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eReferral – Using ICT to Improve Patient Care in a Major Health Service

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Abstract

The referral of patients from one type of health care to another is a primary business of health care, and by incorporating ICT into clinical process we have improved the flow of patients around the service, reducing waiting times and increasing the level of care and quality of patient clinical outcome.

Keywords:

referral, ICT, health care

Introduction

In the industry equivalent movement of patients would be identified as a supply chain issue and authors such as Lee (1) suggest that for an organization to succeed processes that are agile, adaptable, and aligned must be developed.

As an adaptive organization, prepared to take on innovations in Information Communication Technology (ICT), during 2002 Barwon Health upgraded the patient administration system (PAS) to a best of breed database. Not only is this PAS modular providing software meeting specific clinical process requirements, it also provides the ability to create data entry tabs and data fields in house for local data needs and government reporting requirements. This software flexibility supports the redesign of a process to be incorporated into the main organisational software with minimal delay or cost, as the configuration is done in-house. In addition because this PAS is used across the region, the common healthcare problem of isolated islands of information is not encountered (2). Therefore information can be developed into reports that are delivered or made available electronically to the acute and sub-acute areas as appropriate.

Method

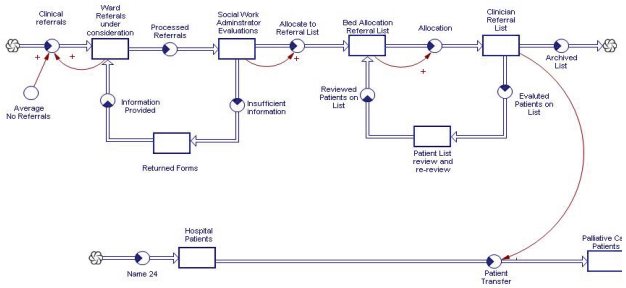

Figure 1 - Referral to sub acute care

The first and foremost issue with the paper based process is that it evolved over many years. The process was then effectively set in stone with the attitude that "this is how it has always been done" without consideration to changing needs of the organization for data, reporting, or the unnecessary complexity that had been incorporated into the evolving process.

Evolution of a process vs design

The traditional paper based process required a paper referral to be completed by the staff on the acute ward. This paper referral was transferred to the social work department via internal mail. The clinical and social information entered was often insufficient for to determine the appropriate referral to sub-acute care, so the referral was returned to the ward delaying sub acute services awareness of the potential patient. Once the referral was completed details were entered into as spreadsheet and a phone call made to the sub-acute center where a further spreadsheet was maintained. Sub-acute services then organized a senior clinician to access the patient at the acute center for the appropriateness of the referral, clinical date they will be ready to move from acute to sub-acute care and develop a treatment plan. This data flow is simply illustrated in Figure 1.

Locating the patients in the acute hospital can also be a challenge for the visiting clinicians who come to the acute site for patient assessment. Patients are often moved between wards to achieve a best patient mix on each ward. This can add time unnecessarily to the visit of the clinicians as they search for patients. The referral software has

been added to the Patients Administration System (PAS), so reports reflect patient movement as soon as the data is entered.

Information on the patients clinical needs can become quickly out of date on the referral paper. This regularly provides a challenge of information sharing between the acute and sub-acute staff. Common implications of when the information sharing breaks down include; patient condition deteriorates and they are no longer appropriate for sub-acute care, a nursing home bed becomes available and the patient is inappropriately transferred to it to clear the acute bed resulting in further disruption to the patient when they eventually get transferred to the sub-acute bed. Patients also may be transferred to the sub-acute hospital before all diagnostic tests are completed. Once again this initiates disruption to the patient and costs to the health service from unnecessary inter-hospital transfers.

The process was complex including many steps as the paper physically moved around the organisation. Analysis of the big picture and transparency of data had never been addressed. The intrinsic requirement that clinical assessment is required of each patient nominated to move from acute to sub-acute care, has not varied in the process change. This is to ensure that sub-acute care is the appropriate care for this person after their acute stay. For some patients sub-acute case is not required because they have adequate care available at home or have other medical or social complications that mean the patient requires alternative higher level of care such as nursing home.

Complex paper based process that are the result of evolution rather than design require specific staff for the process to work, with a break down of process during times of leave common. With the practice of redundant data entry by staff in different locations the ability to teach other staff to cover roles even for planned absences is difficult and time consuming as well as prone to failure due to lack of intimate familiarity with day to day tasks.

Advantages of ICT approach for clinicians

Intranet web based reports provide a single point of reference of referral information, which has met with clinician satisfaction. The clinicians buy in to the process of entering data real time and viewing reports with updated information rather than waiting for clerical staff to enter data into spreadsheets locally and then to be notified, has exceeded expectation and been sustained with minimal input in the six months since implementation.

Patient tracking as they move between wards, changes to clinical condition and inpatient procedures such as surgery are automatically provided by the ICT process assists clinical decision support (3). Removal of redundant steps with paperwork, lengthy phone calls comparing lists and faxing of referrals no longer required. These factors combine to ensure that the patient referral is received and acted upon faster than during the paper based process era. The minimum days to review has decreased by 50% from two days to one day and the average minimum days determined by day of week of referral has decreased from 3.9 to 2.6 days (Figure 2).

	Paper Based Internal Mail	ICT Approach
Minimum days to review	2	1
Average minimum days	3.9	2.6

Figure 2 - Change in time from referral to review in paper based versus ICT referral

Advantages of ICT approach for patients

Early planning of patient care with up to date patient clinical information has improved the level of care patients received because clinicians are supported in their decision-making in a timely and accurate manner. This provision of timely information supports objective decision making so that the right patient is in the correctly located bed at the right time, receiving the appropriate clinical level of care. Incorporating ICT into the process added more clinical information to the referral including previous admission details and current admission surgeries. In particular as the current admissions are updated in real time clinical readiness for transfer to sub-acute is monitored without seeing the patient saving clinicians time by reducing the number of reviews they do each Tuesday and Thursday. Saving time not seeing inappropriate patients allows for more quality time to be spent with patients who are appropriate for transfer.

Analysis "Mythbusters"

Sub Acute referral information following the computer referral implementation is freely available to other areas of the organisation in the form of web-based reports where in the past it was not transparent hidden in local spreadsheets. This facilitates strategic planning for beds as trends can be seen in the number of sub acute beds required, and analysis of peak times of demand for beds can be made objective. Both clinicians and administrators have appreciated dialog based on the same objective data. At a glance the clinicians can see the trends of patients waiting for transfer for the types of sub acute care.

The rate of rejected referrals to sub acute care has long been considered a problem for the organisation due to the sub acute clinician time. However the magnitude of the problem has been anecdotal and unsubstantiated through lack of objective statistical information. While referrals may not be accepted for unavoidable reasons such as unanticipated clinical deterioration or indeed death of the patient, the rate of acceptance is of prime relevance. With the data available so far the results show a statistically sta-

ble percentage of between 71% and 76 % from a monthly cohort of around one hundred referrals. Future review and analysis will include a break down of accepted referrals by referring ward to evaluate if the average 73% referral rate is constant across the wards, and inappropriate referrals are prevalence on particular wards requiring education.

Conclusion

The use of ICT to change the process by which patients are referred from Acute to Sub Acute care has had positive clinical and administrative outcomes. Patient referrals reach clinicians in a timelier manner, as there is no delay waiting for paper-based mail to be transported between hospitals. Clinicians also make better use of their time on the acute site spending it with patients rather that searching wards for patients who have moved. The administrative workload is also reduced as the previous handling of referral information by two sets of administrators has been eliminated by the direct clinician-to-clinician contact and web based monitoring of patient load. The foresight of appointing a project manager who had a vested interest in seeing cultural change and assisting clinicians with the change is the prime contributing factor to the success of the project. It goes without saying that the top-level management support that proposed the project was also a contributor to success. This collaboration provides the clinicians and administrators data to monitor the same cohort of patients each from their own perspectives. This information is available in real time, without subjective interference facilitating improved clinical decision-making and administrative decisions to provide the appropriate level of care as clinically dictated for the best advantage of the patient and organisation.

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