SOPHISTICATED EXECUTIVE MANAGEMENT SYSTEMS - MASTER OR TOOL?

Lai-Mun Balnave¹, George Rupert Palmer²

¹. Laeta Pty Ltd, Randwick, Australia; ². Centre for Hospital Management and Information Systems Research, UNSW, Australia

Communications to: Lai-Mun Balnave, Laeta Pty Ltd, 7 Dolphin St, Randwick NSW 2031, Australia; Ph: +61.2.93998994, Fax: +61.2.93987447, E-mail: lai-mun@laeta.com.au

ABSTRACT

This paper provides a statement of desired outcomes and expected 'return on investment' from sophisticated management technology and compares those to the actual progress made so far. It proceeds to explore reasons why it cannot be assumed that information from Executive Management Systems (EMSs), namely Trendstar, will be used by clinicians and managers in the decision making process. In recent years, casemix classification systems have been expanded to the extent that it is now possible to describe the business of a hospital in terminology that is designed to be comprehensible to both clinicians and managers. The step of merging financial data to activity data in a way that industries other than health have traditionally done in order to draw conclusions about resource usage has been bridged to an extent. Even with all these capabilities, the support and interest of clinicians and managers in using these systems need to be further developed to capitalise on the investment in sophisticated EMSs. Given this state of affairs, some important questions present themselves and this paper hopes to provide some clues as to how we should start addressing these questions.

KEYWORDS: Executive management system, Successful implementation, Multidisciplinary approach

BACKGROUND

The capacity to capture and store both activity and financial information has been available to hospitals within Australia for well over ten years. The ability to obtain aggregate information about patients by grouping them using patient classification
systems that take advantage of the patients' clinical conditions (in terms of Diagnosis Related Groups) has also been present. In recent years, casemix classification systems are no longer focussed on acute inpatients alone. The vocabulary for describing patients has been expanded to the ambulatory, sub-acute and non-acute settings. With this expansion, it is now possible to describe the *business* of a hospital in terminology that is designed to be comprehensible to both clinicians and managers. But merging financial data with activity data in a way that industries other than health have traditionally done in order to draw conclusions about resource usage has not been an easy step. Even so, this step has been bridged in part. In New South Wales, the instrument that has been used to bridge this step is Trendstar, a Clinical Costing System (CCS), later referred to as a Decision Support System (DSS).

Two sites were selected as pilots for the implementation of Trendstar within NSW in 1995. In the intervening four years after the implementation at those pilots, another 20 roll out sites have implemented Trendstar as their local management DSS. During this time a number of studies including the feasibility of incorporating innovations from the Clinicians' Information System Consortium (CISC) have shown that Trendstar has considerable capabilities to deliver integrated information needed to manage patients and the associated clinical resources. Even so, the support and interest of clinicians and managers in using Trendstar is far from optimal.

Given this state of affairs, some important questions present themselves and this paper hopes to provide some clues as to how we should start addressing these issues. It draws on material from a NSW Health-sponsored project that was designed primarily to address the issue of how the estimates from clinical costing may be used to support cost modeling activities, notably by providing a further source of service weight estimates. The project involved conducting fairly detailed interviews with managers (mainly Casemix Managers and Management Accountants) of Trendstar at the 13 hospitals that submit annual patient costings to the NSW Health Department. Approaches adopted to allocate both overheads and direct costs to patients have been collated and documented. As a result, a profile of the levels of specificity and accuracy of patient costing has emerged for these hospitals.

In addition, supplementary questions, as to the challenges that managers of Trendstar face in using it both as a costing tool and a management tool, were asked in the interviews. The responses to this survey from sites have provided good evidence-based material for some of the assertions made in this paper.

**THE VISION (EXPECTED RETURN ON INVESTMENT)**

**The Vision Revisited**

The goals that the Operations Division (formerly Information & Business Services Division) of NSW Health had in mind when the decision was first taken to acquire Clinical Costing Systems were as follows:

- To facilitate the effective and efficient management of health resources in NSW Health Services by providing timely, accurate, comparable and relevant
clinical and financial information to clinicians, managers and health professionals
- To facilitate the efficient and effective allocation of resources within the NSW Health Services
- To enhance the service planning process
- To enable accountability of health professionals for the utilisation of health resources and
- To promote benchmarking and other quality improvement programs to ensure that the quality of care provided to patients is maintained or improved on.

[Excerpt from Request for Tender for the Supply of Clinical Costing Systems]

Not many would object to calling this vision grand. And a grand vision that is closer in spirit to Turban's assessment of DSS being a resource likely to revolutionise management decision making than that of Carlson's or Wyatt's who perceived it as a technology with serious problems of implementation (quoted in Cropper S and Forte P). Cropper and Forte themselves offer the observation that the truth lies somewhere between these wildly differing points of view. More importantly they argued, and rightly so, that there were significant choices in the way that any DSS could be developed, applied and used. And these choices have direct effects on the acceptability and further development of the DSS. It is a commonly held view at the hospital level that NSW Health, aside from playing a part in funding the implementation of DSS, has not been party to any of the pivotal decisions to influence the acceptability and absorption of DSS into hospital culture.

The Vision Fulfilled?

NSW Health was contacted and the authors posed the question of whether the vision articulated in the Request for Tender document was assessed and revisited at any time since the commencement of implementation for the first two pilot sites in 1995. The quantitative analysts amongst us might probably go further and request to see that measures are put in to define, more quantitatively and rationally, the different elements of the vision. This is in order that the evaluation / appraisal processes to gauge how well this vision and its intentions have been translated from documented goals to realities can be put in place. But the response to the question posed has so far been less than satisfactory. The Operations Division within NSW Health signaled that plans were afoot to conduct an audit and cost benefit study. No details of this plan were available for general release at the time of writing.

A post implementation review conducted by KPMG in 1997 provided further confirmation that short-term benefits were not clearly defined, making the job of assessing progress against original expectations difficult.

THE REALITY

Perceived Lack of NSW Health Guidance and Involvement

So, four years have elapsed after the completion of the implementation of DSS at a pilot site and comments about an apparent break in the chain of translating vision
into reality are rife. There is a widespread perception at both the Area Health Service and hospital levels that there has been a failure on the part of NSW Health to provide any guidance or continuous evaluation to the pilot and, indeed, any subsequent implementations. The task of ensuring that the grand vision, emanating from NSW Health, was fulfilled was left, in the main, to the Area Health Services.

The irony of this reality is the inevitability of the hands-off position that NSW Health is obliged to adopt, in order to fulfill the policy maker's role that in which it has been cast. Certainly a balance will need to be struck between the level of intervention required to steer Trendstar in the appropriate direction and one with which Area Health Services are comfortable with. The tensions that might arise from these two conflicting requirements will need to be resolved.

During the implementation of the pilots, the original CCS Steering Committee that oversaw the tendering process for Trendstar continued to oversee and address any implementation issues that arose. But this body was disbanded shortly after implementation of Trendstar at the first roll out sites. This left a gap in the all important role of ensuring that issues of functionality and resources relating to Trendstar were addressed in a timely fashion, post implementation. This meant there was added pressure for the Decision Support Systems Policy Advisory Committee (DSSPAC) to fill this gap. DSSPAC was originally a forum set up to share post-implementation experiences in terms of Trendstar's functionality and to propose any system enhancements on a needs basis. Unfortunately, this group, in the absence of the CCS Steering Committee, fell into the role of administering contractual agreements between NSW Health and the vendors to ensure that enhancements to Trendstar were effected.

It is only in the last year that effort has been made by key members of the DSSPAC to ensure that NSW Health representatives from the two vital divisions (one responsible for procurement of Trendstar, and the other responsible for funding policies) are present. This is so that NSW Health policy makers from these two divisions are made aware of:

- the complex technological requirements of Trendstar and what those means in terms of resources
- the complex interactions between (NSW Health) policy and the implications of using Trendstar as a tool to assist in realising those policy.

All this is a good first step towards ensuring that policy, implementation and reality are three stages that should feed one into the other in a continuous loop to improve the policy process.

**Lack of Information about Expectations of the System**

It is a widely held belief amongst managers of Trendstar that they have not been well equipped with genuine information (although rhetoric was commonplace) about the expectations that they should have, post implementation. More alarming is the fact that the tasks needed to prepare the ground for a successful implementation were not even given enough consideration for rhetoric to flourish. An assessment as to whether elements critical to a successful implementation are present should take account of:
• the knowledge level of the hospital about cost modeling techniques
• the extent to which hospital clinicians were exposed to casemix information
• the quality of activity and cost information
• the validity and quality of cost modeling assumptions (if used)

Further there was also a feeling amongst managers that, due to the lack of documented expectations, they were thrown at the mercy of the vendors who in most cases dictated the evaluation criteria against which Trendstar ought to be measured, both in the implementation process and afterwards.

A Short Implementation Timeframe

The structure of the implementation process, which placed unnecessary emphasis on the speed of implementation at the expense of all other aspects, has been dogged by tensions for individuals involved in the process. In the short term these individuals found a ready scapegoat in Trendstar. A six-month time frame for implementation is very demanding. Added to that strain, the hospital personnel responsible for implementing Trendstar also needed to verify that

• the captured data are linked in a reasonable manner and
• modeling rules are successfully replicated in Trendstar.

Given the emphasis of NSW Health to use Trendstar as a tool for resource allocation, issues surrounding the process of modeling costs to patients have not been afforded the priority they deserved. Evidence of this lack of appreciation as to how the modeling rules will directly impact the resulting patient costs and further down the track comparability of patient costs across sites, can be found in the responses to the survey. As an example, the attribution of cost to pathology items was done in a variety of ways, from undifferentiated measures like item counts to standard costs derived from local time and motion studies. Some sites were not taking full advantage of Trendstar's capacity when allocating the costs for services that capture patient level data.

Allocation of overheads cost too suffered in the same manner. In most cases, the modeling rules for overheads were recommended by the vendor and ran the risk of not representing how the hospital in question conducts its business. In addition, the choice of overhead allocation methodology were left to personnel who might not appreciate how their choices will affect the resulting patient costs. The aftermath of this short implementation timeframe was rather costly, with most sites needing to rebuild their modeling and costing rules.

Lack of Resources for Key Individuals

As alluded to earlier, given the circumstances surrounding the implementation of Trendstar, it was felt that the intentions for Trendstar were not translated into action (in practical terms) at any level. As a result, individuals most affected by the change (i.e. the clinicians and managers within hospitals) were not well informed as to the role that they were expected to play in the change management. Certainly the keepers of the system do not feel themselves guardians of a tool that is invaluable to decision making in the institution they work for.
In most cases, Trendstar is viewed, as a system that requires more resources to manage than these same Casemix Coordinators can provide. This translated in part to a lower than desirable level of support by clinicians. The best candidates to encourage the use of Trendstar find themselves unable to perform that vital role of marketing Trendstar to clinicians and executives of the hospital, as they are too busy with the administrative tasks relating to Trendstar.

**Lack of Continuity and Long Term Viability**

The medium term picture is far from rosy as the Operations Division ponders the viability of Trendstar due to the cost required to upgrade requirement for a newer platform. An alternative system, Health Information Exchange (HIE) is being considered. HIE is a proposed network of data warehouses located at Area Health Services and at Central Office of NSW Health. Data are extracted from operational systems and held within these data warehouses. Certainly the idea of integrating information from different operational systems is no different to what Trendstar can offer. But that is replicating only part of Trendstar's capacity, as the more important task of attributing costs to patient still needs to be coordinated to a degree to allow valid comparisons and, in the longer term, benchmarking between sites.

With the process of linking done centrally at NSW Health, there might be some resulting savings in terms of resources required at individual hospitals to link operational information. And if it transpires that HIE becomes the preferred warehousing method, the role of Trendstar in this scenario will need to be carefully considered. But whichever path NSW Health chooses, there needs to be a commitment to ensure that the resources required to ensure the DSS of choice gains acceptance in the local hospital setting are well understood and supported. NSW Health needs to steer away from the danger of attempting to select the ultimate DSS in the vain hope that a mere tool is capable of revolutionising the whole management decision making process. Instead they should pay serious attention to the lessons resulting from the Trendstar and incorporating these to encourage more extensive use of DSS to assist in the decision making process.

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Domain</th>
<th>Key Issue</th>
<th>Main Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>The economy</td>
<td>Efficiency</td>
<td>Demand / Supply</td>
</tr>
<tr>
<td>Political</td>
<td>Politics</td>
<td>Policy Making</td>
<td>Reform / Stability</td>
</tr>
<tr>
<td>Sociological</td>
<td>Culture</td>
<td>Medical Dominance</td>
<td>Dominance / Subordination</td>
</tr>
<tr>
<td>Epidemiological</td>
<td>Disease</td>
<td>Effectiveness</td>
<td>Morbidity / Mortality</td>
</tr>
</tbody>
</table>

**A BETTER REALITY?**
A longer implementation period to gain an appreciation for the human resource, cultural and education needs of the project would have been welcomed in this instance. NSW Health would have gained by a more measured and proactive approach to garner feedback from the implementation and post implementation processes for the pilot sites. If lessons were methodically documented and the resource requirements revised and incorporated into implementation and post implementation of any DSS, there is no doubt that the likelihood of success would be improved.

The implementation and evaluation processes that should be present ought to resemble the key stages in the Anderson's model of sequential pattern of action in the policy process (quoted in Palmer and Short). Referring to this base model, Palmer and Short prescribed some useful pointers for the health-policy-makers, emphasising the need for evaluation, which should take the form of monitoring, analysis, criticism and assessment. They cautioned that:

'Implementation may be the most demanding aspect of policy making because of the failure to anticipate opposition to the policy or because the resources required for successful implementation have been underestimated.'

The introduction of Trendstar into the hospital setting can be seen in that same paradigm. Furthermore, it will be helpful to revisit Palmer and Short's theoretical perspective on health policy that they believe to have considerable explanatory and interpretative power. This is reproduced in table 1. Although the domain and main concepts presented in this table will have to be revised to suit the local hospital environment, it would be deceiving to think that the complete set of perspectives presented in table 1 are not present in the cultural construct of a hospital. This means that tensions resulting from the different groups that each holds a different perspective will need to be managed. Just as health policy analysis requires input from all these perspectives to accommodate the complexities of the problems being addressed, there is no denying that a similar multidisciplinary approach is required to successfully drive the organisational change required to fulfill the vision that NSW Health had in mind for Trendstar.

BIBLIOGRAPHY

4. NSW Health Department (1997) Executive Summary of TRENDSTAR post implementation review (conducted by KPMG). Sydney: NSW Health Department.

6. NSW Health (1999) Benefits for Release 1.0/1.1/1.1.2 of the Health Information Exchange Sydney: NSW Health Department.
