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Management information needs of clinician managers in a metropolitan teaching hospital

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Abstract

Clinician managers need relevant, current and integrated information to assist them in their managerial roles. This study examined the management information needs of clinician managers (doctors, nurses, data managers and a business manager) from a metropolitan teaching hospital. A purposive sample, of 15 clinician managers and five Information Unit staff who provide the clinicians with management reports, was interviewed by one researcher between July and September, 2001. The clinician managers indicated a preference for up-to-date, tabular or graphic management reports specific to their clinical specialty, and for education in interpreting the reports. The Information Unit staff members were willing to assist in these respects, and to present at Clinical Unit meetings to facilitate communication between the information providers and users. Clinician managers also required data for comparison with similar units within the area health service, or state-wide; they used the management reports mainly to assist with staffing and budgetary management. Continuous communication between providers and users of management information is essential to support the management function of clinicians.

Keywords: Clinician managers; hospital information systems; management information

Introduction

There is an essential need for Information Unit staff members to supply managerial information to assist doctors, nurses and managers in their decision making, particularly in the current environment of increasing pressures to reduce costs while maintaining quality health care. Increasingly, hospital clinicians are assuming managerial and financial responsibilities in their departments and in the organisation generally ([Degeling 1994, p.12](#)). There is also an emphasis on managing product lines or clinical groups; however, hospital administrators and clinicians have limited managerial and clinical information to support them in these roles ([McCaughan & Picone 1994](#); [Fetter & Freeman 1991](#)). Furthermore, the existing information systems often support only one dimension of the process, for example laboratory systems or financial reporting systems ([McMahon et al 1994, p.82](#)). Linkages between clinical and management information systems still need further development in the Australian hospital sector. Clinician managers need relevant, current and integrated information to assist them in their roles as managers and decision makers.

There have been very few Australian studies reported in the literature which have looked at the managerial information needs of clinician managers. One study completed in 1997 by The Clinician Information Systems Consortium looked at the information needs of clinicians in New South Wales hospitals in relation to budget management and resource use ([Howes et al 1997](#)). One issue identified by this study was the need to have an information system that would produce standard reports linking clinical and financial information for better understanding and communication amongst clinicians ([Howes et al 1997](#)). Diers and Pelletier ([2001](#)) identified the need to access and mine existing data at the operational locus of care, namely the nursing unit. Their study described an interesting model which could be used by nurses to assist in the decision making process. Further studies need to be undertaken on the management information needs of clinician managers.

In 1999 the metropolitan teaching hospital where the current study was completed was the subject of an Evaluation and Quality Improvement Program (EQuIP) survey carried out by the Australian Council on Healthcare Standards (ACHS). EQuIP, designed in 1996, is the evaluation tool used by the ACHS to monitor the quality of patient care and to assess the infrastructure within an organisation to support the delivery of care ([ACHS, 1996](#)). ACHS found that the hospital under study collected considerable amounts of information and published a great deal of data; however, the distribution and use of the data were limited. The surveyors found that more selective data needed to be circulated to clinicians. They recommended that the information currently collected and disseminated should be reviewed for its relevance, particularly the information provided to clinicians to facilitate their management duties.

The current study focuses on the hospital's approach to collecting, aggregating and disseminating information to assist clinician managers in their management roles. The impetus for the study came from the recommendations of the EQuIP surveyors during the hospital survey conducted in 1999. The purpose of this study was to ascertain the management information needs of clinician managers in one Australian metropolitan teaching hospital.

Research questions

The following research questions were addressed:

- What managerial information is currently available to clinician managers?
- What is the source of the information?
- What do clinician managers use this information for?
- What changes would clinician managers suggest regarding:
 - quality of information in the management reports
 - how often they should receive the management reports
 - timeliness of the data in the management reports
 - format of the data presented to them in the management reports
- What education do clinician managers need to assist

them in interpreting the management reports?

Method

The research design was an exploratory descriptive study using two separate questionnaires to collect data from the users (clinician managers) and producers (staff in the Information Units) of the management reports.

Sample

The hospital where the study was conducted is a 469-bed, metropolitan, tertiary referral hospital which specialises in burns, cardiology, colorectal, orthopaedic, cancer and geriatric services. The subjects interviewed in this study were a group of 15 clinician managers and five Information Unit staff. The fifteen clinician managers included doctors ($n=7$), nurse unit managers ($n=5$), data managers ($n=2$), and one business manager. There are three Information Units in the hospital which produce most of the management reports for the hospital, namely: Clinical Coding; Statistics and Casemix; and the Quality Improvement Unit. The Finance Department also produces information for some clinician managers but this department was not included in this study. The five staff members from the three Information Units included one manager from the Clinical Coding Unit, two managers from the Statistics and Casemix Unit (both part-time), one statistics officer from the Statistics and Casemix Unit, and one manager from the Quality Improvement Unit. The sample was purposive and supplied by the Manager of Patient Services and Information. The selection of the subjects was based on their interest in information and data.

Instrument

Two questionnaires were designed to explore the needs of clinician managers in relation to managerial information. The questionnaire for the clinician managers was designed by the researcher and based on the EQUiP recommendations and discussions with health information managers at the hospital. It consisted of open- and closed-ended questions. The questionnaire covered clinician managers' suggested changes to the reports received, their education needs, and how they used the information provided.

The questionnaire for the Information Unit staff was designed to ascertain what information they provided currently to clinician managers, where the information was sourced and whether or not they were willing to participate in providing education to the clinician managers to assist them in interpreting the reports. The questionnaire for the Information Unit staff was trialled in the Clinical Coding Unit with one coder, who was not included in the study, and modified, based on her feedback.

Procedure

The questionnaire for the clinician managers was sent to the sample members with a letter of introduction, and followed one week later with a telephone call to arrange an appointment to conduct the interview. Prior to the interviews with the clinician managers, a number of reports relevant to the clinical specialty of each of the clinician managers were produced and taken by the researcher to the interview. During the interview the clinician managers were shown the reports relevant to

their specialty and asked to base their responses on these. The reports included a Diagnosis Related Group (DRG) report, a Quality Improvement report and various ad-hoc reports which are produced by the Clinical Coding Unit. The questionnaire for the Information Unit staff was also administered by face-to-face interviews. The staff members in the Information Units were telephoned to arrange an appointment and they did not sight the interview questions prior to the interview.

The data were collected over a period of three months between July and September, 2001. One researcher conducted all the interviews. Two clinician managers (a doctor and a nurse) returned the questionnaire which they completed themselves. The data were coded and descriptive statistics were used for analysis.

Limitations

The study was exploratory in nature, therefore the sample of clinician managers was not selected randomly and was not representative and hence the results cannot be generalised to the population of clinician managers. The two clinician managers (one doctor and one nursing unit manager) who completed the questionnaire themselves would not have had the benefit of clarification of questions by the researcher nor the opportunity to refer to the sample reports.

Results

The results will be presented separately for the clinician managers and the Information Unit staff members.

Results for clinician managers

Profile of clinician managers

The gender and position titles of the clinician managers are presented in Boxes 1 and 2.

1: Gender profile of clinician managers* (n=15)

<u>Gender</u>	<u>n</u>	<u>Per cent</u>
Male	8	53
Female	7	47
Total	15	100

*Clinician managers include doctors, nurse unit managers, data managers and business managers.

2: Titles of clinician managers (n=15)

<u>Title</u>	<u>n</u>	<u>Per cent</u>
Doctor	7	47
Data manager	2	13
Nursing unit manager	5	33
Business manager	1	7
Total	15	100

It can be seen that the majority (80%) of the sample were doctors (47%) and nurses (33%) (Box 2).

Information currently received by clinician managers

It can be seen in the Box 3 that the majority of respondents (73% and 60%, respectively) stated that the information they received currently was understandable and relevant. Only one respondent stated that the reports received currently were neither understandable nor relevant.

3: Clinician managers' perceptions of the understandability and relevance of the reports received (n=15)

<u>Response</u>	<u>Understandable</u>		<u>Relevant</u>	
	<u>n</u>	<u>Per cent</u>	<u>n</u>	<u>Per cent</u>
Yes	11	73	9	60
No	1	7	1	7
Partial	1	7	3	20
No response	2	13	2	13
Total	15	100	15	100

Proposed changes to the reports currently received by clinician managers

Boxes 4 to 7 show responses from the clinician managers when asked: (i) to comment on the various management reports they were shown; and (ii) to make suggestions for changes. Box 4 indicates that 31% of responses related to the need for more up-to-date information. Up-to-date information refers to information on patients discharged in the previous six months. A number of clinician managers (25%) indicated that they needed more explanatory notes on the data they received.

4: Clinician managers' suggestions regarding changes to the quality of management reports received (n=15)

<u>Changes to quality</u>	<u>n</u>	<u>Per cent</u>
More current/up to date	5	31
No change required	4	25
More explanatory notes	4	25
Specialty specific	1	6
Reports previously of high quality*	1	6
No response	1	6
Total&dagger;	16	100

*One clinician manager did not suggest any changes but commented that reports previously received were of high quality.
†The total responses are greater than 15, as some subjects made more than one suggestion.

In response to suggested changes regarding the frequency of provision of reports, the majority of the clinician managers (73%) responded that they would like to receive reports on a monthly basis (Box 5).

5: Clinician managers' suggestions regarding changes to the frequency of reports received (n=15)

<u>Changes to frequency</u>	<u>n</u>	<u>Per cent</u>
Monthly	11	73
Quarterly	2	13
Six monthly	1	7
Annually	1	7
Total	15	100

The majority of the responses (59%) indicated that the clinician managers needed to have up-to-date/current information in the reports they received (Box 6). Up-to-date information refers to information on patients discharged in the previous six months. Four responses (24%) indicated that they would like retrospective information.

6: Clinician managers' suggestions regarding the timeframe of the data in reports received (n=15)

<u>Changes to timeframe of data</u>	<u>n</u>	<u>Per cent</u>
Up to date/current information	10	59
Retrospective information	4	23
Prospective information	1	6
No change required	1	6
No response	1	6
Total*	17	100

*The total responses are greater than 15, as some subjects made more than one suggestion.

Box 7 shows the clinician managers' suggestions regarding changes to the format of the reports they received. Seven responses (47%) were in favour of having the information in reports represented graphically or in table format.

7: Clinician managers' suggestions regarding changes to the format of existing reports received (n=15)

<u>Changes to format</u>	<u>Response</u>	<u>Per cent</u>
Graph/table	7	47
No change	5	33
Specialty specific	2	13
Overview	1	7
Total	15	100

Educational needs of clinician managers

The majority of clinician managers (93%) indicated that they were willing to have meetings with the Information Unit managers, who would explain the type of information they could receive. The majority of respondents (60%) also said that they would like to receive education on how to interpret the reports they received. Most of these (70%) indicated that the type of education could take the form of presentations at their unit meetings which would enable focused and specialty-

specific education.

Clinician managers' information needs

Box 8 shows the information the clinician managers indicated that they needed to assist them in their management roles. The majority of clinician managers responded that they would like to receive all the available reports from the Information Units. Box 9 provides more detail on the various reports mentioned.

8: Types of reports clinician managers need (n=15)

<u>Response</u>	<u>n</u>	<u>Per cent</u>	<u>n</u>	<u>Per cent</u>
	<u>Patient activity booklet</u>		<u>DRG reports</u>	
Yes	12	80	11	73
No	3	20	4	27
Total	15	100	15	100
	<u>Clinical coding reports</u>		<u>Monthly data</u>	
Yes	12	80	13	87
No	3	20	2	13
Total	15	100	15	100

9: Information included in reports

<u>Report</u>	<u>Detail</u>
Monthly data	Detailed length of stay of each specialty and specialist, hospital acquired bacteraemia, unplanned return to theatre and unwritten discharge summaries by specialty
Casemix reports/cost weights	DRG*s of the specialties and their cost weights
Clinical indicators	Measures of the clinical management and outcome of patient care. Used to flag potential quality problems
DRG reports	Top 10 DRGs of each specialty
Clinical coding reports	This information includes the codes given to various diagnoses and procedures documented in a patient's medical record
Patient activity booklet	Statistical detail of all units' admissions, separations and financial status of patients
Ad-hoc reports	These include a variety of information, for example, percentage of discharges from each specialty and admissions under each specialty

*DRG = Diagnosis Related Group

Box 10 shows the clinician managers' responses to the different types of comparative data that are available. All clinician managers responded that they would like to receive data which would compare their unit to similar units in the same Area Health Service (AHS). The majority (87%) also stated they wanted comparative data from similar units across the State.

10: Clinician managers' responses to the type of comparative information needed (n=15)

<u>Response</u>	<u>n</u>	<u>Per cent</u>	<u>n</u>	<u>Per cent</u>
		Show activity in own unit		Similar units in the same AHS*
Yes	14	93	15	100
No	1	7	0	0
Total	15	100	15	100
		Similar units in the State		Other units in the hospital
Yes	13	87	4	27
No	2	13	11	73
Total	15	100	15	100

*AHS = Area Health Service

Clinician managers were asked to indicate the purposes for which they used the information they currently received. Most of the responses related to assisting the clinician managers in improving the running of their units (35%), in the staffing of their units (27%), and in budgeting and funding uses (23%) (Box 11).

11: Information uses stated by clinician managers (n=15)		
<u>Information use</u>	<u>n</u>	<u>Per cent</u>
Improve running of the unit	10	33
Staffing	8	27
Budgeting/funding	7	23
Generate statistics for unit/meeting	2	6
Planning	1	3
Indicator of outcomes	1	3
Trends	1	3
Total*	30	100

*The total responses are greater than 15 as some subjects made more than one suggestion

Other comments by clinician managers

When asked whether they knew the source of their data, nine of the 15 clinician managers (80%) did not know the source of the information they received.

When asked if they had any other comments three clinician managers acknowledged the problems relating to the computer system at the hospital. Examples of the problems cited were: the network being down; reporting applications not working; and problems with hardware. Two of the clinician managers also stated that the shortage of staff in the Information Units was part of the reason for lack of provision of timely information. Two clinician managers stated that they did not understand the abbreviations used in the reports and one clinician manager stated that the average length of stay

(ALOS) data were meaningless.

Results for Information Unit staff

Box 12 shows the different information sources used by the Information Unit staff members to obtain information for the reports which they generate for clinician managers.

12: Different information sources used by Information Unit staff to produce management reports for clinicians (n=5)

Information sources	Information unit		
	Clinical coding	Statistics and casemix	Quality improvement
PAS*		✓	
Department of health		✓	✓
Trendstar	✓	✓	
The wards		✓	
Labs/"PathNet"	✓		
Finance department		✓	
ICD-10-AM/DRG manuals	✓		
Medical staff			✓

*PAS = Patient Administration System

Box 13 provides further explanation of the sources of information.

13: Explanation of the sources of information used to produce the management reports

Source	Detail
PAS	This is the Patient Administration System (PAS) used by the hospital
Department of Health	Provides statistics on the number of inpatients and discharges
Trendstar	Clinical costing system used by the hospital
The wards	Supplies statistical data on bed occupation, transfers and discharges
ICD-10-AM/DRG manuals	International Classification of Disease and Related Health Problems, 10th Revision, Australian Modification/Diagnosis Related Group manuals. Used for coding and grouping data from patient medical records
Medical staff	Provide clinical indicator data

Box 14 shows the types of management reports which the Information Unit provides to the clinician managers.

14: The types of management reports given to clinician managers by the Information Units (n=5)

Information unit

<u>Types of reports</u>	<u>Clinical coding</u>	<u>Statistics and casemix</u>	<u>Quality improvement</u>
Monthly data	✓		✓
Casemix reports/cost weights	✓	✓	
Clinical indicators			✓
DRG reports	✓		
Clinical coding reports	✓	✓	
Patient activity booklet		✓	
Ad-hoc reports	✓	✓	

Box 9 (above) provides further information regarding the reports mentioned in Box 14.

All Information Unit staff members were willing to meet with clinician managers and to assist in educating them regarding interpretation of the reports currently received and other reports which could be produced.

Discussion

Issues for clinician managers

Understanding and relevance of existing reports

The majority of clinician managers indicated that the management reports they receive are understandable and relevant to their needs. It is noted that, of the two clinician managers who stated that they did not need the information, one was a data manager and one was a nursing unit manager; hence, all medical doctors in clinician manager roles stated that they needed the information.

Suggested changes to existing reports

The majority of clinician managers would like current reports on a monthly basis, in graph or table format. In the hospital under study, to date, only the Patient Activity Booklet is provided on a monthly basis. The clinician managers also raised the issue of unit specificity of the reports. It was commented that the existing reports would be more relevant to the user if they contained information specific to the clinical unit. At most teaching hospitals, clinical units are given casemix and operational reports on a regular basis. The Quality Improvement unit previously provided monthly reports and the Casemix Unit previously supplied DRG reports on a six-monthly basis. These reports are not supplied currently to clinician managers.

Education needs

As outlined by Diers and Pelletier (2001) education, in understanding and interpreting the information received and how it can be used, is essential if the value of the information is to be maximised. Results from this study showed that clinician managers wanted further education regarding the interpretation of the information in reports received. Clinician managers were willing to attend education sessions by Information Unit staff and some clinician managers also stated that they would like to restart the program "Adopt an HIM"

(Health Information Manager). This program entailed an HIM from the Clinical Coding Unit or Casemix Unit attending the clinical unit meeting to discuss casemix matters or coding matters related to that Unit.

Information needs

In a number of studies ([Degeling, 1994](#); [Degeling, 1995](#); [Howes et al, 1997](#); [Diers and Pelletier, 2001](#)) there has been emphasis on the importance of clinician managers being able to receive relevant and timely information to support their managerial and financial roles. The results of this study have supported these results. The majority of clinician managers indicated that they would like to receive all the reports generated by the Information Units on a monthly basis. Some clinician managers also suggested that specialty-specific reports would be valuable in assisting them in managing their units. Area and state-wide comparative data also are important to the clinician managers, especially the data that detail activities in their own units compared with similar units in the same AHS. Clinician managers are becoming increasingly more responsible for the operations and budgets of their units ([Howes et al, 1997](#); [McCaughn and Picone, 1994](#)).

The results from this study showed that the majority clinician managers used the data to improve the running of their units, as well as for monitoring the budget and staffing their units. A key factor in product line management revolves around receiving the information in a timely fashion ([Ruffner, 1986, p.12](#)) and results from this study supported the clinician managers' need for up-to-date information.

Issues for Information Unit staff

The results demonstrate that there are overlaps in the type of information given to clinician managers by the different Information Units in the hospital under study. This duplication wastes time in the areas of collection and reporting, and also undermines the constancy of information and can cause confusion to the information. In the study undertaken by the Centre for Hospital Management and Information Systems Research (CISC) the authors emphasised the importance of having a standard set of reports to facilitate communication between clinicians and administrators ([Howes et al, 1997](#)).

It is important also for the managers of the Information Units to meet with clinician managers on a regular basis to clarify their needs. Such discussions would assist in reducing duplication of information and enable better use both of the data gathered and the information reports provided. It is also necessary for the Information Units to regularly review the reports generated to ensure that they remain relevant to the clinician managers. It is interesting to note the multiple database sources, both clinical and administrative, which are used to produce the management reports.

Hospital information system and staffing issues

Two key issues raised by both clinician managers and Information Unit staff members were related to problems with the hospital information systems and staffing levels in the Information Units. The issues that the clinician managers raised regarding the information system were mostly related to the network being down, reporting applications not being

executed, and hardware not working. The problems with the information systems are more multi-faceted for the Information Units. Coded data had not been available on the system for the previous financial year due to the lack of a suitable interface between the Patient Administration System (PAS) and the coding software. In the Casemix Unit there were problems with the clinical costing system (Trendstar) which was unable to extract information from the PAS and, hence, the reports that the Casemix Unit previously produced could not be generated. All of these technical issues are currently being addressed by the hospital.

Staffing also remains an issue in the Information Units. There had been a significant turnover of staff during the time of the study, which caused delays in obtaining information for reports. Most of the issues related to staffing have been addressed, subsequently, by the hospital in the study.

Conclusion

In order to carry out their managerial and financial responsibilities, clinician managers need to have relevant and timely information available to them in the form of management reports. These management reports will assist them in making decisions regarding the management of their units, particularly in relation to staffing and budgetary management. Clinician managers at the Sydney metropolitan teaching hospital where the study was conducted felt that they needed all the reports that were generated by the Information Units currently, to assist in decision-making. The majority of clinician managers found these reports understandable and relevant for their needs. The information that the clinician managers receive should also include comparative data, especially those data that enable comparisons to be drawn with other hospitals in the same area health service and throughout the State. These comparisons are important to clinician managers as they help to set benchmarks for practice. Reports that are provided to clinician managers need to be standardised within the organisation in order to facilitate communication between clinician managers in the same organisation, and between clinicians and administrators in other organisations. In order to achieve this, it will be necessary for the Information Units to review their reports regularly, to reduce duplication of information and to maintain their relevance to the users of the information. Continuous communication between the users and providers of management information is essential to meet the information needs of clinician managers.

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