Connecting hospital and community care: the acceptability of a regional data linkage scheme

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Abstract

Lack of information on an individual's premorbid needs and services in place can impede the transition from community to acute care. We report on a trial of an electronic data linking system between Flinders Medical Centre and Metropolitan Domiciliary Care. A sample of 82 medical, nursing and allied-health staff across the organisations completed questionnaires concerning their level of satisfaction with the trialled system. Results supported the effectiveness of an electronic data linking system across the hospitalcommunity interface. This system was effective in reducing labour costs, increasing organisational communication and devising appropriate discharge plans. Community staff indicated they were better informed about their client's medical and disability status and were able to play an active role in their client's treatment. This study provides more support to the implementation of a patient electronic data linking system focussed on older patients, with wider benefits including the reduction of unnecessarily long admission times and decreased demand on hospital beds.

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INTERNATIONALLY THERE HAS BEEN a movement from institutionalised or hospital care for older people towards less expensive community-based care.¹ As services are redirected away from the acute sector, a need has developed within the health system to integrate aged care sectors.² This is complex, but essential to improving health outcomes for older people, and is a focus of health system reform. In Australia, Phases 3 and 4 of the National Demonstration Hospitals Program (NDHP) supported projects that enhanced integration between hospitals and the community sector,³ and we describe one project which used

What is known about the topic?

There is an increasing need to find efficient ways to ensure appropriate patient information transfer between hospitals and community care providers.

What does this paper add?

This paper reports on the opinions of 55 medical, nursing and allied health staff as to the effectiveness of electronic data linking between Flinders Medical Centre (FMC) and Metropolitan Domiciliary Care Southern Region (MDCS) in Adelaide.

What are the implications for practitioners?

The staff were positive about the data linking; those who used the Integration tools more frequently were significantly more likely to rate Integration more positively than those who were not using it as often. Benefits included instant identification of clients of MDCS who were admitted to FMC and enabled automated email alerts informing staff at MDCS about all client admissions and discharges to and from FMC.

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information technologies (IT) to promote integration of aged care services.

The electronic linking of patient health information between the hospital and community sectors to facilitate information sharing was identified as a key initiative in an NDHP4 project conducted in Adelaide, South Australia. The aim of this study was to pilot the effectiveness of electronic data linking tools to assist in the transfer of information between an acute care hospital and the main regional provider of home-based care.

Methods

Flinders Medical Centre (FMC) and Metropolitan Domiciliary Care Southern Region (MDCS) took part in this study. FMC is a 450-bed public university teaching hospital and houses the busiest emergency department (ED) in Adelaide. MDCS is a major provider of aged care community services offering support to the aged living at home. About 80% of admissions of older people at FMC are via the ED, of which 40%, or 8 to 10 admissions per day, are MDCS clients.

Before this study, an MDCS senior liaison nurse located at FMC provided clinicians at both sites with information about MDCS clients and assisted with discharge service planning. Identifying which patients were MDCS clients was performed manually with all patients admitted checked against a hard copy of the MDCS database (up to 4000 records). A fax was then sent to MDCS alerting the case manager of that patient's admission to FMC.

There were many shortcomings to this system. The MDCS listing was only updated monthly, missing newly referred clients. There was no coverage for the liaison nurse when that person was on leave. FMC staff also had no way of verifying whether a patient was a client of MDCS after hours or on weekends. Checking the status of community services during office hours often involved a lengthy phone call to MDCS and was dependent on the availability of a key worker to provide information over the phone. MDCS staff complained they were often not informed of discharge plans and that discharge summaries were rarely sent to them.

The data linking system between FMC and MDCS, known as 'Integration', developed in this study was piloted over 6 months in 2002–2003. The system involved three key components (see Box 1).

Initial database matching

The IT departments at FMC and MDCS worked together to automatically match existing databases. The system was set up to match data across six

fields (FMC unit record number, MDCS unit record number, name, date of birth, sex, and address). MDCS clients who matched at least three demographic fields but not the FMC unit record number were manually checked by MDCS staff. The initial matching process ensured the databases were accurate and enabled all subsequent reports to be automated. A daily update of the MDCS database was sent to FMC, and the hospital database automatically checked for changes and updated its listing of patients known to MDCS.

Information tools for hospital clinicians

Upon admission to FMC, an automated checking process determined whether the patient was a client of MDCS. Matching patients were automatically added to a report of current inpatients known to MDCS and posted on the FMC intranet. Staff were then able to access the report at any workstation with the use of a password. Each report provided details of the patient's case coordinator at MDCS and whether they were known to the Aged Care Assessment Team.

To assist with discharge planning, FMC staff were also able to log into a secure web site hosted by MDCS to run live reports of current matched inpatients. These reports provided details of current MDCS services accessed, details of equipment in the home and also current issues for the person in the community. Project staff worked with key hospital staff to ensure the tools were appropriate for staff to use.

Information tools for community clinicians

Upon admission and discharge of an MDCS client from FMC, an automated email alert was sent to MDCS. As many clinicians did not have their own desktop computer, a hard copy of the alert was printed and forwarded to the contact person for that client. Day admission patients (eg, dialysis) were removed from the alert system as this was overwhelming staff and found to be of limited value.

Staff at MDCS were able to access (via password) the FMC Intranet patient reporting system and run live reports on current MDCS inpatients at FMC. These reports included the reason for the person's admission and ward details to prompt the case coordinator to make contact with the hospital ward. Online radiographic reports and discharge summaries for these patients were also available to MDCS staff. Staff at MDCS were advised of the existence of the hospital report system by a memorandum with instructions on how to access the reports, and a short cut icon was placed on the desktop of each personal computer at MDCS. No other training initiatives were undertaken.

Evaluation and analysis

Questionnaires concerning the level of satisfaction with the electronic data linking were distributed to 60 MDCS and 22 FMC clinicians in May 2003. A convenience sample was used to target staff (medical, nursing and allied health) who were likely to have had contact with the Integration project. In addition to the specific Integration tools, staff at MDCS and FMC were asked to rate other current data links and indicate how often they used them.

An additional 50 questionnaires were distributed to aged care providers within the region as a control group. As they were not included in the Integration project they were asked about electronic data linking in general terms.

Responses to the surveys were collected and summarised using counts and percentages. Chi-square tests of association were used to determine differences between staff groups in their perception of the data links. Data were analysed using SPSS for Windows version 11.⁴

Two staff focus groups (one each at FMC and MDCS) were held to supplement the staff questionnaires. An independent facilitator planned and conducted the focus groups, and took notes during the sessions. Content analysis of the qualitative data from the focus groups' notes was undertaken.

Results

A total of 55 staff responded to the surveys in May 2003 (42% response rate). Analysis of the

responses to each of the questions concerning electronic data linking showed no significant differences between staff groups, therefore responses were combined across staff groups for analysis.

All clinician groups (including aged care providers) were very enthusiastic about the concept of electronic data linking (Box 2). The main concerns from staff centred around client privacy issues and the public anxiety about this. Concerns about access to technology were also raised.

Clinicians at MDCS and FMC gave varied responses when asked to rate the Integration data links between the agencies and comment on their frequency of use. Box 3 illustrates ratings of Integration given by respondents from FMC and MDCS. Ratings of Integration were related to usage. While staff at both sites were using Integration daily, many reported they were unsure about it. Those who had embraced the use of the Integration tools were significantly more likely to rate Integration higher than those who were not using it as often (P < 0.001).

Focus group responses were similar, with those using Integration generally enthusiastic, but a majority of focus group participants reported they lacked access to Integration and also needed more training in its use. Comments included:



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... it is not a brand new service to me ... but it is now so much more readily available after hours and weekend access as well. – *FMC staff*

I heard about this last year when I was working at [another hospital] but I just don't know how to use it *–FMC staff*

It is useful for looking up details and then to update and revise them. It's useful in getting a discharge plan. –*MDCS staff*

Discussion

This study found implementing data linking across the hospital–community interface was feasible and acceptable. Benefits included instant identification of admitted patients as current clients of MDCS as well as automated email alerts informing staff at MDCS about all client admissions and discharges to FMC. This enabled MDCS staff to be kept informed about their clients' hospital status and to proactively participate in discharge service planning. This system functions to increase organisational communication regarding patient identification, leading to the division of more appropriate discharge plans and prevention of lengthy admission times. It also increases patient safety as the two organisations are aware of clients



in common and do not rely solely on patient reports regarding services, treatments and medications. Furthermore, this system negates the need for manually matching client records. This represents a staff time saving of 20% (about \$12,000), and the time saved can be used to better patient outcomes.

Access to technology remains a barrier for uptake of electronic health initiatives such as Integration. For technology to be used by clinicians it must be readily available. This was a concern raised by the community clinicians within this study - access to personal computers was generally shared and thus disadvantaged the speed and efficacy of email alerts. The current study rectified this by providing hard copies of the emails to the appropriate contact person rather than emailing them directly. However, the aim is to make this process ultimately paperless as MDCS provides desktop computers for all case coordinators. Text messaging direct to clinician mobile phones may also provide an avenue for effective information transfer in the future.

High speed data transfer is essential for data linking to work effectively, as hospital clinicians were generally unable to wait for an MDCS services report to be run. The speed of information transfer has been addressed with the recent addition of a high-speed cable and programming changes to enable web-based reports to run within 10 seconds. This should improve uptake of this technology, but community agencies and regional information management networks must increase the speed of their data transfer for the full potential of real-time electronic data linking to be utilised.

Staff concerns about privacy issues were a result of inconsistencies and misinformation about privacy laws and codes of practice in the various health sectors. The proposed national guidelines for the sharing of health information should facilitate the transfer of vital information while offering consistent protection of privacy.⁵

Conclusion

While a number of cultural, political and technical barriers to implementation had to be overcome, IT

departments in each agency have demonstrated that a regional approach to data linking is achievable. Such links are vitally important from a quality and economic perspective to promote the integration of care for older people and deliver optimal health outcomes for older clients. This study provides initial evidence regarding the benefits of a patient electronic data linking system and may, with further trials and wider hospital coverage, negate unnecessarily long admissions, thereby decreasing demand on hospital beds.

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Competing interests

None identified.

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