 16 (37.2%) were able to recount the purpose of all their medications, 6 (14.0%) were able to state the common side effect(s) of all their medications, and 18 (41.9%) were able to state their diagnosis or diagnoses. The mean number of medications prescribed at discharge was 3.89.

**CONCLUSIONS:** Less than half of our study patients were able to list their diagnoses, the name(s) of their medication(s), their purpose, or the major side effect(s). Lacking awareness of these factors affects a patient's ability to comply fully with discharge treatment plans. Whether lack of communication between physician and patient is actually the cause of patient unawareness of discharge instructions or if this even affects patient outcome requires further study.

*Mayo Clin Proc.* 2005;80(8):991-994

Communication among the physician, health care assistant, and patient is essential to the delivery of health care. The quality and warmth of communication between the physician and patient correlate with patient satisfaction, compliance, and knowledge of the diagnoses and treatment plan, as well as the desire for a quick recovery.<sup>1,2</sup> Patient knowledge of the proper use of medications and their associated side effects enhances compliance. For patients to obtain the appropriate information, physicians must devote the time necessary to allow patients to ask questions about their treatment plan. A critical time for effective physician-patient communication is at discharge from the hospital.

From the Department of Medicine, North Shore University Hospital, Manhasset, NY (A.N.M.); and State University of New York, Health Science Center at Brooklyn, Brooklyn, NY (E.A.F.).

Individual reprints of this article are not available. Address correspondence to Eli A. Friedman, MD, Department of Medicine, State University of New York, Health Science Center at Brooklyn, 450 Clarkson Ave, Brooklyn, NY 11203 (e-mail: elifriedmn@aol.com).

© 2005 Mayo Foundation for Medical Education and Research

After being carefully supervised in the hospital, patients at discharge assume the former responsibilities of the health care team for their own health care. To effect this transition, patients must become familiar with their illness, the names of their medications, dosing schedule, and side effects of their medications. Without proper instruction at discharge, it may not be possible for the patient to be compliant with the treatment initiated during hospitalization.

Patients' knowledge of the diagnosis and treatment plan is an integral component of patient education and is a central part of the Patients' Bill of Rights. In New York State, the eighth right states that patients have the right to "receive complete information about [their] diagnosis, treatment and prognosis."<sup>3</sup> The 14th right states that patients shall "participate in all decisions about [their] treatment and discharge from the hospital."<sup>3</sup> To participate effectively in treatment decisions, patients must be aware of their diagnosis, treatment options, and the implications of both their diagnosis and its outcome, with or without treatment. The goal of this study was to ascertain whether patients at discharge from a municipal teaching hospital in New York City knew their discharge diagnoses, treatment plan (names of medications), and any possible side effects.

[For editorial comment, see page 983](#)

### PATIENTS AND METHODS

From July to October 1999, we surveyed 47 consecutive patients at discharge from the medical service of a public hospital in Brooklyn, NY, to determine whether they could state either the trade or the generic name(s) of their medication(s), the purpose of their medications, and the major side effect(s) associated with each medication. Patients were also asked to recall their diagnosis or diagnoses. Patients were permitted to supplement recall from memory with written notes that they may have taken in the past. Each patient was first screened to see whether he or she was capable of answering questions posed by our survey by establishing orientation to person, place, and time. Additionally, patients were asked to recount the circumstances surrounding their admission to the hospital, and replies were verified from each patient's medical chart. Patients who were unable to provide this basic information were

TABLE 1. Patient Awareness of the Discharge Treatment Plan\*

Patients	No. (%)	95% CI
Surveyed	47 (100)	
Excluded	4 (8.5)	
Enrolled	43 (91.5)	
Who knew the names of all their medications	12 (27.9)	15.3-43.7
Who knew the purpose of all their medications	16 (37.2)	23.0-53.3
Who knew the common side effects of all their medications	6 (14.0)	5.3-28.0
Who knew their diagnosis or all their diagnoses	18 (41.9)	27.0-57.9
Mean number of medications prescribed	3.89	

\*CI = confidence interval.

excluded from the study. Also, patients who did not speak and/or understand English were excluded. Although several of the patients were noted to be admitted to the hospital for neurologic conditions, presumably conditions that alter consciousness and cognition such as delirium, these would have been resolved at discharge, when the survey was conducted. Informed consent was obtained from each study patient. The names of medications and diagnoses supplied by patients were checked for correctness against the discharge summary form prepared for each patient at discharge by his or her physician.

**RESULTS**

Of the 47 patients surveyed at discharge, a total of 4 were excluded, 3 because of a language barrier (non-English speaking) and 1 because of being disoriented and judged incapable of properly answering our questions. Demographic characteristics of the study population are given in Tables 1, 2, and 3.

Of the 43 remaining patients, 12 (27.9%) were able to list all their discharge medications, 16 (37.2%) were able to recount the purpose of all their medications, 6 (14.0%) were able to describe the common side effect(s) of all their medications, and 18 (41.9%) were able to state their diagnosis or diagnoses. The mean number of medications prescribed was 3.89.

**DISCUSSION**

Most of our patients (72.1%) were not able to list the names of all their medications. However, more patients could state the purpose of all their medications than could state the names. Commonly seen and expected side effects of medications were known by the least percentage of patients of all the other measures we analyzed. Those able to recount their diagnosis or diagnoses were the highest percentage of patients (41.9%).

We used a binary approach of patients recalling all their medications or diagnoses because we believed it was a more meaningful approach. If we had stratified patients by the number of medications they remembered, then we also would have had to assess the importance of each medication (ie, it is more important for a patient with a newly placed coronary stent to remember to take clopidogrel than to remember to take simvastatin). This would have made the assessment less precise and more complicated.

In each of the categories, there was a trend toward women tending to recall the correct answers more than men; however, 95% confidence intervals showed no real sex differences (Table 2). Recall tended to be greatest in the patients younger than 50 years. This can possibly be attributed to better memory, but it is also likely related to a greater number of medications and diagnoses as age increases.

Although knowledge of the names of medications is probably not the most important factor in the discharge care plan, it is an integral component. An encouraging aspect of our study was the finding that even though some patients were unaware of the exact names of all their medications, they knew the purpose of these medications. Another encouraging aspect was that a large number of patients knew their diagnosis. It is important to remember that many patients have a caregiver (a family member, visiting nurse, aide, or other individual) who helps them with the proper use of their medications. Although we did not assess for the presence of such caregivers in this survey, we believe it is

TABLE 2. Sex Distribution of the Study Population\*

Patients	Men		Women	
	No. (%)	95% CI	No. (%)	95% CI
Surveyed	25 (100)		22 (100)	
Excluded	2 (8.0)		2 (9.0)	
Enrolled	23 (92.0)		20 (91.0)	
Who knew the names of all their medications	5 (21.7)	7.5-43.7	7 (35.0)	15.4-59.2
Who knew the purpose of all their medications	6 (26.1)	10.2-48.4	10 (50.0)	27.2-72.8
Who knew the common side effects of all their medications	1 (4.3)	0.11-22.0	5 (25.0)	8.7-49.1
Who knew their diagnosis or all their diagnoses	8 (34.8)	16.4-57.3	10 (50.0)	27.2-72.8

\*CI = confidence interval.

TABLE 3. Age Distribution of the Study Population\*

Variable	Age group (y)		
	<50	50-65	≥66
Men	8	10	5
Women	5	8	7
Total patients	13 (30.2)	18 (41.9)	12 (27.9)
Patients who knew the names of all their medications	8 (61.5)	3 (16.7)	1 (8.3)
Patients who knew the purpose of all their medications	9 (69.2)	6 (33.3)	1 (8.3)
Patients who knew the common side effects of all their medications	3 (23.1)	2 (11.1)	1 (8.3)
Patients who knew their diagnosis or all their diagnoses	7 (53.8)	6 (33.3)	5 (41.7)

\*Values represent number (percentage).

important for patients themselves to be familiar with their medications and proper use even if someone gives their medications to them.

Previous studies have examined patients' understanding of the discharge treatment plan. In Columbus, Ohio, King et al<sup>4</sup> telephoned 135 patients 2 to 6 weeks after discharge to determine awareness and compliance with their discharge treatment plan. They found that 55.3% of those surveyed were able to list the names of all their medications, 78.3% were able to state the purpose of their medications, and 25% knew the common side effects of all their medications. Although these values are higher than ours, the trend is similar. In both surveys, more patients knew the purpose of their medications than the side effects.<sup>4</sup>

Calkins et al<sup>5</sup> assessed differing impressions of the discharge instruction process as viewed by physicians and patients. Physicians reported spending more time discussing postdischarge care than their patients reported. Although physicians believed that 88.9% of their patients understood the side effects of medications prescribed, only 57.4% of these patients concurred. Of interest, all patients reported that they understood the purpose of their medications.<sup>5</sup>

A survey of 50 patients in the United Kingdom found that 41 (82%) knew the name of at least 1 of their discharge medications. Four patients (8%) had inappropriate beliefs about why they were taking at least 1 of their discharge medications, and more than half did not know the duration of their medication regimen.<sup>6</sup>

All cited studies, including the current study, indicate that patients' awareness of their discharge treatment plan, including medication name, purpose, side effects, and discharge diagnosis, is suboptimal. However, it remains to be shown whether such deficiency adversely affects patient outcome. We speculate that better communication and trust between physician and patient would facilitate better patient outcome. Our assertion cannot be answered by our data, and further study is necessary.

It has been shown, however, that noncompliance with discharge treatment plans has resulted in an increased incidence of hospital readmission after discharge.<sup>7,8</sup> It is rea-

sonable to assume that if patients had a better understanding of their discharge treatment plan they might be more compliant, and therefore the likelihood of hospital readmission would be reduced.

To improve patients' understanding of their post-discharge instructions, a structured and extended physician-patient discussion should occur. Each physician should then ascertain whether the patient understands the plan by, for example, asking the patient to repeat what he or she has been told. Although all patients receive a discharge summary listing their medications, another method that may improve understanding is to provide this summary in a well-written, organized, and easily understandable overview of their condition, symptoms to expect with their condition, medications they will be taking, how to take these medications, and what side effects to expect. A recent study that assessed patients' recall of their physician's name revealed that giving each patient an index card that had the physician's name written on it significantly improved recall.<sup>9</sup> Applying this technique to discharge instructions might improve patient understanding and recall.

Additional measures that might enhance understanding are counseling of patients by a pharmacist before and after discharge and comprehensive discharge planning and instruction by nurses. Reinforcement by different members of the health care team will enhance patient understanding and therefore compliance. At home, this same reinforcement should be supplied by visiting nurses, aides, and even the patient's family members.

## CONCLUSIONS

All methods that enhance the patient's understanding of his or her discharge treatment plan focus on one central aspect—proper communication. Although not all patients are noncompliant because of poor communication, this is probably the leading cause of noncompliance. Communication involves many aspects, including language (speaking to the patient in terms he or she can understand), practicality

(giving the patient a regimen that he or she can follow without much disruption to daily life), and time (spending a reasonable amount of time counseling the patient and ensuring that he or she actually comprehends the instructions). Without willingness of the health care team to devote time to communication, the careful and effective treatment that was delivered in the hospital may not continue after discharge because of patient noncompliance.

The lack of awareness of the factors surveyed in our study affects a patient's ability to comply fully with discharge treatment plans. Less than half of our patients were able to list the name(s) of their medication(s), their purpose, and the major side effect(s) as well as their diagnoses. Whether lack of communication between physician and patient is actually the cause of patient unawareness of discharge instructions or if this even affects patient outcome requires further study.

#### REFERENCES

1. Svarstad BL. Patient-practitioner relationship and compliance with prescribed medical regimens. In: Aiken LH, Mechanic D, eds. *Applications of Social Science to Clinical Medicine and Health Policy*. New Brunswick, NJ: Rutgers University Press; 1986:438-459.
2. Ley P. *Communicating with Patients: Improving Communication, Satisfaction, and Compliance*. London, England: Croom Helm; 1988:157-171.
3. *Patients' Bill of Rights*. Public Health Law 2803 (1) (g) Patients' Rights, 10NYCRR, 405.7, 405.7 (a) (1), 405.7 (a) (2). Available at: [www.health.state.ny.us/nysdoh/hospital/english2.htm](http://www.health.state.ny.us/nysdoh/hospital/english2.htm). Accessibility verified June 27, 2005.
4. King JL, Schommer JC, Wirsching RG. Patients' knowledge of medication care plans after hospital discharge. *Am J Health Syst Pharm*. 1998;55:1389-1393.
5. Calkins DR, Davis RB, Reiley P, et al. Patient-physician communication at hospital discharge and patients' understanding of the postdischarge treatment plan. *Arch Intern Med*. 1997;157:1026-1030.
6. Pullar T, Roach P, Mellor EJ, et al. Patients' knowledge concerning their medications on discharge from hospital. *J Clin Pharm Ther*. 1989;14:57-59.
7. Hood JC, Murphy JE. Patient noncompliance can lead to hospital readmissions. *Hospitals*. 1978;52:79-82, 84.
8. Williams EI, Fitton F. Factors affecting early unplanned readmission of elderly patients to hospital. *BMJ*. 1988;297:784-787.
9. Makaryus AN, Friedman EA. Does your patient know your name? an approach to enhancing patient awareness of their physician's and nurse's name in a large municipal teaching hospital. *J Healthcare Quality*. In press.

