Informed Discharge: An Assessment of Patient Knowledge and Perspectives

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Abstract
**Background:** This study evaluated patients’ knowledge of their hospital course and satisfaction with the discharge process from internal medicine units.

**Methods:** Patients were surveyed at time of discharge to ascertain their knowledge of diagnoses, medications and follow-up plans made during hospitalization. The Picker Patient Experience Questionnaire (PPE-15) assessed patient satisfaction.

**Results:** Of 100 medicine inpatients surveyed (mean age 68.4 years (25-104), mean length of stay 6.7 days (1-47), 46% of respondents correctly identified their primary diagnosis, 25% demonstrated understanding of medication changes, and 50% of post-discharge appointments. A total of 54% felt inadequately informed on medication side effects, 49% felt inadequately informed about when to return to hospital and 45% wanted greater involvement in their care.

**Conclusion:** Our study suggests a lack of patient awareness of their hospital course and management plan. The discharge process does not address gaps in patients’ knowledge and patient preference for greater involvement in care plans.

**Key words (MeSH terms):** Patient Discharge; Health Knowledge, Attitudes, Practice; Inpatients/education; Patient Care Planning; Physician-Patient Relations
Abstract

Contexte: Cette étude évalue la compréhension qu’ont les patients de leur séjour à l’hôpital et leur degré de satisfaction relatif au processus de congé expérimenté dans les services de médecine interne.

Méthode: Les patients ont été sondés au moment de leur congé, pour vérifier la compréhension qu’ils avaient de leur diagnostic, de leur médication et des plans de suivis déterminés au cours de leur séjour hospitalier. Pour évaluer le degré de satisfaction des patients, on a utilisé le Picker Patient Experience Questionnaire (PPE-15).

Résultats: Cent malades hospitalisés ont été sondés (âge moyen de 68,4 ans, variant de 25 à 104 ans). La moyenne de la durée de leur séjour a été de 6,7 jours (de 1 à 47 jours). De ces 100 sujets, 46 % ont correctement indiqué quel était leur diagnostic principal, 25 % ont démontré avoir compris les changements apportés à leur médication, et 50 % était au fait des rendez-vous de suivis prévus. Un pourcentage de 54 % avait le sentiment de manquer d’information sur les effets secondaires de leurs médicaments, 49 % ignorait quand devoir se présenter à nouveau à l’hôpital et 45 % désirait être plus impliqué dans les soins prodigués.

Conclusion: Notre étude laisse voir que les patients ont un manque de compréhension de leur séjour hospitalier et de leur plan de soins. Le processus de congé ne comble pas les lacunes relatives aux connaissances des patients et ne répond pas à leur souhait de mieux s’impliquer dans leur plan de soins.

Introduction

In the acute medical setting, patient education can often be overlooked due to time and resource constraints. American-based studies have shown a lack of in-patient awareness of key medical information.1-4 In 1994, a survey of hospitals across Canada found that 16% of patients discharged from medical and surgical units felt education on new medications and timelines for resuming activities was inadequate.5 Since this study took place over 15 years ago, there has been no further assessment of Canadian patients’ knowledge of their care and perspectives on hospital discharge.

The objective of this study was to evaluate patient knowledge of their diagnosis and management plan at the time of discharge from internal medicine, and their satisfaction with the hospital discharge process.

Methods

Patient Selection

Patients were surveyed at discharge from the Internal Medicine Clinical Teaching Units (CTU) of two hospitals in Hamilton, Ontario. Patients were included if they were ≥ 18 years of age and able to provide consent. Exclusion criteria included documented cognitive dysfunction, communication disorders, ICU admission requiring intubation, and discharge to a long-term care facility. Inpatients were screened between October 2012 and November 2013.

Survey and Chart Review

A two-part questionnaire was administered. Part A, developed by study investigators, assessed patient knowledge of their hospital course and management plan (Appendix Part A). Part B consisted of the Picker Patient Experience Questionnaire (PPE-15) which assessed patient attitudes regarding quality of care. This validated questionnaire has shown high internal reliability and consistency.6 (Appendix Part B) All patients underwent a cognitive assessment in the form of the Mini-Cog Exam (Appendix Part C); this is a three item test of recall and Clock Drawing, developed as a screening tool with sensitivity of 76-99% and specificity of 89-93% for differentiating between patients with and without dementia.7 Patients were not excluded if their Mini-cog exam indicated dementia.

Patient charts were reviewed at time of discharge for the following demographic information: primary diagnosis, medication changes, and follow-up appointments.
Outcomes
The authors created three composite scores of patient knowledge: knowledge of primary diagnoses (using that listed on the hospital discharge face sheet as the gold standard); medication changes (medication initiation, discontinuation or dosage change); and knowledge of follow-up appointments. Each of the three measures was graded on a scale of 0 – 3, with 0 being the patients’ responses of “I don’t know”, 1 being incorrect, 2 being partially correct and 3 being correct responses. Blank responses were treated as missing data and excluded in the analyses.

Five potential predictor variables of patient knowledge were chosen: Mini-cog scores, age, length of stay, education, and number of comorbidities.

Statistical Analysis
Spearman’s rho coefficients were used to determine correlations between the three measures of patient knowledge and the five predictor variables. Separate regression analyses were conducted to identify whether the patients’ demographic data were predictive of the three main measures of patient knowledge. Proportional odds were assessed by a full likelihood ratio test comparing the fitted model to a model with varying location parameters. The deviance of goodness of fit test was used to indicate whether the model was a good fit to the observed data.

Results
Patient Characteristics
A total of 100 general internal medicine inpatients were surveyed. The mean age was 68.4 years (range 25 to 104), with the mean length of stay of 6.7 days (range 1 to 47) and 4.6 (range 0 to 12) medical comorbidities. A total of 78% of patients had no cognitive impairment based on the Mini-cog assessment.

Correlating Patient Demographics with Knowledge
Spearman’s rho revealed multiple weak correlations (r > .21) between measures of patient knowledge and the five predictor variables: mini-cog scores, age, duration of hospital stay, level of education, and number of medical comorbidities. Separate regression analyses were conducted to identify whether mini-cog scores, age, duration of hospital stay, level of education, and number of medical comorbidities were predictive of the three main measures of patient knowledge: primary diagnosis, medication changes and follow-up plans. A mini-cog score suggestive of cognitive impairment, occurred in 21 out of 96 respondents. This variable did not correlate with patient knowledge.

Knowledge of Primary Diagnosis
Of the 94 responses received, 46% were able to correctly identify their primary diagnosis. Logistic regression identified level of education to be predictive of patients’ understanding of their primary diagnoses ($\chi^2(4) = 13.484, p = .009$); patients with an elementary school education was less likely to identify their primary diagnosis (odds ratio 0.22 [95% CI, 0.56 – 0.87]) compared to post-secondary education. None of the other variables were significantly predictive (all $p$ values >0.05).

Knowledge of Medication Changes
Of the 95 respondents, 25% were able to correctly identify medications changes. Separate logistic regression analyses were run at each level of the dependent variables. None of the predictor variables contributed significantly to predicting patients’ understanding of medication changes.

Knowledge of Follow-up Appointments
Of 91 respondents, 48 (53%) were aware of all post-discharge investigations and 34 of 81 (42%) respondents were aware of specialist appointments. None of the preselected variables contributed significantly to predicting patients’ understanding of whether or not they had follow-up appointments after their hospital stay (all $p$ values > 0.05).

Patient Satisfaction with the Discharge Process
The PPE-15 survey results show that patients generally felt respected and were able to understand physicians’ answers. However, 48% of patients reported not receiving information regarding medication side effects. Patients’ responses also indicated a desire to be more involved in their care (49%) (Table 1).

Discussion
The time around discharge from the hospital represents a transition of care to the primary care team. Our data indicate that the majority of patients discharged from internal medicine CTUs are not well-informed, or have been unable to retain information about their medical status, medications or follow-up plans. Patients with a lower level of education (elementary school compared to post-secondary education) were significantly less likely to be aware of their primary diagnosis. No other predictive factors were found though this could be reflective of inadequate statistical power.

Our findings are in keeping with literature from the United States, showing that patients are often poorly informed on the details of their hospital stay and the management plan following discharge, particularly in regards to medication
changes.11 Another study from Boston assessing physician communication with patients admitted with pneumonia or acute myocardial infarction demonstrated that physicians overestimate patients’ comprehension of treatment plans.12 A US-based study found that over 65% of discharge summaries are unavailable to family physicians at the time of the post-discharge visit. Furthermore, summaries often lacked important information such as medication changes or follow-up plans.13 Patient understanding of their treatment plan prior to leaving hospital is imperative to closing the communication loop with primary care practitioners.

The PPE-15 questionnaire results suggest that patients feel uninformed on medication side effects and warning signs. Patients also want to be more involved in their care. Our study highlights patients’ desire for further counselling around the discharge process. Interventions to improve patient education prior discharge would likely also improve patient satisfaction and sense of security with the discharge process.

Interventions aimed at improving patient education have been examined to see if they correlate with improved health outcomes. A systematic review of clinical trials performed between 1993 and 2012, where patients with chronic diseases such as diabetes and hypertension, had reduction in lipid ratios, blood pressure and HbA1c, with interventions such as individual and group-based educational workshops.14 However, data is conflicting on the impact on overall health outcomes from discharge interventions. For example, intensive education on medications for patients discharged after a myocardial infarction (MI), resulted in improved adherence to medication, but not in rates of recurrent MI’s, revascularization or mortality.15 Similarly, a comprehensive patient education program did not impact on re-hospitalization rates in a Netherlands-based study.16 Data is therefore conflicting on whether interventions that improve patient education alter outcomes.

**Limitations**

The number of eligible patients who were approached and declined participation were not recorded, raising the possibility of selection bias. Also, it is possible that additional discussion between physicians and patients took place after survey administration. However, investigators waited for discharge paperwork to be completed prior to surveying patients so as to minimize this effect. Furthermore, discharge planning should be an ongoing discussion between patients and care providers, and some knowledge of the hospital course was therefore still expected.

**Conclusion**

Safely discharging patients from hospital is a complex process with patients grasping far less of the hospital course and management plan than healthcare providers may realize. Just as important is patients’ recognition of knowledge gaps on discharge from hospital and preference for greater involvement in the decision-making processes.

Further studies should evaluate the effect of interventions for improving patient education at time of discharge and impact of these interventions on health outcomes.
Acknowledgements
This work was supported by Hamilton Health Sciences Quality and Patient Safety Grant.

Thanks to our research assistants Tiffany Tian, Serena Ma, and Philip Staibano.

We have no competing interests to declare.

References

Appendix
Survey Part A

1. What is your diagnosis (the name of your illness)?

2. Did you start any new medications in hospital?  [ ] Yes  [ ] No  [ ] I don’t know

3. Did your home medications change?  [ ] Yes  [ ] No  [ ] I don’t know

   If so, medications were  [ ] stopped  [ ] dose increased  [ ] dose decreased

4. How did you learn about your medication changes?  [ ] There were no changes

   OR I was told by:  [ ] My doctors  [ ] My nurses  [ ] The pharmacist

   [ ] Other

5. Do you know why your medications were changed?  [ ] Yes  [ ] Yes, somewhat  [ ] No  [ ] There were no changes

6. Did anyone ask you how you will pay for your medications?  [ ] Yes  [ ] No

   Is this something that you are worried about?  [ ] Yes  [ ] No
7. Do you have tests to do after you leave hospital? (for example, blood tests, x-rays, ultrasounds, CT scans, MRI, exercise stress tests)?
   - Yes
   - No
   - I don’t know
   If so, please list: ________________________________________________________________

8. Did you see any specialists in hospital? (for example, cardiologists or heart specialists, surgeons, etc.)
   - Yes
   - No
   - I don’t know
   Please list the types of specialists: ________________________________________________

9. Do you have any doctors’ appointments after you leave hospital?
   - Your family doctor?
     - Yes
     - No
     - I don’t know
   - Specialists?
     - Yes
     - No
     - I don’t know
   If so, which specialists? ________________________________________________________

10. Did you have forms for disability/sick leave for work?  
    - Yes
    - No
    If so, did your doctors fill these forms?  
      - Yes
      - No

11. Is there anything we could have done to better prepare you to go home after your hospital stay?
    _________________________________________________________________
    _________________________________________________________________
    _________________________________________________________________

12. What was the highest level of education you completed?
    - Elementary school
    - Some high school (I did not graduate)
    - High school diploma
    - Some college or university
    - College or university degree or further education
Appendix
Survey Part B

1. When you had important questions to ask a doctor, did you get answers that you could understand?
   - Yes, always
   - Yes, sometimes
   - No
   - I had no need to ask

2. When you had important questions to ask a nurse, did you get answers that you could understand?
   - Yes, always
   - Yes, sometimes
   - No
   - I had no need to ask

3. Sometimes in a hospital, one doctor or nurse will say one thing and another will say something quite
different. Did this happen to you?
   - Yes, often
   - Yes, sometimes
   - No

4. If you had any anxieties or fears about your condition or treatment, did a doctor discuss them with you?
   - Yes, completely
   - Yes, to some extent
   - No
   - I didn’t have any anxieties or fears

5. Did doctors talk in front of you as if you weren’t there?
   - Yes, often
   - Yes, sometimes
   - No

6. Did you want to be more involved in decisions made about your care and treatment?
   - Yes, definitely
   - Yes, to some extent
   - No

7. Overall, did you feel you were treated with respect and dignity while you were in hospital?
   - Yes, always
   - Yes, sometimes
   - No

8. If you had any anxieties or fears about your condition or treatment, did a nurse discuss them with you?
   - Yes, completely
   - Yes, to some extent
   - No
   - I didn’t have any anxieties or fears

9. Did you find someone on the hospital staff to talk to about your concerns?
   - Yes, definitely
   - Yes, to some extent
   - No
   - I had no concerns

10. Were you ever in pain?
    - Yes
    - No

Do you think the hospital staff did everything they could to help control your pain?
   - Yes, definitely
   - Yes, to some extent
   - No

11. If your family or someone else close to you wanted to talk to a doctor, did they have enough opportunity to
do so?
   - Yes, definitely
   - Yes, to some extent
   - No
   - No family or friends were involved
   - My family didn’t want or need information
   - I didn’t want my family or friends to talk to a doctor

12. Did the doctors or nurses give your family or someone close to you all the information they needed to help
    you recover?
   - Yes, definitely
   - Yes, to some extent
   - No
   - No family or friends were involved
   - My family or friends didn’t want or need information
13. Did a member of staff explain the purpose of the medicines you were to take at home in a way you could understand?
   - Yes, completely  
   - Yes, to some extent  
   - No  
   - I didn’t need an explanation  
   - I had no medicines—go to question 15

14. Did a member of staff tell you about medication side effects to watch for when you went home?
   - Yes, completely  
   - Yes, to some extent  
   - No  
   - I didn’t need an explanation

15. Did someone tell you about danger signals regarding your illness or treatment to watch for after you went home?
   - Yes, completely  
   - Yes, to some extent  
   - No

Part C: The Mini Cog Exam

1. Instruct the patient to listen carefully to and remember 3 unrelated words and then to repeat the words.

2. Instruct the patient to draw the face of a clock (Clock Drawing Test, CDT), either on a blank sheet of paper or on a sheet with the clock circle already on the page. After the patient puts the numbers on the clock face, ask him or her to draw the hands of the clock to read a specific time (10 after 11)

3. Ask the patient to repeat the 3 previously stated words. Scoring:
   - Give 1 point for each recalled word after the CDT distractor.
   - Patients recalling none of the three words are classified as demented (Score = 0).
   - Patients recalling all of the three words are classified as non-demented (Score = 3).
   - Patients with intermediate word recall of 1-2 words are classified based on the CDT (Abnormal = demented; Normal = non-demented).

Note: The CDT is considered normal if all the numbers are present in the correct sequence and position, and the hands readable display the requested time.