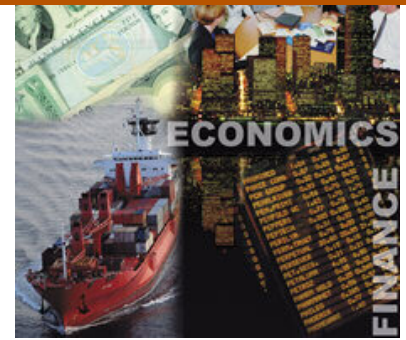


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Cost information in the new public sector environment: a case study of cost accounting change within a state owned teaching and research hospital

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Working paper

Cost information in the new public sector environment: a case study of cost accounting change within a state owned teaching and research hospital

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Abstract

This paper reports on a case study of the utilisation and users of cost information in a state-owned teaching and research hospital in Australia. The findings indicate that the current utilisation of the cost information resides primarily at higher executive and managerial levels of the organisation. The major organisational change, particularly pressure for improved productivity and competitiveness driven by the wave of recent public sector reforms in Australia, is significantly filtering down throughout the subject hospital. Various productive and unproductive ways that cost information are used and impediments to the use of costing information in the hospital setting are also identified.

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Introduction

The Australian public sector has recently faced a sweep of reforms. Increased use of private sector type financial management tools such as tendering and contracting out, benchmarking, process re-engineering, accrual basis of accounting and reporting are some of the key reforms that Australia has adopted (Parker and Guthrie 1993, Abernethy and Chua 1996, Hoque and Moll 2001). This paper seeks to advance our understanding of whether such a change to the public sector environment brings about changes in the cost accounting system and its use within a public teaching and research hospital in Australia.

Traditionally, hospitals had little incentive or demand for cost accounting information to be used as a management control tool. Hospitals primarily tended to report to external funding authorities such as the government, and hence only provided for external reporting functions (Covaleski, Dirsmith and Michelman 1993, Jones 1999). Therefore, managerial initiatives for cost accounting information were not dominant issues, and provisions for hospital services were considered to be a dominant mode of managerial control (Abernethy and Chua 1996, Comerford and Abernethy 1999).

Today government hospitals are in an environment where they need to compete for resources, this can lead to increased efficiency in cost and service elements (Lapsley 1994). These hospitals can now be viewed as a collection of cost centres producing health products, highlighting the need for managing products and outputs and creating clear lines of accountability. There is also the importance of cost accounting information, effective resource utilisation and economic efficiency, elements that are not of traditional concern to the health professionals and administration (Alam and Lawrence 1994, Lapsley 1994).

Considerable studies have investigated issues of public sector change in various settings. For example, Dent's (1990) study of EuroRail looked at how power was redistributed in order to encourage acceptance of a privatised mode of governance. Similarly, the Abernethy and Chua's (1996) study of an Australian hospital also looked at how structural change wrestled power away from the doctors and helped the institutionalisation of a resource consciousness in their research organisation. The Knights and Collinson (1987) study looked at a lack of resistance to accounting numbers by the unionised workforce. Our study expands on these existing studies by providing an empirical analysis of the working of the cost accounting information system in an Australian public hospital.

The remainder of this paper is organised by firstly detailing the issues explored in this study. Next, the research methods adopted are described. The research findings are then presented. This is followed by a discussion of the findings including the limitations and implications for future research.

Research aims

This study aims to derive data pertaining to the presence of cost accounting information in a public sector setting. In so doing, it attempts to explore how that cost information is used for different types of decision making in the subject hospital setting. This study also examines the users of this costing information.

This study further explores the extent to which the cost accounting system in the case site meets the needs that are required within this new public sector environment and the impediments to the use of cost data will also be discussed.

Research strategy and data

This study adopted a single-case study design compared to a multiple-site approach as it was considered the best way to gain an in-depth understanding of the costing system in a public hospital. In addition, a multiple-site approach would create difficulties in deriving meaningful conclusions, as those sites would be at different stages of the costing implementation.

The field research for this study extended over a nine-month period between February and October 2000. Face-to-face interviews were conducted with a total of 28 hospital staff using a semi-structured interview schedule. Participants were encouraged to elaborate beyond the proposed questions if they desired, however we asked all participants similar questions during the interviewing process. The aim was to ensure that all topics were covered and also to maintain consistency between interviews. Participants worked in a variety of functional areas throughout the hospital. The aim here was to achieve a good mixture of finance, administration, medical and nursing staff, in order to achieve responses from a variety of backgrounds and knowledge. The details of participants and their functional positions are as follows: Finance Managers (2), Clinical Costing Managers (1), Executive Directors (1), Deputy Executive Directors (1), Medical Directors (3), Assistant Medical Directors (1), Business Managers (4), Executive Director of Finance (1), Nursing Managers (2), Nursing Informatics (1), Nursing Projects Officers (1), Acting Nurse Director (1), Nursing Directors (2), Clinical Costing Officers (3), Health Information Managers (1), Nurse Educators (1), Physicians (1), and System Support Officers (1).

The interviews included questions about the types cost information in the organisation, the uses of cost information and how cost data was utilised, the new public sector environment and the extent to which costing information met these new demands, recent health sector reforms, and the human effects of costing developments. These questions were mainly developed from prior research. Interviews ranged from a half-hour to two and half-hours, with a majority of interviews lasting over one hour. The interviews took place in the office of each interview participant. A tape-recorder was used to record each interview and the interviews were transcribed the following day. In addition, the researchers also took notes in the interviews of main points and of any illustrations provided by the participants, and these notes were immediately written up after the interview had concluded.

Information gathered from the face-to-face interviewing process was used as a primary data source to explain the research issues investigated. Within the case analysis, important direct quotes were used to substantiate the findings. From the use of semi-structured interviews a variety of rich material can be generated (Burgess 1982). Cottle remarks, "without allowing people to speak freely we will never know what their real intentions are, and what the true value of their words might be" (Cottle 1978:12). Follow-up interviews, telephone contact and emails were conducted where necessary, to clarify any further information needed. Documents, manuals, management reports and costing statements were collected. These supplemented and corroborated the interview data. The feedback of findings to key interviewees further validated the evidence.

The research site

Alpha Hospital was chosen for the site for this study for several reasons: being one of Australia's largest public hospitals, the complexity of the organisation and the research site's adoption of recent reforms. Alpha is one of the largest teaching hospitals in Australia with a budget of around 50 million dollars. It is a 820-bed tertiary referral hospital and consists of some 50,000 admissions and 500,000 outpatient occasions of service per year. Alpha provided an extensive range of primary and secondary clinical and tertiary services to a population of approximately 3.5 million people. In addition to servicing the local population, Alpha provided referral services to a range of neighbouring health districts. Alpha is a large and complex organisation with an array of clinical, finance and administration divisions. At the time of this study, the hospital employed 4088 staff comprising of Managerial and Clerical (698), Medical (411), Nursing (1,588), Operational (697), Professional (467), Technical (99), Trade and Artisans (82) and Other (46).

The costing system at Alpha

Hospitals use the term 'casemix' as a patient classification system. Casemix costing involves associating costs with these patient classifications. Casemix costing can involve both clinical costing and cost modelling. Appendix A provides a brief discussion on casemix and these two costing models. At the time of the study both clinical costing and cost modelling existed at Alpha. Clinical costing aims at deriving an actual cost per patient whilst cost modelling aims at deriving an average cost per patient. Clinical costing was primarily utilised in the organisation and pure cost modelling had not been used for the past two years. However, there were some elements within the organisation that were currently cost modelled, overheads are one example of this. Another example where cost modelling was used was with pharmaceutical expenses. There was no electronic system at Alpha that could record each drug as it was prescribed to each patient. Cost modelling was therefore used where the total ward pharmaceutical costs were spread over all of the patients in that ward.

Clinical costing allows the generation of expenditure at an individual patient level. At the time of the study the system that captured this information was called Transition II Clinical Costing System. Transition II operated from a number of feeder systems that allocated indirect cost (such as overheads) and direct costs (such as patient nursing hours) to the individual patient. At the time of the study, clinical costing information only provided costs for inpatients, and within this established details such as patient demographics and patient utilisation of resources from activities such as pathology, radiology and theatre. Production was costed by the use of relative value units (RVUs). RVUs are a measure of the relative value of one product compared with all other products of a similar type (Commonwealth Department of Health and Aged Care 1999). Hindle (1999) adds that they are cost weighted consumption data. RVUs were allocated to each product in each department and were measured in units such as cost or time. RVUs were then used as an allocation method to allocate cost to account codes, otherwise known as cost buckets. These cost buckets consist of all of the costs that are produced under that code and then they are distributed per RVU. RVUs can be different in every cost bucket. From this process the costs, such as the cost of a blood count, could be established per individual patient based on the RVUs consumed for that patient. RVUs could also be used to cost individual patients through the patient dependency system for nursing hours. Here patients were coded on a scale from a – g depending on the acuity of the patient with (a) denoting that the patient needed less intensive care and (g) denoting more intensive care. Weighted separations were also used to generate costing information. These were based on separations that went through the hospital and there were weights that are associated with these, if one had a high weight then he or she was considered complex, where a lesser weight was less complex.

Interviewee comments suggested that the use of clinical costing had the advantage of providing costs per patients and also identified elements such as care treatment given per patient and the types of activities that were occurring, how many of them were occurring and it also enabled a profile of clinical care to be established. One Clinical Costing Projects Officer commented:

I see clinical costing systems as doing two things. They will be very good business management tools because we will be able to look at the actual costs for outcomes rather than just model the outcomes. Secondly, they will be very good as a clinical tool because DRGs are fairly good from a resource protocol perspective... we are probably about 18 months away from getting to that level of information and indicators into clinical practice.

Utilisation and users of the costing data at Alpha

Utilisation of costing data

Casemix costing data was found to be utilised for various purposes within Alpha. The Transition II Clinical Costing System was being used at a management level to manage organisational performance and had been used to distribute to clinicians details about their clinical behaviour. It was also being used by the finance department for the generation of costing data, and this cost information was being used by senior management for organisational analysis. Weighted separations were another criteria on which the organisation was assessed. The costs associated per weighted separation were determined and used by senior management as a performance indicator.

Most interviewees suggested that casemix costing data, which can incorporate a combination of clinical costing and cost modelling, was often used to support management processes and to respond to external contingencies, such as governmental funding authorities, regarding resource allocations. A Nursing Informatics Officer commented:

I think that it (cost information) can force hospitals just to look at their core business so any fat in the system tends to go and certainly there is more focus on profitability and cost neutrality of services that we are offering.

In contrast, a Nursing Director commented:

It has never really been sold, in my mind, as a proper method of actually doing things or managing business.

He suggested that there was a need to further advocate benefits associated with the use of cost information throughout the hospital. This is consistent with Suchman (1995) who emphasised the importance of legitimacy in the organisation to justify organisational practices.

At the time of the study, from a health professional's perspective, the use of casemix costing information was being utilised in some areas of the hospital to develop arguments, such as arguments about formal budget levels. Here it was considered beneficial to health professionals to have some ability to manage and understand cost information in order to support their arguments. Interviewees suggested that one particular argument often used, was in relation to access of resources. Here, nursing managers and directors were arguing against people accessing their resources due to issues such as restrictive budgets and budget rollover. Casemix costing data was also utilised in arguments with the State Health authority about the funding received for elective surgery, the only division in Alpha that was casemix funded.

A Clinical Costing Manager revealed that there was not a great deal of cost information relating to clinical data, however this was evolving. A Clinical Officer suggested that the use of cost information from a clinical perspective had more long-term benefits in contrast to short-term, such as for trend analysis, and further commented:

Using this data provides them with a trend for their care so are they treating their patients the same way as their peers? Are their patients significantly different from their peers? Hence looking at patient information is valuable data and you have to do this over a long-range....The clinical focus is really – am I doing things right? Is there any one else that is going things better? And if so how are they doing this differently?

Interviews revealed that a limited amount of health professionals were currently at the stage of using the cost information generated for the purposes of long-term analysis.

However, interviews with health professionals also revealed an interest in tracking the history of the patient during their time at the hospital, and this could be achieved through the use of DRG'sⁱⁱ as a broad tool. It was suggested by several clinicians that clinical costing information needed to be received as prospective information, to allow health professionals the ability to make informed decisions. Information was perceived to be needed at the decision point of care stage. This would be expected to increase the impact of the information. One particular clinician suggested that a decision support software package would be desired allowing health professionals to explore a range of opportunities before prescribing treatments and drugs to patients. He believed this to be one way in which cost information would more readily facilitate clinical decision-making.

Health professionals generally held the view that they were more interested in indicators such as length of stay, infection indicators and quality indicators as opposed to cost indicators and cost information. Often cost data was not considered relevant, as the best clinical procedure for the patient and the clinical effectiveness was the primary concern for health professionals. However, several health professionals, particularly at the director level, where their position in the hospital did incorporate financial responsibility, did consider cost information to be relevant. However, these advocates stressed that the timing of the information was crucial. Giving health professionals information that is dated (such as one year old information) had no advantages, as the cost information was considered irrelevant.

Whether clinical costing information or cost modelling information was more useful, responses were mixed. On one hand, some health professionals considered clinical costing information as being the only way to look at the actual services that they were providing so that alternatives could be examined. From a finance perspective, the use of clinical costing information provided the finance division with the ability to question the activities of health professionals, and (as asserted by a Finance Manager) to help facilitate health professionals' awareness of the costs involved with their patients. In addition, the Finance Manager stated that this information may also make health professionals look at their own patterns of how they treat patients. Cost modelling and costing information in general can be used to identify trends or for looking at doctor behaviour, however the general feeling here is that this needed to be done very sensitively.

Users of costing data

When examining the users of costing information in the organisation, participant responses varied. One view was that the clinical costing system was implemented largely to gain external legitimacy such as complying with the requirements of the

National Competition Policy and expectations of State Healthⁱⁱⁱ, professional associations, and the public. Therefore, according to many, the actual users of cost information primarily rested at an executive and management level and also tended to vary across health professional staff and finance and managerial staff, such as business managers. Prior research (Chua 1995, Lowe 2000b, Prentice 2000) provides support for this. Interviewees commonly asserted that the people who were going to use the cost information were those that are interested in improving their practice, whether they are business management or clinical management. In addition, by using a combination of clinical and financial management information together, the organisation could examine this information and determine its impact from an overall management perspective.

Several interviewees' suggested that for health professionals to be really interested in cost information, they have to know the benefits involved. A Medical Director commented:

At the moment they feel as if they are just getting hit over the head and can treat less patients, they can't see the benefits of it – they just see the downside.

Interviewees revealed that there was a general awareness of cost information present at a nursing manager level and above. This knowledge of cost information was also desirable when it came to understanding hospital restrictions, such as staff replacement restrictions, that may be present at the divisional levels. In addition, there appeared to be an increasing realisation of the finite amount funds. A Medical Director commented:

There is a realisation now that there is an opportunity cost in every thing that you do and every time you prescribe an expensive drug that may mean that someone might not get something else. That is the reality.

Therefore, in this sense, the relevance of cost information to health professionals at all levels was evident. Whether cost information actually affects patient management was another issue. A Nursing Manager commented:

The major criticisms of casemix, *per se*, is that for a manager or a clinician, it does not have any impact on the management of that patient.

She went on to comment that on a day-to-day basis, casemix may even be seen as being prescriptive. A Clinical Nurse Consultant revealed that attitudes towards this might depend on personal characteristics, such as familiarity with decision-making using casemix, their background or professional stream or academic preparation. In addition, he suggested that some health professionals might be in a comfort zone and only be comfortable using information that they have used in the past. In contrast, it was commented by a Medical Director that:

Cost effectiveness should be a part of clinical decision making.

He emphasised that in addition to this, the information provided needed to be accurate and that often clinicians did not have the time to assess cost effectiveness. He also suggested that the State Health department appeared ambivalent

about casemix, and while there was this perception, health professionals would be reluctant to take any notice of it until it was evident that the State Health department had become clear in their thinking.

In summary, the actual penetration of cost information in the organisation was at a high level such as across the finance division, divisional directors and business manager levels (Meyer and Rowan 1977, Covaleski *et al.* 1993, Prentice 2000). Our results indicated that casemix costing had a high degree of managerial support illustrated by their use of cost information. The organisation was in the process of devolving this information and there was an aim to get this information down to a divisional level. There was a high level roll up at an executive level and once at the divisional level there would be a similar high level rollup with the ability to drill down to an individual level such as individual doctors and specialists. Directors and management considered this an important step in getting health professionals to actually look at their service and their practice. The time frame for this devolution to department level was estimated to be from 18 months to two years.

6. The costing system and the new public sector environment

This section examines the extent to which the costing system at Alpha met the needs of the new public sector environment. As mentioned earlier, factors such as data enhancing product and output management, resource utilisation, economic efficiency and accountability are non-traditional pressures on the public hospital system in Australia. Interviewees' comments often emphasised that in order to achieve organisational efficiencies there needed to be an organisational integration between managerial responsibilities for resource utilisation with clinical responsibility for patient care. One Business Manager suggested that a strategic management approach was needed at the hospital level to drive the institutionalisation of the new public sector concepts and demands. A Nursing Manager suggested that cost concepts were being pushed within the organisation and that they had a dual relationship with leadership. She contended that the devolution of these concepts and leadership needed to be hand in hand within the organisation, an aspect that was not currently apparent. In addition, one Business Manager provided details of a workshop report that was conducted in July 1998 titled 'Outcomes of the Business Managers Workshop'. Within this report, diagrams were presented representing the organisation's key performance indicators and business objectives. He asserted that these reflected the organisation's commitment to the concepts underlying recent public sector reforms. However, it should be noted that workshops such as this were aimed at executive and business management levels. The hospital was not yet at the stage of greatly involving health professionals in such workshops.

One Nursing Manager advocated that quality in health care couldn't exist without the examination of cost effectiveness, efficiency and resource utilisation. He contended that these were inherent characteristics of quality. In

addition, he believed that a business approach had been taken within the organisation. However, it had a long way to go before it would be fully realised. A Deputy Executive Medical Director emphasised that hospitals are unique in their structure where the power resides with health professionals. He contended that the new public sector pressures were more evident within the organisation as power appeared to be moving from the clinician to more managerial-focused people (Hardy 1996). One Executive Finance Manager believed that casemix changed the organisations perspective about things and made the hospital look at its activities costs, clinical pathways and feeder systems.

Interviewees indicated that new public sector concepts had been institutionalised within the higher managerial and executive levels of the hospital hierarchy. At these higher levels in the organisation there was an accepted level of legitimacy of managerial practices (DiMaggio and Powell 1983, 1991, Suchman 1995, Selznick 1996). This is consistent with Covalski's *et al.* (1993) findings suggesting that the casemix phenomenon is an institutional process that is currently unfinished in health care. Issues underlying efficiency were slowing devolving down to the divisions, which was seen by both health professionals and other managers as being critical to the institutionalisation process. In addition, interviews did emphasise that care must be taken within this process due to the uniqueness of the hospital environment due to the services that it provided. Imperative to this was the need to consult and combine efforts with health professionals to ensure that any organisational success is realised. this is consistent with Galpin (1996) and Comerford and Abernethy (1999).

Impediments to costing information

This study revealed a range of impediments to the acceptance and use of costing information at Alpha. One major disincentive to using casemix costing data was that the casemix model had changed every year for a decade. This made year-to-year or period-to-period comparisons impossible. An Executive Medical Director commented:

It is like a continuous refinement, a mousetrap to try to better the system and as a result you have never been able to compare it from period to period and that is a major negative. If every year the model changes, then people are not going to care about it because it is not usually changing for costing reasons, but for other reasons such as political reasons.....We saved \$20 million on our budget last year, which is more than any hospital in Australia ever, and we did this without casemix information.

He suggested that casemix cost information was not necessarily the only tool that could be utilised to facilitate budget savings in a hospital environment. In addition, nursing participants often portrayed the concept of cost efficiency as 'working more for less' where there was little incentive to be cost effective in the organisation. However, interviewees identified that due to nurses being the second largest cost generators in the organisation (as opposed to the doctors), how well they managed resources was very relevant and important. It was perceived that nurses could do a lot to affect the costs of the hospital, and hence they should be informed as to the importance and possible uses of cost information.

There seemed to be a general consensus that many health professionals, including those that were situated in executive or managerial positions, did not have the financial training to effectively use and understand cost information. Another common perception was the difficulty in obtaining cost information. It was often commented that the information was not freely available and hence there were perceived barriers to the information in the hospital. Several health professionals warned that not only does the information need to be available and current, but also if the organisation did not start using this information then it would soon be seen as insignificant or unimportant. The implementation of any system in the organisation would achieve little if it was not embraced and used for decision-making (Miller 1999).

Criticisms of the pressures underlying costing information commonly found, were based on the argument that the new public sector concepts, in terms of costs and expenses, were often too high up on the agenda when the objectives of the health care sector was to provide quality health services and to generally just make people better. One Medical Executive Director commented:

This is not our core business, we are not in the business of talking about money, we are in the business of treating people, making people better and population outcomes, access indicators, quality and all those sort of things.

In relation to the utilisation of cost information a physician commented:

The only costs we know are whether it is going to be inconvenient for the patient or whether there are going to be costs for the patient.

A Nursing Informatics Officer suggested that the narrow focus on cost containment and profitability budgets and the downsizing of the 1980s indicated that although you may improve short-term, in the long-term you may lose in areas such as innovation. This is because for innovation to occur in the health sector, a surplus of people's time is needed. He saw specific areas where new public sector concepts have affected the organisation such as through budget integrity and management of length of stay. However, he also saw some adverse consequences due to new public sector reforms, such as the pressure that new public sector reforms had on driving up the intensity of nursing services in order to reduce the patient's length of stay. He suggested that other consequences might include re-admissions or poor patient satisfaction.

Some health professionals have seen new public sector reforms as a threat to them as a clinician. One clinician suggested:

Clinicians and business people talk different languages. How they function and how they think are completely different. So new public sector concepts such as efficiency, economy and effectiveness are almost threats to us, and I can say that because I am a clinician. I see the best model of managing an organisation as complex as this is using your best tools in different areas.

Interviewees revealed that at the time of the study there was some resistance in the hospital against the current cost accounting change, emphasising the new public sector elements incorporating managerial, costing and financial

accountability practices. It was found that these concepts may be accepted in the organisation; however the ethical imperative (such as difficulty in not being able supply all patients with all necessary treatments in a timely manner) involved when applying these concepts could cause resistance. Several doctors, nurses and business managers identified professional autonomy as being an element that was being lost in the organisation, linking this with some active resistance. The general consensus among interviewees was that health professionals wished to keep their professional autonomy within the organisation, and that they greatly valued their independence. This is consistent with DiMaggio and Powell's (1983) normative pressures of professionalism in that pressures appeared to be a product of professionalism, in which specialised groups are aiming to achieve legitimacy and autonomy. A Business Manager commented:

I think that in a place like this that is so big it takes a lot longer to achieve certain goals because there is so much resistance and so many lobbying groups. Sometimes it is a political nightmare internally let alone externally. It is okay to have a strategy in place, but actually implementing it is very difficult because you have to convince a lot of people about a lot of things.

Interviewees identified the presence of organisational resistance, uncertainty, scepticism and even anger and cynicism about costing practices and managerial initiatives. One Nursing Manager commented:

In terms of change management there has been a lot of effort to support people but the organisation is so big so in some parts there is not the inertia, some areas are complacent as to where they are.

A number of interviewees reiterated this concern whilst criticising the accuracy of the cost data that was currently generated from the current costing system. They asserted that this data could often conflict with other systems used, which were also considered as providing legitimate data. A Medical Director claimed that a major criticism of the current system was that it used assumptions such as how many hours a doctor spent on a patient. He suggested that finance did not really understand critical issues such as what a physician would do verses a surgeon, hence how different health professionals would treat patients. He also identified a problem with the current pharmacy system. Several other participants further reiterated this. The current costing system did not have the ability to identify the drugs that patients received and this was perceived to be a major disadvantage of the current costing system. This had also raised questions as to other aspects or activities that the current system may not be able to accurately record. One Executive Medical Director estimated that there was a 50 percent accuracy rate associated with cost data, and from a finance participant's perspective this was estimated to be 70 to 80 per cent accurate.

A Medical Director suggested that to get clinicians to use the costing data the accuracy of the cost data needed attention. He commented about rates that were acceptable in science, and that data with a 50 per cent variance would result

in data that was disregarded. Several other interviewees also suggested that the issue of data accuracy contributed to the current resistance present in the organisation.

A Nursing Manager confirmed that there was an on-going conflict between the medical staff and the dollar in the hospital. She portrayed this conflict from a medical perspective as:

Their whole training is focused on them achieving a certain level of expertise, that level of expertise relied on their ability to do a large number of cases and the more cases they do the higher the clinical ability they have as experts in the field. The more innovative that they are allowed to be then the more creditability that they get with their peers. So a system that is trying to reduce costs by only delivering those services that are identified as the most cost effective are going to have the most tension in it because they are demands that are completely different.

This argument identifying the conflicting elements from a medical perspective was also evident in other interviewees and was considered a major force for resistance in the organisation. Mintzberg (1989, 1991) emphasised the importance of understanding these conflicts in the organisation. A Medical Director expressed the concern that being in a managerial position and being a clinician can conflict. He commented:

I still do a fair bit of clinical work but when I do clinical work as I did this morning, my obligation is to the patient. Then I come back here and start working on the budget and my primary concern is to be a good financial manager and to maximise the resources for the group as a whole, and that may conflict with what I did this morning.

Another Medical Director explicitly expressed this conflict in his current position. He believed that the biggest issue for him to confront was that there was only a finite amount of money and that he had to look at the big picture and try to treat the greatest amount of patients at the lowest cost. As a clinician he saw his role as working with individual patients and trying to do the best for that patient, despite the costs and hence this big picture approach that he needed to take in his position as a director, often conflicted. He further asserted that other health professionals were worried that they wouldn't be able to be individual patient advocates and that the 'cost accounting side of things are overriding the clinical principles'. He denied that health professionals were fearful, however asserted that there was a certain amount of anger and frustration present. However in contrast to this opinion he further commented:

Having said that I would also say in defence of these sorts of systems that clinicians until fairly recently, had little regard for costs and they have been reminded that there is not a bottomless pit to spend on health care and unless they take some interest in how much things cost the continued blow out in expenditure will be unsustainable.

Comments from these Medical Directors appeared to be in contrast to Comerford and Abernethy (1999) who advocated that individuals with high professional orientation would not necessarily experience role conflict if they were committed to managerial goals. From a different perspective, a Medical Director expressed concern that once clinicians were in a purely managerial position for a length of time that they could often lose perspective and not understand the issues

from a clinical perspective. He asserted that they might become divorced from the reality of what was needed in this environment.

A Nursing Director believed that there are elements of suspicion in relation to costing issues. He commented:

For so long clinicians have remained autonomous in society and have been 'untouchable and unquestionable' and they don't like this. Who else has the right to question their practice but another medical practitioner, and that is in legislation.

Here he further expressed his discomfort as a health professional to having his practice and the practice of this staff questioned from a financial perspective. He believed that this was very difficult to accept in his profession. A Nursing Educator expressed concern from a nursing perspective, 'how do we articulate those arguments for nursing care in a very financially driven environment?' She asserted that this stands as one basis for the current uncertainty in the environment from a nursing perspective.

A Staff Physician questioned the current role of finance administrative staff and commented:

I think that it is strange to ask clinicians, because we are employed because we are the most efficient distributors of the resources, that is what we do. The job for the administrators is to efficiently supply those resources.

He further expressed concern that any money spent in the hospital that did not contribute to better health outcomes was a waste and provided the example of the employment of a data manager. He believed that this employment just helped to create a 'statistical reality' and did not contribute to better patient health outcomes, and stated that if he were a finance manager, he would never talk to a clinician about costs as this was instantly viewed with suspicion. He believed that they should talk about the care of patients and articulate the problem in terms of improving health outcomes, and then there would be success. He saw finance as saying things like 'we want you to reduce activity' and they respond by saying 'we have been trained to efficiently and safely make people well, and that is what we do, and you are telling us to stop doing that or slow that down – that does not make sense to us because our prime purpose is to see people and make them better'. He further suggested that while he and other clinicians were striving for clinical excellence, they were confronted with a 'poverty of managerial expertise' in that they are provided with million dollar feeder systems, with bad contracts within the organisation and bad architectural decisions regarding the design of the hospital.

A Finance Manger suggested that by providing more information such as the cost and efficiency of procedures and also the opportunity cost of not being efficient could help reduce the current friction. A Nursing Projects Officer suggested that a clear organisational-wide vision was needed where there is a hospital and statewide understanding of what is trying to be achieved. She believed that people could not see the big picture, that they could just see what their ward or their unit was doing. Further she believed that they could not understand the things that were going on around them, such

as the reforms taking place, and that this was how resistance built up in the organisation. A Business Manger asserted that by making the information more relevant to the user then there would be less active resistance. He suggested that one way of doing this is first reporting qualitative data such as the activity to the clinician, then details about staffing and then the financial data.

Several health professionals suggested that to reduce resistance then budgets needed to be fixed ensuring that all the services that are provided were budgeted for, so that there was no more budget tension. They believed that this lied at the heart of much of the resistance. Once this is achieved, they suggested that more education be provided for health professionals in management positions and that they are also provided with more time to manage in line with what the organisation is trying to achieve. Miller (1999) also suggests that there be availability and reliability of the data within the hospital to ensure successful implementation.

Discussion and conclusions

This study sought to examine issues relating to the cost accounting system in a state funded hospital in Australia. This included the utilisation and users of cost information, the extent to which cost accounting met the demands of the new public sector environment, and the impediments to the use of costing information at a government teaching and research hospital, Alpha Hospital.

The results reported above indicated that clinical costing was primarily utilised at Alpha hospital. This paper also illustrated various uses of cost information and indicated productive ways that costing information was used in the hospital. Field evidence suggested that the benefits and utilisation of this information was in the process of being devolved. Burns and Scapens (2000) support this view and suggested that for this devolution to be successful, a thorough examination of the organisation is needed.

The users of cost information primarily rested with the executive, director and managerial levels of the organisation with a limited amount of health professionals using available cost data. Here managerial practices associated with new public sector concepts had been acknowledged as legitimate practices in the hospital (Burns and Scapens 2000, Selznick 1996, Suchman 1995, DiMaggio and Powell 1983, 1991, Meyer and Rowan 1977).

In addition, these new public management concepts were slowly being devolved to lower levels of the organisation. This view is consistent with Covaleski's *et al.* (1993) findings that suggested that the casemix phenomenon is an unfinished process in health care with respects to its institutionalisation. The organisation's commitment to new public sector concepts was also evident from managerial seminars that stressed the key performance indicators, key goals and business objectives of Alpha, with these possessing strong managerial orientations (Lowe 2000b).

Research findings indicated that there were considerable impediments to the use of costing data in the organisation. This supported the view that resistance can result from a mental allegiance in the organisation due to established ways of thinking and practicing (Burns and Scapens 2000). This is also consistent with DiMaggio and Powell's (1983) normative pressures arising from professionalism. Here findings suggested that health professionals greatly valued their autonomy and independence within their position, elements that they felt were threatened by managerial and costing initiatives. In addition, the accuracy of current costing information was found to significantly contribute to the current resistance. There was the suggestion that issues underlying the impediments to the use of costing data needed to be addressed in the organisation for the successful progression to be made towards the full institutionalisation of new public sector concepts and costing in the organisation (Lowe 2000a, Carnall 1999, Mintzberg 1989, 1991, Meyer and Rowan 1977).

Thus, several practical and theoretical issues became apparent during the study, which could provide a basis for future research. First, future research could be conducted in the area of adopting rewards and penalties in the organisation as incentives to embrace the current organisational changes. Second, research can be conducted in relation to the actual accuracy of cost data generated by the current costing system. This could increase the legitimacy of the current costing environment or could identify specific weaknesses that could be used to fine-tune the system. Research can be further conducted to establish standardised costing measures and feeder systems to improve costing accuracy and benchmarking practices. Thirdly, research could be aimed at further developing organisational initiatives to embrace costing and managerial practices. It is suggested that these initiatives incorporate a realistic balance between health professional and managerial interests. Finally, there are several inherent limitations involved with a qualitative single-case study methodology that is acknowledged by the authors.

In conclusion, it is important to note that the acceptance of costing systems in a public hospital goes beyond mere acceptance of a technology such as 'casemix' costing. In today's public health sector, the idea of a 'new public sector' is now important, encompassing a raft of changes within the public sector of which greater emphasis on notions of 'efficiency' and 'clinical costs' is placed. Nevertheless, such an emphasis ignores human agency, which is a key player in organisational forms. More empirical studies are required to substantiate the debate about the new directions of accounting.

Appendix A

AN-DRG's and AR-DRG's

Australian National Diagnostic Related Groups (AN-DRG's) are a means by which acute inpatient episodes of care are classified. It is the product of a process of operative procedures within the hospital that classify and code inpatients into homogeneous groups. AN-DRG's were superseded by Australian Revised Diagnostic Related Groups (AR-DRG's), the Version 4 classification system was adopted at the time of this study. Once DRG's are classified then it would attract a sum

of money that is based on the true average cost of treating a patient under the specified conditions of the DRG. Professor Fetter at Yale University originally designed the DRG system for Australia. Australia's adoption in the late 1980's provided a significant step forward in overcoming inherent complexities in identifying hospitals' products. Such complexities included lack of guidance relating to defining and counting hospital products and allocating appropriate costs as recorded in the hospitals' accounts.

The DRG process consists of three general functions, medical record documentation, coding and data entry and DRG grouping. To ensure that all data is accurate and maintained then it is important for all information to be recorded such as all diagnoses, procedures and complications etc. This will provide a relatively comprehensive record of the patients' details. This information must be recorded on the patients' discharge summary. When there is more than one diagnosis then a principal diagnosis must be selected for coding purposes.

Coding and data entry information is obtained from the discharge summary and is usually coded by the Medical Record Administrators. The coding system used at the time of the study was the ICD-10-CM (International Classification of Diseases, 10th revision, clinical modification). This information is then entered into a database that is called the Hospital Based Corporate Information System. After this process, the DRG grouper software analyses this database and assigns a DRG to each patient record. Firstly the principal diagnosis is classified into MDC - major diagnosis categories. There were 23 MDC's in Australia at the time of the study, and these correspond to the major organ systems. Subsequent to this individual DRG's are assigned to the patients.

Casemix

The term 'casemix' is used to describe the composition of patients who are treated in a hospital. It is a scientific approach that is used to classify episodes of patient care; this is driven by patient information that is collected. Borden (1988) and Chandler, Fetter and Newbold (1991) describe casemix costing as an accounting system developed by the hospital industry of which purpose is to generate information pertaining to the cost of delivering DRG products to patients. This approach seeks to represent faithfully the cost of provision of services, hence task technology of health care service delivery, whilst emphasising the importance of actual illness diagnosis and service delivery.

Casemix classification requires three features; clinical meaning, resource use homogeneity and the right number of classes. Hence cost and benefits need to be weighted in relation to the process of deriving information. Casemix is an important development in the health care industry in Australia. It is an approach that is taking on more of a private sector commercial focus that aims to make this industry more accountable and efficient. Casemix is important in Australian hospitals as several states now use casemix as a principal basis for hospital funding, that is, hospital funding is based on the composition of DRG's of the entity. Hence, funding can be based on the number of patients treated with consideration to the patients' diagnosis and medical procedures required.

Cost modelling system

Cost modelling can be used within casemix and aims to achieve an average cost per patient dependent on their DRG. It is a 'top down' approach, does not depend on resources consumed by individual patients. It uses an allocation of DRG's that identify costs associated with hospital production or output. The output of the hospital is viewed as a commercial product and therefore patient costs are important. There is the view that elements of efficiency and effectiveness can be derived from cost modelling.

Clinical costing

Clinical costing aims at deriving actual cost per patient. It is referred to as the 'bottom up' approach relies on a feeder system to record resource consumption for variable expenses such as nursing time. For fixed costs such as administration, average costs are applied. Clinical costing has been criticised due to the expenses incurred in generating individual patient information and both clinical costing and most modelling have been criticised for not providing the 'true' costs of treating patients.

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Footnotes:

ⁱ An inpatient is a patient that has been formally admitted into the hospital (Commonwealth Department of Health and Aged Care, 1999).

ⁱⁱ See appendix A for a definition of DRG's

ⁱⁱⁱ "State health" is used in aim to disguise the state in which the research was conducted.