

Dissemination of discharge summaries

Not reaching follow-up physicians

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ABSTRACT

OBJECTIVE To discover how often hospital discharge summaries were available to physicians seeing patients for follow-up visits after hospitalization.

DESIGN Cohort study.

SETTING Teaching hospital in Ottawa, Ont.

PARTICIPANTS We studied 792 patients discharged from an internal medicine service after treatment for acute illness. We determined when and by which physician each patient was seen during the first 6 months after discharge. We also determined the date each patient's discharge summary was printed and the physicians to whom it was sent. We confirmed that summaries were received by means of a survey or by telephoning physicians' offices. Patients were observed for 6 months or until they were readmitted to hospital.

MAIN OUTCOME MEASURES Proportion of follow-up visits to physicians for which discharge summaries were available.

RESULTS During the observation period, patients made 6619 visits (median six per patient, interquartile range [IQR] 2 to 9) to 914 different physicians (median three per patient, IQR 2 to 4). Discharge summaries were available for only 996 (15%) visits. Summaries were available for only 65 initial visits (8.2%); no summaries were available for any visit for 542 (68.4%) patients. Summaries were most commonly unavailable because they were not generated in time for follow-up visits (20.0%) or were not sent to follow-up physicians (50.8%).

CONCLUSION At our institution, discharge summaries often did not get to physicians seeing patients after discharge from hospital.

RÉSUMÉ

OBJECTIF Déterminer la fréquence selon laquelle le sommaire du congé de l'hôpital était disponible aux médecins qui voyaient les patients pour des visites de suivi après l'hospitalisation.

CONCEPTION Une étude de cohorte.

CONTEXTE Un hôpital d'enseignement à Ottawa, en Ontario.

PARTICIPANTS Nous avons étudié 792 patients qui ont reçu leur congé d'un service de médecine interne après un traitement pour une maladie aiguë. Nous avons déterminé quand et par quel médecin chaque patient a été vu durant les six mois après leur congé de l'hôpital. Nous avons aussi déterminé la date à laquelle le sommaire du congé de l'hôpital a été imprimé et les médecins auxquels il a été envoyé. Nous avons confirmé la réception des sommaires au moyen d'un sondage ou en téléphonant aux cabinets des médecins. Les patients ont fait l'objet d'une observation pendant six mois ou jusqu'à ce qu'ils soient admis à nouveau à l'hôpital.

PRINCIPALES MESURES DES RÉSULTATS La proportion de visites de suivi chez les médecins pour lesquelles les sommaires du congé de l'hôpital étaient disponibles.

RÉSULTATS Durant la période d'observation, les patients ont fait 6 619 visites (médiane de six par patient, intervalle interquartile [IQR] 2 à 9) chez 914 médecins différents (médiane de trois par patient, IQR de 2 à 4). Des sommaires du congé de l'hôpital étaient disponibles pour seulement 996 (15%) des visites. Des sommaires étaient disponibles pour seulement 65 visites initiales (8,2%); aucun sommaire n'était disponible pour aucune des visites faites par 542 patients (68,4%). Les raisons pour lesquelles les sommaires n'étaient pas disponibles étaient le plus souvent qu'ils n'étaient pas produits à temps pour les visites de suivi (20,0%) ou n'avaient pas été envoyés aux médecins qui faisaient le suivi (50,8%).

CONCLUSION À notre établissement, les sommaires du congé de l'hôpital n'étaient souvent pas à la disposition des médecins qui voyaient les patients après leur congé de l'hôpital.

This article has been peer reviewed.

Cet article a fait l'objet d'une évaluation externe.

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Dissemination of discharge summaries

Communication is central to practising medicine. Articles have documented examples of poor communication among physicians,¹ and medicolegal case reports have associated poor communication with serious adverse outcomes.² Communication among health professionals has been labeled "a mess."¹

The situation where patients discharged from the care of hospitalists are returned to the care of their regular physicians is ideal for studying communication among physicians. (Hospitalists are physicians who care for inpatients who are usually previously unknown to them.) There are concerns that hospitalist care could result in a break in the continuity of care that patients receive from their family physicians and that this will lower the quality of care patients receive.³⁻⁵ This is very likely if communication among physicians is poor.

This study assesses use of hospital discharge summaries to communicate between hospitalists at one teaching hospital and physicians who cared for patients after they were discharged. Discharge summaries are the most common way hospitalists communicate with family doctors.⁶

Studies from all over the world have explored how discharge summaries are disseminated to family physicians.⁷⁻¹³ These studies are limited by small sample sizes ranging from 35⁷ to 145¹² patients. Most have a potential sampling frame bias because they examine only patients in a single practice.^{7-9,11-13} Some studies fail to consider timeliness, an important factor in the usefulness of summaries.¹⁴

No study to date has examined whether every physician involved in a patient's care received a copy of the discharge summary. This is important because many patients have more than one physician caring for them.¹⁵ We believe that discharge summaries should be disseminated to all physicians who see patients after discharge from hospital. Although information about the hospitalization might not be pertinent to all physicians caring for a patient, only those

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physicians can make that decision, and they can make it only after they have reviewed the information about the hospitalization. Therefore, we should work toward disseminating discharge summaries to all physicians who care for patients after discharge from hospital.

In this study, we linked data on patients who participated in a previous trial¹⁶ with administrative databases to determine whether physicians who assessed patients after discharge from hospital (follow-up physicians) received discharge summaries.

METHODS

Our cohort was taken from a clinical trial¹⁶ that reviewed 1328 consecutive admissions to an internal medicine service at a university-affiliated hospital between September 1996 and June 1997. Of these 1328, 1274 (95.9%) were included in our study because they were admitted and discharged from the internal medicine teaching unit during the study period. Patients were excluded if they died in hospital (n = 149) or were transferred to another service (n = 39). For patients with many admissions during the study, we considered only the last admission (n = 31). Since our study is about communication with follow-up physicians, we excluded patients who had no follow-up visits within 6 months of discharge (n = 88). Finally, we excluded patients who had no Ontario Health Insurance Plan (OHIP) numbers because these numbers were required to determine when their follow-up visits occurred (n = 75). This left 792 patients (62.2% of the original cohort).

The internal medicine ward where the study took place was an 80-bed service with four clinical teams composed of a Royal College-certified staff physician, a second- or third-year internal medicine resident, and one or two interns and medical students. Care was provided by these house staff under the supervision of the staff physician. The practices of the house staff centred primarily on inpatient care and outpatient consultation.

Discharge summary generation was the responsibility of the physicians primarily involved in caring for each patient. Medical records staff identified patients for whom discharge summaries had not been generated. Discharge summaries and medical records were not accessible to physicians through computers.

Data collection

Each patient's medical record was reviewed for demographic information and baseline medical information.

Admission notes were read to determine why patients were in hospital. All progress notes and laboratory results in charts were reviewed, and the names of all physicians who assessed patients in hospital were noted.

Patients with any of the following disorders mentioned in their admission notes were categorized as having chronic medical conditions: cerebrovascular disease, epilepsy, depression, hypertension, congestive heart failure, atrial fibrillation, coronary artery disease, chronic obstructive lung disease, asthma, peptic ulcer disease, inflammatory bowel disease, diabetes mellitus, hypothyroidism, chronic renal failure, cancer, arthritis, systemic lupus erythematosus, gout, or alcoholism. Patients were categorized with complications if, after being admitted, they had illnesses that were not related to their admission diagnoses or were serious complications of the admitting diagnosis. Patients were listed as having a procedure if any device (other than a simple intravenous catheter or nasogastric tube) pierced their skin or entered any orifice.

We collected the discharge summary for each patient and noted the date the summary was printed and the physicians to whom it was sent (summaries are sent only to physicians listed on the summary sheet).

We used administrative databases to study follow-up care. Administrative databases contain information routinely gathered during patient care. To ensure patient and physician confidentiality and to permit linking with administrative databases, a third party encrypted patient OHIP numbers and physician numbers. Claims for all follow-up visits were identified in the OHIP database, which records the date of all visits to more than 95% of family practitioners and almost all specialists.

For each follow-up visit recorded in the OHIP database, we determined whether a discharge summary had been available in time for the visit. We used two methods to confirm that physicians actually received summaries. First, we sent a survey to be completed by receiving physicians with each summary¹⁶ (overall response rate to this survey was 72%). Second, we telephoned physicians' offices after summaries had been sent to see whether summaries had made it into patients' charts. Summaries were classified as received if a survey was returned or a summary was in the chart. To be classified as received "in time," summaries had to be printed 72 hours before a patient's visit. This interval was chosen because delivery of mail to physicians' offices in our area, whether

by medical courier, in-hospital mail, or Canada Post, can take up to 3 days. This delay is similar to that found by Branger and colleagues.¹⁷

If summaries were unavailable, we classified the reason into one of four categories: a summary had not been prepared; a summary had been prepared but had not been sent to the physician; a summary had been prepared and sent to the physician, but had not been sent in time; or a summary had been prepared and sent to the physician in time, but had not been received by the physician. For each physician conducting a follow-up visit, we determined whether that physician saw the patient in hospital. By looking to see whether a physician's name appeared on the list of physicians who hold clinics in the hospital, we determined whether each physician would have had access to his or her patient's hospital chart during that patient's follow-up visit.

Patients were observed for 6 months following discharge or until they were readmitted to hospital, which we determined from a discharge abstract database that records the date of all admissions to Ontario hospitals. Review of the provincial vital statistics database, which registers the deaths of all Ontario residents, revealed that none of the study patients died before readmission or within 6 months of discharge. The Ottawa Hospital Research Ethics Board approved the study.

Sample size and analyses

No formal sample-size calculation was conducted because the study's size was determined by the original trial. We used SAS 8.0 for all analyses. Distributions for variables not normally distributed were described using an interquartile range (IQR), which cites the value of the 25th and 75th percentile.

The Wilcoxon rank sum test was used to determine whether the proportion of visits for which summaries were available was associated with three measures of patient complexity: a serious baseline medical problem, a complication during admission, or a procedure during admission. The Wilcoxon rank sum test was used because the outcome variable (proportion of visits with summaries) is not distributed normally.

RESULTS

The patients were elderly (mean age 65.5 years, standard deviation [SD] 18.4), and there were approximately equal numbers of each sex (**Table 1**). Patients had a median of one chronic illness (IQR 1

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Table 1. Description of the 792 patients in the study

Age: mean (\pm SD)	65.5 (\pm 18.4)
Female sex	390 (49.2%)
Chronic medical illnesses: median (IQR)	1 (1-3)
From a nursing home	33 (4.2%)
Diagnosis*	
• Pneumonia	114 (14.4%)
• Congestive heart failure	100 (12.6%)
• Gastrointestinal bleeding	71 (9.0%)
• Obstructive lung disease exacerbation	70 (8.8%)
Length of hospital stay (days): mean (\pm SD)	6.2 (\pm 8.2)
Complication during hospitalization	147 (18.6%)
Procedure during hospitalization	253 (31.9%)
Discharge summary generated	611 (77.1%)
• No. of days after discharge: median (IQR)	7 (3-25)
• No. of physicians sent summary [†] : median (IQR)	2 (1-3)

IQR—interquartile range, SD—standard deviation.

*Most common admission diagnoses.

[†]Including hospital staff physicians.

to 3); 33 patients (4.2%) were from nursing homes. Mean duration of hospital stay was almost 1 week; 726 patients (91.7%) had regular family physicians listed in their medical records. Progress notes indicated that the family physicians of 15 patients had visited them during their hospitalization. We found an interim discharge summary in the medical records of 670 patients (84.6%).

During the observation period, patients had 6619 visits (median six per patient, IQR 2 to 9) to 914 different physicians (median three per patient, IQR 2 to 4). Of all visits, 498 (7.5%) were to physicians who cared for patients in hospital, and 1021 (15.4%) were to physicians who would likely have had access to their hospital charts. Median time to first visit was 6 days (IQR, 2 to 14); 344 patients (43.4%) were readmitted within a median of 45 days (IQR 16.5 to 106.5).

Table 2 shows that summaries were available for only 15% of the 6619 visits. If we assumed that physicians who saw patients at the hospital had access to either a summary or a chart, summaries were available for 28.1% of visits. A summary was available for only 65 (8.2%) initial visits, and no summaries were ever available for 542 (68.4%) patients. Mean

proportion of visits for which summaries were available did not vary by whether patients had chronic medical conditions (16.1% vs 12.3%, $P=29$), complications (15.2% vs 15.2%, $P=98$), or procedures (15.5% vs 15.2%, $P=30$). Reasons summaries were unavailable are listed in **Table 2**.

DISCUSSION

Discharge summaries can improve patient care only if they are delivered to follow-up physicians. To our knowledge, this is the first study to determine whether all physicians who follow particular patients after hospitalization received discharge summaries. This factor was important because patients saw a median of three different physicians after discharge. Discharge summaries were available for a surprisingly small number of follow-up visits.

Our data show that physicians cannot rely on having discharge summaries when they see patients for follow-up visits. They have to rely on patients' recall or on other sources of information, such as interim discharge reports or telephone calls to hospital physicians. Because patients are often not fully informed about or are unable to remember details of their time in hospital, we believe that patient recall is an unreliable substitute for a discharge summary.

Although interim discharge reports usually contain the most important information that discharge summaries contain,¹⁴ they can be illegible, can lack important information, and often do not get transferred to family physicians. Discussing cases with hospital physicians on the telephone is probably the best method of clarifying patient care issues, but is time-consuming and often impossible.

If poor dissemination of discharge summaries is prevalent in other centres besides our own, we should work to solve this problem. An ideal solution would be a centralized, patient-centred information

Table 2. Availability of discharge summaries at the 6619 follow-up visits

AVAILABILITY	N (%)
Summary available at visit	996 (15.0)
Summary unavailable at visit	5623 (85.0)
• No summary generated	1327 (20.0)
• Summary generated but not sent to physician	3447 (50.8)
• Summary generated, sent to physician, but late	499 (7.5)
• Summary generated, sent to physician in time, but not received	350 (5.3)

repository into which all health care workers could put information and from which they could also abstract information. The technical, economic, and medicolegal challenges of such a repository will likely prohibit its creation any time soon.

In the meantime, other solutions need to be found. In our centre, summaries were most commonly unavailable because they were not sent to the appropriate physicians. Although this could be because patients get involved with new physicians following discharge from hospital, we think it more likely stems from hospital physicians' failing to systematically identify all physicians involved in patients' care and from delays in generating summaries.

Delays could be avoided by simplifying the process of summary generation. Using a clinical database¹⁶ or simple forms¹⁸ would remove the need for dictation. Summaries could be given to patients so they could take them to physicians they see for follow-up, but this would work only if patients remembered to bring their summaries to each visit. Having their own summaries might improve patients' knowledge and satisfaction,¹⁹ and making patients responsible for giving follow-up physicians their discharge summaries might improve summary dissemination.²⁰

Our study is unique in that it assessed dissemination of discharge summaries to all follow-up physicians. Several single-practice studies have examined whether information on hospital stays was sent to follow-up physicians in time for patients' visits. Lockwood and McCallum⁹ found that discharge summaries were available for only 15.2% of patients at their initial follow-up visits with their family physicians, but that any kind of information was available for 29% to 84%.^{8,11,12} A qualitative study determined that delay in 10% of communications was perceived to have deleteriously affected care.¹² We believe that future studies should determine whether delays in information transfer affect patient outcomes.

Limitations

Although discharge summaries are the main way hospital physicians communicate with family physicians,⁶ our study did not examine other methods of communication, such as telephone calls or interim discharge reports. Other studies will be needed to determine whether other methods of communication make up for lack of discharge summaries.

Our study included only one service at a single teaching centre. Other centres might have better results. This might be particularly true for non-teaching centres because physicians-in-training

Editor's key points

- This study examines how often discharge summaries were available to physicians seeing patients after discharge from a tertiary care teaching hospital.
- Discharge summaries were available for only 15% of follow-up visits. Summaries were available for 8% of initial visits; no summaries were ever available for 68% of patients.
- Summaries were most often unavailable because they were not prepared (20%) or had not been sent to appropriate physicians (51%).
- Most patients (92%) had regular family physicians listed on their medical records. This study reinforces the commonly held belief that communication between hospitals and family physicians is poor.

Points de repère du rédacteur

- Cette étude examine la fréquence à laquelle les sommaires de congé de l'hôpital sont disponibles aux médecins qui voient les patients après leur congé d'un hôpital d'enseignement de soins tertiaires.
- Des sommaires du congé n'étaient disponibles que pour 15% des visites de suivi. Ils étaient disponibles pour 8% des visites initiales; aucun sommaire n'a été à la disposition du médecin en aucun temps pour 68% des patients.
- Les raisons pour lesquelles les sommaires n'étaient pas disponibles étaient le plus souvent parce qu'ils n'avaient pas été produits (20%) ou qu'ils n'avaient pas été envoyés aux médecins appropriés (51%).
- La plupart des patients (92%) avaient le nom de leur médecin de famille régulier inscrit dans leurs dossiers médicaux. Cette étude renforce la croyance largement répandue que la communication entre les hôpitaux et les médecins de famille est médiocre.

often perceive discharge summary generation as an onerous administrative task.²¹ Physicians with more experience probably have a better perception of the benefits of having information during patient follow up.

Most importantly, we need to explore whether communication among physicians or lack of it affects important patient outcomes, such as emergency room visits, readmissions, and deaths. Only then will we be able to determine how important it is to improve communication among physicians relative to other health care issues.

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Conclusion

At our institution, discharge summaries infrequently got to follow-up physicians. Summaries were usually unavailable because they were not generated in time for follow-up visits or were not sent to follow-up physicians. ❁

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Contributors

Dr van Walraven conceived the idea and devised the computer programs for the study. Dr van Walraven and Dr Seth collected the data. All the authors contributed to data analysis and manuscript preparation.

Competing interests

None declared

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