

Approaches to changing the use of time in a public hospital

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Abstract

This article describes a qualitative study that used documentary sources and interviews with a cross-section of clinical managers and staff to identify the ways in which use of time changed in two clinical units following the introduction of casemix-based funding in Victoria. For staff at all levels within the hospital system, changes in the use of time were experienced that affected both the organisation of work and the care provided. The two units approached the management of time in different ways. From the introduction of casemix-based funding to the conclusion of this study there were improvements in efficiency in both clinical units. The case studies are compared and the consequences of different approaches to managing time in clinical units are described.

The context

The two case studies described here are about the use of time in clinical units of a major public hospital. The study was undertaken in 1995–96, shortly after casemix-based funding was introduced, and when hospitals were struggling to adjust to the changes it required.

Casemix-based funding was about increasing hospital efficiency. A key strategy for increasing the willingness of hospital managers to achieve efficiency was the creation of financial deficits (Weiner et al. 1987). Between 1992 and 1995 funding to Victorian hospitals was cut by 14% and the method of its distribution changed (Health Solutions 1994). In the absence of major change to the way services were managed the research hospital would have faced substantial financial deficits.

Technical efficiency, the form of efficiency encouraged by casemix, is achieved when the amount of input cannot be reduced without reducing the amount of output (Eastaugh 1992, p 10). Eastaugh argues that efficiency and quality are intimately linked. ‘Any attempt to lower costs while not reducing the quality or intensity of care is an attempt to improve efficiency’ (1992, p 10).

The Health Solutions study of Victorian hospitals found that hospitals experiencing budget cuts reallocated resources by reducing staffing levels, investing in information systems and increasing resources to support early discharge of patients (Health Solutions 1994, pp 119–21). In addition they introduced new staff rostering methods, increased profitability of business units, increased operating room productivity and reduced patient transfer costs. The throughput of patients became a major issue. Throughput was frequently thought of as a problem with the use of time. The two case studies described here were undertaken in this context.

Time

In industrial societies, time as measured by the clock is often used to represent money. It costs money to buy labour time or to have expensive equipment idle and unproductive. Time is an economic resource that needs to be managed. Defined as an economic unit, time is abstract and standardised, such that each hour purchased is assumed to be like any other hour (Adam 1995, p 90). Adam argues that time conceived in this way has been stripped of the complexity with which it is experienced in work situations.

For the people who constitute the hospital and its patient community, time is more complex than it appears when considered only as an economic resource. From a social perspective it can be measured in units not determined by clocks, for example by numbers of patients to be seen (Zerubavel 1979). Furthermore, different ‘pieces’ of time are valued according to a variety of qualities (time with family is valued differently from time at work) and it is ordered according to social rules, such as fairness. Time is also ordered biologically into cycles and rhythms of uncertain length with which medical interventions intersect (Capra 1983).

In biological systems, time frequently appears as rhythms, which can be conceived as cycles embedded within cycles (Adam 1990). Identification of the point in a cycle (or cycles) that an organism is at can be problematic. This makes both diagnosis and medical intervention uncertain activities. Medical interventions, in turn, become part of the dynamics of the organism and subject to its internal rhythms. Effective interventions have the quality of ‘timely’ interventions, ones which intersect appropriately with the organism’s own cycles (Toulmin 1990). Clock time, Adam argues, is meaningless as a tool for the study of these biological rhythms and, by implication, an imprecise predictor of rhythms (Adam 1988). The identification of timely points for medical intervention is an important aspect of hospital care.

The ways that time is organised and managed are changing. In Zerubavel’s (1979) study of time in hospital life in the 1970s, scheduling is an important device for controlling and coordinating labour. A schedule, or roster, indicates which individual is on duty, and when and in which location she or he might be found. Because staff time is a major hospital economic resource the structure of schedules can either extend or limit the cost of particular services. Reliance on standardised schedules for the control and

coordination of labour, as described by Zerubavel, is characteristic of a stable, highly regulated bureaucracy. In the 1990s bureaucracies of this kind are being forced to change and new techniques for controlling and organising labour are being introduced.

Handy (1994, p 32) describes time in modern management as 'becoming unfixed'. Organisations want more flexibility in the way time is used and are 're-chunking' it (Handy 1994, p 33). The new ways of organising time, such as flexible rostering or teaming, provide more flexibility for the organisation and, from a management perspective, achieve greater economic efficiency. When productivity is increased in this way labour is said to have been intensified (Starkey 1988). Intensification of labour raises a number of issues including who controls the use of time at work, prioritisation of work tasks, and the impact of paid work time on personal time.

In this study we were interested in how the use of time was changing and in the implications of these changes from the perspective of clinical unit managers, of staff delivering services to patients and, in one case study, of the families of patients. Our investigation of the ways time was used highlighted differences in the assumptions made about the nature of time itself.

The case studies

The cases in this study were two clinical units within one hospital. The two case studies used a qualitative methodology consisting of in-depth face-to-face and telephone interviews which were analysed using a grounded theory approach, and documentary analysis. In all, 31 staff members were interviewed face-to-face, 12 in one case study and 19 in the other. In addition, representatives of 30 families of asthma patients participated in a telephone interview. The report of each case study was reviewed by relevant key informants for accuracy and completeness.

The case of asthma care

The introduction of casemix funding encouraged all clinical units to find ways of improving technical efficiency. In this particular unit, which cared for patients with acute asthma, the goal was redefined as improving efficiency in a way that was more satisfying for hospital staff and provided a better service to families. Efficiency and quality were inseparable.

The device chosen to achieve this goal was a new multidisciplinary protocol, or clinical pathway, for acute asthma care. Average length of stay in the years 1993–94 and 1994–95 was 40% less than the average for the three years prior to 1993. There was a high level of satisfaction amongst the recipients of care. Amongst hospital staff the changes were widely regarded as having been successful.

Table 1: Summary of changes in the use of time in inpatient asthma management

Before	After
No set expectations for frequency of patient review by junior medical staff	Guidelines set down for frequency of patient review by junior medical staff
Review, and thus change, in frequency of nebulisers dependent on doctors coming to review patients of their own volition	Nurses called doctors to have patients reviewed
Reduction in frequency of nebulisers dependant on doctors presence.	Nurses able to make some decisions about reduction in frequency of nebulisers
Discharge when patient had fully recovered	Discharge when the patient was considered to no longer need hospital treatment
Education done in the ward after the acute episode was over; approach varied between consultants	Education done during episode and post-discharge in order to accommodate reduced length of stay
Medication provided through hospital pharmacy	Prescriptions provided for retail pharmacy

Note: A more detailed discussion of the changes in this clinical unit can be found in Walker and Adam (1998)

The three principles underlying the approach to time in the protocol are those described by Stalk (1988) as a flexible systems approach. The first is *responsiveness*. Efficiency is gained by minimising the time between a need arising and that need being met. In the clinical unit this meant monitoring patient progress (for example, the severity of the asthma) and providing the means by which changes could be introduced quickly (for example, reducing the frequency of nebulisers). By keeping the care process closely aligned to patient need (that is, to the biology of the asthma episode), the time between an improvement in a patient's condition and a reduction in the level of care could be reduced substantially without jeopardising quality. Similarly, patients no longer obtained medication from the hospital pharmacy, a process that often required them to wait. Instead they were given a script that could be filled at most community pharmacies.

The second principle is *integration of processes*. Efficiency is gained by having all/most processes take place in the same place thereby eliminating the time between processes. This meant changing the role of staff, mostly nurses, so they could carry out a greater range of care processes for patients. For example, patient education about acute asthma management was shifted from the discharge phase to the acute phase of care and carried out by ward nurses. Appropriate educational resources were developed to support it.

Third, there is *relocation of scheduling*. People working on the 'shop floor' are delegated authority to make decisions without wasting time seeking approval from higher authorities. For example in the protocol, doctors' orders for the timing of nebulisers were stated as a range of times (for example, 3–4 hourly). Nurses decided on the frequency within that range. Patients were discharged to home under family care when they were no longer considered to require hospitalisation but were not yet considered well. Family members were taught to manage the final stages of recovery.

The keys to success of the new protocol lie in the complex notion of time that was assumed to underlie clinical care, and an understanding of the social relationships of ‘shop floor’ production. Time was considered a biological, economic, social and political phenomenon. The asthma protocol was about making the social organisation of clinical time responsive to the biology of an asthma episode. The social organisation of time was about values and priorities (what should occupy time), authority (who determines what should be done in a period of time) and legitimacy (what behaviours around time are acceptable). There were small but significant changes to the power relationships between members of the care team that contributed to the success of the new arrangements. The satisfaction of almost all stakeholders with the changes to the use of time in this clinical unit almost certainly relates to the sophistication of the approach to changing the use of time.

The case of the Operating Suite

The goals of the changes in the Operating Suite were to optimise the efficiency and maximise the utilisation of theatre resources. The focus was almost entirely on efficiency, and the changes resulted in a 20% increase in throughput of cases.

Table 2: Summary of the major changes occurring in the use of time in and around the Operating Suite

Before	After
Staff rostered on permanent night duty	Day staff on-call at night
Most day-rostered staff were full-time and permanent	Full-time day staff were supplemented with part-time and casual staff
Allocation of theatre sessions to surgeons was fixed	Allocation of theatre sessions was based on utilisation
Unused theatre sessions were rarely re-allocated	Re-allocation of unused theatre sessions was based on the surgeon's waiting list and capacity to manage the necessary load
Many elective surgery sessions started late	Fewer elective surgery sessions started late
Elective surgery sessions often were not full	Elective surgery sessions were mostly full
Gaps in time between cases	Reduced time between cases
Sessions often finished early	Sessions often ran over time
All patients admitted the night before surgery	Certain categories of patients admitted on the day of surgery

The approach for increasing efficiency focused on two ideas. The first is *labour intensification*. This typically involves an increase in the speed with which work is undertaken, closer supervision and more automated surveillance, and requires a greater quantity of work to be accomplished during a defined period (Donaldson 1996).

Reducing the number of nurses per theatre from three to 2.5 whilst simultaneously increasing throughput represents an example of intensification; measures to ensure that elective surgery sessions are mostly full represents another.

The second idea for increasing efficiency is *labour flexibility*, which takes three forms (Donaldson 1996, p 67). There are changes to the scheduling of employees such that the time of day and time periods that workers are in paid employment is variable (replacement of permanent night staff with an on-call system for day staff is an example). Next, there are arrangements that enable alteration of the number of employees at work in response to changing demand (systematic use of overtime balanced with time-in-lieu, and of a bank of casual nurses are examples). Finally, there are arrangements that enable employees to move more readily between tasks (an example is the use of flexible teaming, in which nurses' preferences for particular surgical specialities are taken into account, but they are expected to work with all of them).

In the Operating Suite, time was viewed as a simple economic resource. The Operating Suite was successfully managed to achieve technical efficiency in the context of declining resources and demands for higher levels of 'production'.

The great pressure to increase the number of patients treated with fewer resources focused attention on the need to reduce, or eliminate, periods of time not being used for direct patient care and to increase the amount of work undertaken by staff in any given period. Muetzelfeldt (1995) argues that excessive attention to efficiency leads to other important aspects of organisational life being unattended. This appears to have occurred in the Operating Suite.

The greatest concern of staff was that too many aspects of safety were undervalued. The old systemic arrangements that were designed as fail-safe mechanisms were considered too time-consuming and were replaced by procedures that placed increasing responsibility for safety on individual staff. Systemic changes were only made when a major problem occurred. In the eyes of management these arrangements were about accountability, in the eyes of staff they were about the uncertainty and inconsistency of individual action – and declining safety standards.

In a similar vein staff argued that the increased priority given to throughput of patients resulted in a diminished value on their time outside work hours. The expectation that staff would work regular overtime was considered a denial of the social time that staff lived outside work.

Conclusions

Different assumptions about time were made in these two case studies. In one case, time was simply an economic resource. In the other it was a social, political, biological and economic phenomenon. The different conceptions of time were reflected in the ways it was managed.

There were large differences between the case studies in the priority given to efficiency in the use of time. In the asthma case study, efficiency sat beside satisfaction for hospital staff and a better service to families. In the Operating Suite case study, efficiency was the dominant objective. Both clinical units achieved substantial gains in efficiency but they located the costs with different people and generated different issues of concern.

The breadth of priorities in the asthma case study meant that ways of supporting staff to carry out the changed roles effectively were addressed. Nurses were given additional responsibility for clinical decision-making and authority over certain parts of the care process. Reduction in the length of stay was achieved by eliminating unnecessary time in the ward, changing some aspects of team roles and care practices, and teaching families how to manage the final phases of an asthma episode. Some concerns were raised about narrowing the range of care options to those contained within the protocol, and reduced involvement in the post-acute period (that is, more responsibility was divested to general practitioners). However, these concerns were not widespread. Some costs of care were transferred to families who were usually willing to accept them. A detailed account of this case study has been published in Walker and Adam (1998).

Similar kinds of social changes were not made in the Operating Suite. The intense focus on issues of efficiency diminished the visibility of issues and practices requiring changes to social roles and relationships. Although the narrow definition of management objectives undoubtedly helped the unit make the changes necessary to improve efficiency, it also reduced the capacity of management to fully grasp the implications of changing work practices. The focus on efficiency and the use of less bureaucratic forms of organising labour raised serious concerns for staff about safety. Staff were not opposed to new ways of organising work, rather they were concerned that issues impacting on safety were not adequately understood or addressed. When time is viewed only as an economic resource many important issues in the organisation of work are hidden from view. The narrow focus on efficiency meant that success was achieved at a high cost to nursing staff (especially permanent nurses) in the form of stress at work and at home. Allan (1998) argues that hospital workers are responsive to work intensification pressure, in part through professionalism and in part because nursing and the non-medical workforce are highly feminised. The two social stereotypes of 'caring women' and 'professional care providers' interlock to limit resistance to the pressures intensifying work.

Time is a complex phenomenon. There are choices for managers to make about how they will view time and which issues in the provision of care they will address. Those choices have consequences both for hospital staff and for the quality of care provided to patients. In general, an inclusive perspective on time (one that views it as having economic, social and biological aspects) is more likely to achieve a broader set of objectives (that include both efficiency and quality) than is a narrow perspective that views time as primarily an economic resource.

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