Communication at the interface between hospitals and primary care

A general practice audit of hospital discharge summaries

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Background

Timeliness and quality of hospital discharge summaries are crucial for patient safety and efficient health service provision after discharge.

Methods

We audited receipt rates, timeliness and the quality of discharge summaries for 49 admissions among 38 patients in an urban general practice. For missing discharge summaries, a hospital medical record search was performed.

Results

Discharge summaries were received for 92% of identified admissions; 73% were received within three days and 55% before the first post-discharge visit to the general practitioner (GP). Administrative information and clinical content, including diagnosis, treatment and follow-up plans, were well reported. However, information regarding tests, referrals and discharge medication was often missing; 57% of summaries were entirely typed and 13% had legibility issues.

Discussion

Completion rates were good but utility was compromised by delays, content omissions and formatting. Digital searching enables extraction of information from rich existing datasets contained in GP records for accurate measurement of discharge summary receipt rate and timing.

Keywords

patient discharge; general practitioners; interdisciplinary communication

Hospital discharge is an inherently risky transition of care into the community setting, comparable with other contexts where responsibility is handed over from one person to another.[1] Despite the ideal of a seamless handover, discharge summaries may not reach the general practitioner (GP) or may be compromised by significant delays, poor quality or illegibility.[2–9] Patient accounts of their medical history may be unreliable[5,8,9] and information loss may affect patient safety through medication errors, failure to follow up results or management changes. This increases the risk of adverse events or re-admission,[10,11] as well as inefficiencies in health services.[3,7]

Recent audits of discharge summaries in Victorian hospitals found high completion rates within hospital records (88–100%) but often there were significant delays in sending them to GPs (4–32% >14 days).[12–15] It was estimated that only 8–34% were available to GPs at the first post-discharge visit.[6,7] Little research has been conducted in GP populations,[4,5,7,16] leaving gaps in our understanding of the situation for general practice patients admitted to hospital in the contemporary evolving context of electronic records and document transfer. The aim of this study was to measure receipt rates, timeliness and quality of discharge correspondence to an urban general practice.

Method

Our study setting was an inner-west Melbourne general practice of four full-time equivalent GPs using electronic clinical records. Incoming paper correspondence was manually date-stamped on receipt, checked by a GP, then scanned into the 'Correspondence In' section of the record.

We built an electronic search query to identify notified hospital admissions from patient clinical records (*Figure 1*). The Structured Query Language (SQL) query was adapted from the in-built software search facility, assisted by software support staff, capturing all documents in the 'Correspondence In' section of the clinical record containing the terms 'admission', 'discharge' or 'd/c' within any column heading (including automatic faxed notifications of admissions and discharges, discharge summaries and letters). To check sensitivity, and for validation, we re-ran the search using different date ranges to ensure it was capturing patients (alive and deceased) with known admissions. In a pilot test (n = 10), the SQL search captured 100% of test hospital admissions. Inclusion criteria consisted of any practice patients of any age, admission type (including day-stays) and hospital.

The piloted SQL search was run to detect admissions during September 2010 (search period). For each patient identified, clinical records were reviewed for documents relating to hospital admissions from September 2010–February 2011 (conclusion of data collection). For patients with multiple admissions, we collected data for each admission, providing insight into differences across units and admission types experienced by individual patients.

We recorded receipt dates of admission-related correspondence (from stamped dates), date of discharge and first GP consultation after discharge. Time intervals between these dates were calculated.[2,6,7,17] When an admission was detected with no corresponding discharge summary or letter, we coordinated with hospital GP liaison officers to search the hospital medical records to ascertain whether discharge summaries had been written. If the discharge
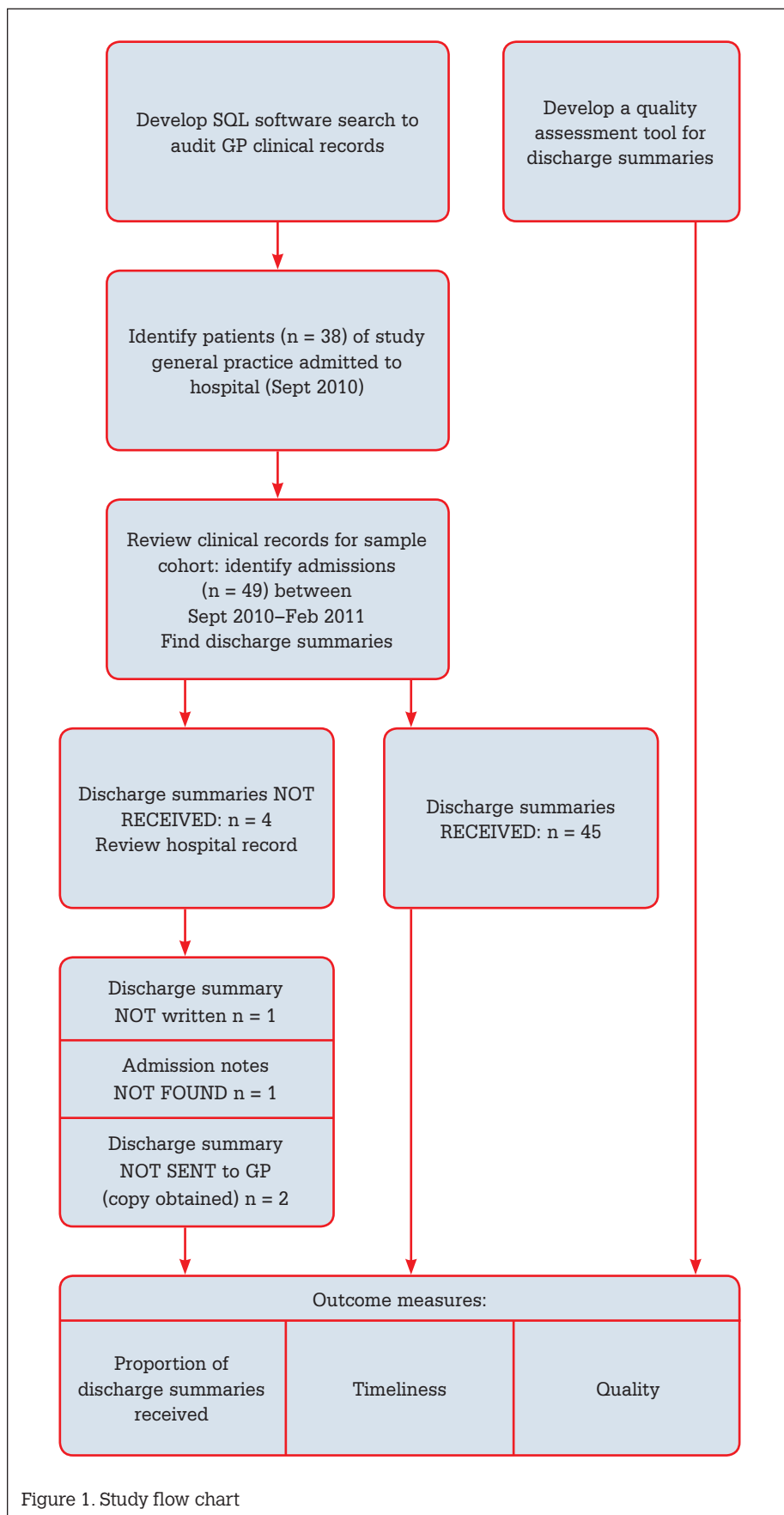
Figure 1. Study flow chart

summaries had been written, we checked if they had been sent and we obtained copies.

The next step was to identify quality standards for discharge summaries. A literature search was conducted using PubMed and Google Scholar for the terms 'discharge summaries', 'discharge communication' and 'hospital GP/hospital primary care interface', further searching the references in these publications. In general, evidence supporting quality indicators was derived from consensus opinion (usually GP surveys) reflecting high face validity or addressing risks to patient safety.[2,3,7,9,15,20] As no validated tool for assessing the quality of the discharge summaries was identified, we used this literature to develop a quality assessment tool (*Table 1*) and scored all our discharge summaries against it. We did not evaluate the accuracy of the information in the discharge summaries as this would require an extensive review of hospital records, which is more suited to hospital-based studies.[3] Descriptive and summary statistics are reported.

Results

Overall, 92% (45/49) of discharge summaries were received for known hospital admissions (*Table 2*). Regarding content, administrative information fields were well completed (93–100%) apart from GP details (81%) and author's contact/designation (62%). *Figure 2* summarises clinical content. Complete lists of discharge medication were included in 24% (11/47); 44% (21/47) contained no medication details. Only 21% (10/47) included complete copies of radiology or pathology tests performed in hospital.

Fifty-seven percent (27/47) of discharge summaries were entirely typed; 13% (6/47) were difficult to read because of the handwriting (3/6) or obscuring during faxing or scanning (3/6). In four cases the search found admissions notified to the GP by a faxed admission notice or a consultant's letter but no discharge summary followed. After liaison with relevant hospitals, we found reasons for this were:

1. the discharge letter was sent to the specialist but not to the GP (administrative error)
2. the discharge summary was in the hospital record but no GP was noted on the letter (shared-care patient – known GP on patient file; administrative error)
3. no discharge summary had been written (day

Table 1. Quality assessment tool for discharge summaries

Administrative data	Coded responses
GP identified on the summary	Study GP/no GP/alternative GP listed
Hospital name	Present/not present
Admission date	Present/not present
Discharge date	Present/not present
Responsible unit +/consultant	Present/not present
Person completing summary	Present/not present
Contact details/title/designation	Present/not present
Clinical data:	
Primary diagnosis	Noted/not noted
Secondary diagnoses or problems*	Noted/not noted/not relevant
Treatment or intervention provided in hospital	Noted/not noted
Referrals to other units*	Noted/not noted/not relevant
Allied health referrals*	Noted/not noted/not relevant
Information given to patient and family*	Noted/not noted/not relevant
Radiology/ pathology tests performed in hospital*	Noted–summarised/noted–complete copy of result present/not noted/not relevant
Unreported pathology/radiology tests pending*	Noted/not noted/not relevant
Follow up plans/management/ instructions	Outpatient appointment/specialist review/GP follow up requested/ no follow up required/not noted
Medication changes*	Noted/not noted/not relevant
Medication list	Clear and complete list, pharmacy discharge summary present Clear and complete list, typed/ auto-populated onto summary Clear and complete list, handwritten Some information re discharge medications present No information re medications present Not relevant
General comments	
Legibility	**Good:** the information is clear and legible **Average:** the information is provided, but difficult to read **Average:** became difficult to read during transfer (fax/scanning) **Poor:** the information provided on the original copy is illegible **Poor:** became illegible during transfer (fax/scanning)
Typed	All typed/All handwritten/ partly typed, partly handwritten

*In these fields, a further code category 'not noted but would clearly impact management in this case' was added to flag cases highlighting issues for qualitative analysis.

procedure) and follow-up outpatient notes were unavailable

4. no admission was noted in the hospital record.

Discussion

This small study is the first of its kind in Australian general practice. We found that a high proportion (92%) of discharge summaries had been received, mostly of good quality. However some fields were poorly reported, including tests (performed or pending), referrals, medication and authorship. Timeliness was an issue: although 77% arrived within 5 working days, in only 55% of cases were discharge summaries received before the post-discharge consultation.

Despite the small sample size (38 patients, 49 admissions), these findings are consistent with other studies, which found good completion rates of discharge summaries but highlighted delays[2,6,7,12,14,15,18] and content omissions.[2,3,7,9,15,19] We identified legibility issues (13%), in contrast to recent Victorian hospital audits (100% of summaries legible).[12] All 12 hospitals in our study had adopted standardised formats to facilitate production of complete but succinct summaries for inpatient admissions (>1 day);[3,7,9,17] however emergency departments exemplified a more ad hoc approach.

These findings suggest that GPs still experience significant delays and missing information in the handover process. GPs require discharge medication lists to review and reconcile changes. These lists provide a safety net preventing medication errors, the most prevalent adverse outcome after discharge.[2,7–9] Noting allied health referrals and pathology/radiology tests performed[5,7–9,21,22] potentially reduces duplication in the primary care setting.[10,23] Information given to the patient and/or family, relevant for patient-centred care, was poorly reported in our study.[3,5,7–9] Same-day separations were under-represented in our sample (24%, compared with 57% of admissions nationally),[23] suggesting they may not be as routinely notified to GPs as longer admissions. This is of concern as effective communication is critical when recovery occurs in the community setting.[3,16] Nationally, haemodialysis and chemotherapy account for a significant proportion of same-day separations.[24]

A strength of this audit was data collection at the GP side (receiver) of the handover. This

Table 2. Audit results

Baseline statistics	n	%
Patients on general practice database (live)	15000	
Female patients on GP database	9000	60%
Patients seen in general practice in 2010	4800	
Patients seen during search period (September 2010)	1200	
National number of hospital 'separations'/1000 population/year*	363	
Crude estimate of number of admissions expected for patients of the study practice during search period (1 month)**	36	
Sample statistics	**n**	**%**
Patients admitted September 2010	38	
Admissions in sample over study period (Sept 2010–Feb 2011 inclusive)	49	
Age range of patients (years)	1–92	
Number of hospitals (to which sample patients were admitted)	12	
Proportion of admissions to local health network (3 hospitals)	26/49	53
Number of admissions per search patient	**n**	**%**
1	30	79
2	6	16
3	1	2.5
4	1	2.5
Total	38	
Admission by type	**n**	**%**
Inpatient (>1 day)	29	59
Inpatient (day-stay)	7	14
Confinement (obstetric)	7	14
Emergency Department admission	5	10
Hospital in the home	1	2
Total	49	
Number of working days between discharge and receipt of summary	**n**	**%**
0	11	26
1	13	30
2	3	7
3	4	9
4	2	5
5–30	6	14
>30	4	9
Total	43	
Discharge summary not received	4	
Unknown (no receipt date stamped)	2	
Discharge summary received by first consultation after discharge	**n**	**%**
Yes: received ≥ 1 day prior	27	55
Yes: received same day	5	10
Not received by first consultation	8	16
Unknown	3	6
Not applicable (no consultation since admission)	6	12
Total	**49**	

*Includes some but not all emergency department attendances[24] ** 363/1000 x 1200/12=36.3

perspective unmasked problems with poor document quality when faxing then scanning into GP records. Electronic/auto-populated discharge summaries overcome handwriting issues and support more accurate reporting of medication lists and tests, facilitating their interpretation.[7,8,17] On the other hand, formatting is critical to ensure core information is included (eg. headings, forced responses) and presented in a way that highlights important points to the reader.[3,9,17,24] This study supports the potential of digital messaging to improve legibility of retrieved data, but also an ongoing role for patient-held copies of discharge summaries to overcome situations where patients arrive for review before the discharge information.[6,8]

In contrast to contemporary audits in Victorian hospitals,[12,14,15] our study design included short stays and private and psychiatric hospital admissions. Few studies have examined the private sector,[18] despite its accounting for about one-third of admissions nationally.[25] Narrow inclusion criteria present a challenge for translating research findings from hospital-based studies to the primary care setting. We used a reliable and reproducible method of assessing receipt dates (stamped), an advantage over other studies that rely on GP recall or do not specify how dates were ascertained.[2,18]

The receipt rate (92%) in our study seems much higher than anticipated on the basis of other studies.[2–4,6,7,14,18] The tendency to overestimate is a limitation of our method. We relied on admissions being notified to the GP, potentially missing admissions not notified where GP contact details were absent or incorrect in hospital files. The true denominator (total admissions among practice patients) remains unknown. Some individuals experienced multiple admissions, also biasing results around the proportion of summaries received (increased) and timing (earlier), as the system already works for those patients. Our search terms may not have fully captured private sector admissions, usually notified by consultant letters. Only a small number of discharge summaries were not received, which may be a reflection of our small sample size, making it difficult to draw conclusions about why this occurs.

Our search tool examined administrative information (receipt and filing of correspondence). Although coding systems for clinical information
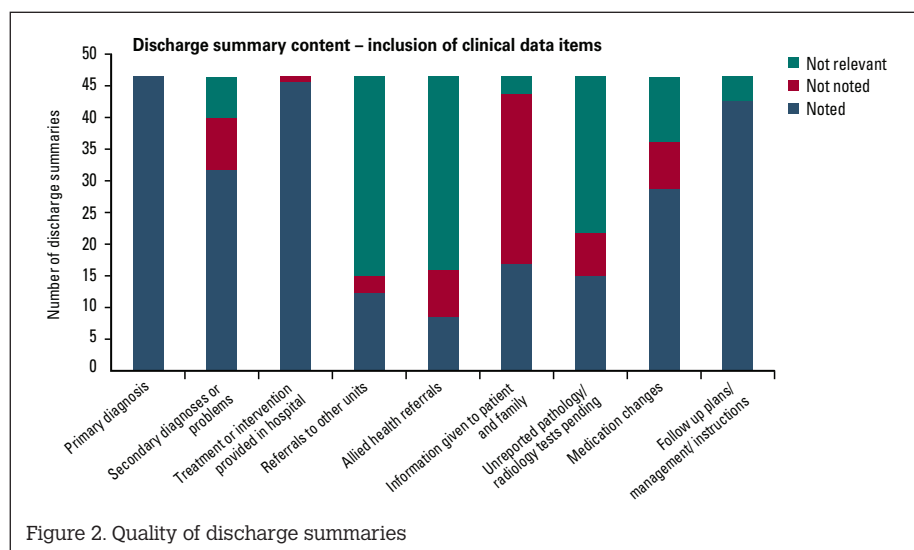
Figure 2. Quality of discharge summaries

are well established (eg. ICD or SNOMED-CT), there is much less consistency in document indexing in GP electronic records. Prospectively training administrative staff responsible for scanning and filing will improve data retrieval for clinical purposes and for GP-based audits requiring document review.

Adaption and validation of our quality assessment tool would be useful for further research. Our electronic search could be run across other general practices or regions. In future, unique patient e-health identifiers will give researchers the potential to track hospital admissions (private and public) for a general practice patient sample, enabling more accurate assessment of discharge correspondence receipt rates and, ultimately, correlation with readmission risk.[10]

Implications for practice

• Digital auditing of GP records provides a valuable data source for health systems research.

• Delays and content omissions in discharge summaries suggest that junior hospital medical staff could be better informed about critical handover information and better equipped to deliver it promptly to support safe patient transitions between hospital and community. This should not hinge on e-health timetables.[26]

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References

1. Gosbee J. Communication among health professionals. BMJ 1998;316:642.
2. Bolton P, Mira M, Kennedy P, Lahra MM. The quality of communication between hospitals and general practitioners: an assessment. J Qual Clin Pract 1998;18:241–47.
3. Wilson S, Ruscoe W, Chapman M, Miller R. General practitioner-hospital communications: a review of discharge summaries. ibid. 2001;21:104–08.
4. Penney TM. Delayed communication between hospitals and general practitioners: where does the problem lie? BMJ 1988;297:28–29.
5. Mageean RJ. Study of "discharge communications" from hospital. ibid. 1986;293:1283–84.
6. van Walraven C, Seth R, Laupacis A. Dissemination of discharge summaries. Not reaching follow-up physicians. Can Fam Physician 2002;48:737–42.
7. Kripalani S, LeFevre F, Phillips CO, Williams MV, Basaviah P, Baker DW. Deficits in communication and information transfer between hospital-based and primary care physicians: implications for patient safety and continuity of care. JAMA 2007;297:831–41.
8. Greenwald J, Denham C, Jack B. The Hospital Discharge: A Review of a High Risk Care Transition With Highlights of a Reengineered Discharge Process. J Patient Saf 2007;3:97–106.
9. Hampson JP, Roberts RI, Morgan DA. Shared care: a review of the literature. Fam Pract 1996;13:264–79.
10. van Walraven C, Seth R, Austin PC, Laupacis A. Effect of discharge summary availability during post-discharge visits on hospital readmission. J Gen Intern Med 2002;17:186–92.
11. Kozubal DE, Samus QM, Bakare AA, et al. Separate may not be equal: A preliminary investigation of clinical correlates of electronic psychiatric record accessibility in academic medical centers. Int J Med Inform 2013;82:260–67.
12. Audit of Discharge Communication Sent to General Practice. August 2010: General Practice Victoria.
13. Victorian health sector information, communication and technology (ICT) vision and framework, 2009–2013: Victoria's Health ICT Strategy. March 2010: Victorian Government Department of Health.
14. Hookey S, McCormack F. Royal Melbourne Hospital GP Discharge Summary Audit Report; February 2010.
15. Eastern Health GP Liaison Program Hospital Discharge Summary Audit 2008.
16. Harding J. Study of discharge communications from hospital doctors to an inner London general practice. J R Coll Gen Pract 1987;37:494–95.
17. Craig J, Callen J, Marks A, Saddik B, Bramley M. Electronic discharge summaries: the current state of play. HIM J 2007;36:30–36.
18. Middleton S, Appleberg M, Girgis S, Ward JE. Effective discharge policy: are we getting there? Aust Health Rev 2004;28:255–59.
19. Second Effective Discharge Patient Record Audit - Final revised report. November 2000. Department of Human Services: KPMG Consulting.
20. Integration Project Paper No.2: Minimum Requirements for the Transfer of Information between hospitals and GPs. August 1999: General Practice Divisions Victoria.
21. Pantilat SZ, Lindenauer PK, Katz PP, Wachter RM. Primary care physician attitudes regarding communication with hospitalists. Am J Med 2001;111:15–20S.
22. van Walraven C, Weinberg AL. Quality assessment of a discharge summary system. CMAJ 1995;152:1437–42.
23. Tierney WM, McDonald CJ, Martin DK, Rogers MP. Computerized display of past test results. Effect on outpatient testing. Ann Intern Med 1987;107:569–74.
24. Alderton M, Callen J. Are general practitioners satisfied with electronic discharge summaries? HIM J 2007;36:7–12.
25. AIHW 2010. Australian hospital statistics 2008–09. Health services series no. 34. Cat. no. HSE 84. Canberra: AIHW.
26. Issues and Barriers faced by Junior Hospital Doctors for the Implementation of the Discharge Summary National E Health Transition Authority; 23 March 2010.

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