Performance measurement and the UK emergency ambulance service: Unintended Consequences of the ambulance response time targets

Full citation:

Wankhade, P. (2011). Performance measurement and the UK emergency ambulance service: Unintended Consequences of the ambulance response time targets, International Journal of Public Sector Management, Vol. 24, No. 5. pp. 382-402.

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ABSTRACT

Purpose- The purpose of this paper is to assess the performance measurement in the UK NHS ambulance service documenting various unintended consequences of the current performance framework and suggest a future research agenda.

Design/methodology/approach- The paper reviews the literature on ambulance performance targets and documents several unintended consequences of the current performance system through an in-depth case study analysis based on interviews with trust staff and policy experts along with observation of performance review meetings in the chosen trust. Ethical approval for the study was obtained from a local NHS research ethics committee.

Findings- Significant unintended consequences of the ambulance performance targets based on response times have been systematically documented which are likely to put the target under spotlight especially that of the eight minute response. The current policy focus to reform the eight minute target by making it more stringent has the potential of jeopardising the reform agenda based on developing clinical skills of the paramedics and introducing clinical management in the service.

Practical implications- The paper makes an objective assessment of the sustainability of the current policy framework and identifies future lines of enquiry for further research.

Originality/value - This paper makes an original contribution in identifying and documenting the disjuncture between stated and unintended consequences of ambulance performance measurement, which will be of value to academics, practitioners and policy makers.

Key words- ambulance, response time targets, performance measurement, unintended consequences, perversity, NHS

Paper type- Case study

Introduction

Discussions on performance measurement in the context of the public sector have included views ranging from an extreme position that the public sector provides a "leading edge on issues of performance measurement" (Lapsey and Mitchell, 1996, p.5) to one that "the performance measurement systems have measured too many things and the wrong things" (Atkinson and McCrindell, 1997, p.26). The multiplicity of goals and principles in the public sector also imply that individuals in the public sector may be more risk averse than their counterparts in the private sector where they have to perform fewer, better defined tasks. Consequently the objectives of public sector organisations tend to be less well defined and performance measurement focuses on the measurable at the expense of less tangible areas representing important aspects of the service. While it is acknowledged that performance measurement can bring positive benefits, it also produces perverse effects since it takes a restricted view of the complexity of the situation in which it is operating (De Bruijn, 2007). As the saying goes, "What gets measured gets done," even if not measured or done particularly well (see Adcroft and Willis, 2005; Berman, 2002; Modell, 2004).

Academic opinion is divided with respect to the benefit of performance measurement. Johnsen (2005, p.5) identifies three groups in this regard: the 'true believers' (Osborne and Gaebler, 1993), the 'pragmatic sceptics' (see Pollitt and Bouckaert, 2000; Greiling, 2006) and 'great sceptics' who question performance measurement (for e.g. De Bruijn, 2002; Meyer, 2002, p.7; Meyer and Gupta, 2004). Mixed results have been reported from the public sector in the use of business practices like business process re-engineering (McNulty and Ferlie, 2002), benchmarking (Holloway *et al.*1999) and more specifically in the UK NHS (Walshe and Sheldon, 1998). Despite the criticism of performance measurement within the management discourse and in the public sector arena, the past few decades have witnessed a proliferation of performance measures in the management of public services and steady growth in performance measurement industry (Lapsley, 2008).

The subject of ambulance performance measurement and its unintended consequences has remained an under-researched topic in the literature and is an emerging topic for research (Bevan and Hamblin, 2009; Radcliffe and Heath, 2009; Heath and Radcliffe, 2007; Wankhade, 2007, 2008). Response time performance based on 999 call prioritisation has been used as the main indicator of emergency ambulance service quality in England since 1974 after the ambulance services were integrated into the NHS. There are two key ambulance performance standards (see Figure 1) which are currently used in England. The ambulance performance is characterised by response time targets with a key performance target of an eight minute response (Category 'A' call). We argue that the current performance framework dominated by response time targets is distorting the real nature of work done by ambulance trusts since the response time targets are too simplistic, misleading and divert attention away from developing the quality aspect of performance by way of developing targets based on clinical and patient outcomes. The difficulty in measuring the quality aspects of the organisation's performance has meant that the organisational focus on response times has pushed out indicators that are difficult to measure but more relevant such as the

clinical performance indicators (CPIs). Snookes et al., (2009, p.549) list development of performance measures other than response times as one of the "top ten" priorities of research in emergency prehospital care.

1. **Category 'A' calls meeting 8 minute standards**: Calls getting a first response within 8 minutes for conditions which may be urgent and immediately life threatening. With effect from 1 April 2008, the new standard, 'Call to Connect', measures the time when a 999 call is made as against the earlier practice to measure the time after the nature of complaint and the location of the caller were established. The national target is to respond to such calls within eight minutes irrespective of location in 75% of cases.

2. **Category 'B' calls meeting 19 minute standards**: Calls receiving a response within 19 minutes classified as serious but not immediately life threatening. The national target stipulates that 95% of the time, response should be met within 19 minutes in all such cases.

Source: DoH, 2005a, p.56

Figure 1: Key ambulance Performance targets

This paper presents findings from a detailed exploration of the performance measurement in a UK NHS ambulance trust highlighting various unintended consequences of the current performance measurement system bringing new empirical evidence to some of the dysfunctionalities of performance measurement system discussed in the literature (Smith, 1995; Bevan and Hood, 2006; Goddard et al., 2000).

REVIEW OF LITERATURE

It has been argued in the literature that ambulance response time targets are not evidence based. Turner *et al*., (2006) state that response time targets are neither very useful indicators of quality nor a useful benchmark for comparing services reflecting only the transport element of the service and not the care provided. The study concluded that there are no overall benefits from faster response times and "attention should be re-focussed on the clinical care provided by crews when they get to the scene rather than how fast they get there" (ibid, p.75). A few other studies have questioned whether an eight minute response can improve survival after cardiac arrest (Pell *et al.,* 2001); in emergency life threatening calls (Blackwell and Kaufman, 2002); or after traumatic injuries (Pons and Markovchick, 2002). These studies suggest that outcomes can only improve with a response time of 5 minutes or less. Price (2006, p.127) in a study investigating paramedics' attitudes towards response

time targets concluded that the eight minute response time is not evidence based and is putting both ambulance crews and patients at risk.

Such differing standards are contrary to the claims of the Government as regard the usefulness of response time targets especially in cases of cardiac arrest and stroke where a quick response by the ambulance service can help to save a patient's life. The benefits of such a quick response are reflected in the targets set out in the National Service Framework for the treatment of coronary heart disease (DoH, 2000). This emphasis is also reflected in improving the survival rates from cardiac arrest cases in the Emergency Care strategy (DoH, 2001) and Taking Healthcare to the Patient (DoH, 2005a, p.9). Brown *et al.,* (2000) found evidence that driving with blue lights and sirens can reduce response time by an average of 90 seconds but that it was relevant in only a few cases.

No universally accepted response-time system standards are reported in the literature. Finch (2005) reports wide variance in the international practice of ambulance service targets. Different practices also exist for measurement of ambulance performance in the UK (Bevan and Hamblin, 2009). Many commentators have also highlighted concerns regarding the use of emergency medical dispatch systems such as the Advanced Medical Priority Dispatch System (AMPDS) as an appropriate tool in the performance measurement process. In the first epidemiological study of its kind, Marks *et al.,* (2002, p.452) found that 26% of 999 calls given the highest emergency code by the AMPDS system resulted in no journey to hospitals being made. Squires and Mason (2004, p.727) came to similar conclusions that the flexibility of AMPDS and dispatch targets need to be reviewed to permit the successful implementation of alternative responses to 999 calls and also alluded to the 'risk averse' nature of the service in trying to minimise risks by over-prioiritisation.

There has been an increased emphasis on measuring clinical outcomes, and ambulance trusts are increasingly engaged in providing out-of-hours care and making referrals to healthcare professionals (DoH, 2005a). Traditionally ambulance services have been perceived primarily as an emergency service and the training and service provision have been organised around the need of major trauma like road traffic collision, severe breathing problems or cardiac arrest (Lendrum *et al.,* 2000). The emphasis has been on life support mechanisms to stabilise the condition of the patient for a rapid transfer to a hospital. However, new statistics reveal that only 10% of the callers dialing 999 have a life threatening emergency (DoH, 2005a, p.8). Statistics further reveal that currently 77% of emergency calls which result in an ambulance journey to hospital lead to admissions in 40% of cases whilst 50% of them could be treated at the scene or in the community (ibid, p.13). Clearly much of the success on the part of the ambulance service to help address the problem of filling hospital A&Es and patient beds beyond capacity will depend on ambulance personnel taking on a clinically enhanced role including taking greater clinical risks. Current evidence concerning safety, effectiveness and funds to support these changes is currently insufficient (Snookes *et al.,* 2002) but growing. The recruitment and development of the Emergency Care Practitioners (ECPs) having wider clinical skills as a way forward was one of the recommendations of the national ambulance review (DoH, 2005a, p.47). Few recent studies have explored the role of the in providing better clinical care to the patients. Mason *et al*., (2007) have reported how the care

provided by the ECPs appears to reduce the need for subsequent referral to the A&Es. Similarly, Halter *et al*., (2006, p 865) also found some evidence that the intervention by the ECPs was experienced as considerably better with reference to fewer patients from the ECPs being conveyed to the emergency departments. Some studies across the Atlantic (Hauswald, 2001; Kamper, *et al*., 2001) however have reported difficulties on account of the paramedics in safely determining the patients which do need an ambulance transport or visit to the A&E. Cooper (2005) suggests that the UK Ambulance service is in a transition stage with significant organisational, professional and cultural challenges.

METHODS

This research was carried in a large ambulance trust in the North of England (hereafter referred to as Delta trust) between 2006 and 2008. The principal aim of this research was the exploration of performance measurement and organisational culture in the ambulance service and to identify unintended consequences of the performance measurement system using a case study approach. Given the diversity of the size, performance histories, geographical areas served and different organisational structures and cultures in the Delta trust, this one 'big' case was a useful unit of analysis for theory building and provided useful comparisons within the same organisational context (Dyer and Wilkins, 1991; Eisenhardt, 1989). Ethical approval was obtained from a local research ethics committee.

The research participants included senior board executive and non-executive directors, managers, frontline staff representing paramedics, 999 Call takers and Call dispatchers working in the Emergency Medical Dispatch Centres (EMDC) in the chosen trust. To further improve the validity and reliability of the findings, four senior policy experts were selected and interviewed. A 'stratified purposeful' strategy (Miles and Huberman, 1994, p.28) was considered to be the most effective method in recruiting the participants in this study. The choice of the experts was also guided by the issues of access and their involvement in the current ambulance policy formulation and implementation. Access was also facilitated by two senior trust board executives interviewed. Three of the experts have been involved in very senior policy roles within the DoH dealing with the clinical and managerial aspects of ambulance policy. One senior ambulance trust specialist within the Audit Commission in England was also interviewed. This helped to get a rounded understanding of the issues considered in this paper. The chosen trust and the individuals are not identified for reasons of anonymity and confidentiality.

Seventy-two semi-structured in-depth interviews were conducted in this study in two phases between January 2006 and June 2008 with some of the research participants interviewed twice. All interviews were tape-recorded with prior consent to facilitate subsequent analysis. Simultaneously, notes were also taken during each of the interviews. The formal interviews followed a broad thematic guide that aimed at gathering occupational narratives, understanding pre-existing performance practice, and exploring the individual perception and attitudes of the research participants (Currie *et al.,* 2008). Themes undertaken for analysis were developed from the review of the literature and were refined during the interviews (for instance the Call to Connect target). The process of data analysis was guided by adopting the strategy of

relying on the theoretical propositions that have influenced the research objectives and the overall aim of the case study (Yin, 2003). QSR NVivo Version 7.0 was used in this investigation to facilitate the analysis of data using the constant comparision method (Strauss and Corbin, 1990).

At the corporate level, several open trust board meetings and internal executive meetings were observed and the author recorded how senior executives implemented DoH performance guidelines, analysed trust performance and dealt with incidents and staff issues. Time was also spent in observation of area management team meetings (performance meetings) to understand how these groups were responding to policy and attempting to make performance improvements. From the perspective of the managers, observation focused on the extent of managerial contribution and participation in performance improvement within the trust. At the micro-level of frontline staff, operations in the EMDC control rooms were observed and time was spent in ambulance stations, travelling with ambulance crews and in the canteen where managers, junior executives, and frontline staff took breaks. In total, around 150 hours of observation took place.

There were some limitations to the data which was collected largely from one single case. The popular view is to discount the possibility of generalisation of findings from a case study research. However in-depth case studies offer the opportunity to generate knowledge which is of relevance to the wider public service reform agenda. It further helps to focus on more tacit and less obvious aspects of the setting under investigation (Dyer and Wilkins, 1991). Selection of the chosen case and the outside experts provided greater contrasts in the experience of the actors than a sample of multiple cases where a researcher would have been constrained to focus on surface data rather than deeper social dynamics.

FINDINGS

The paper has argued that most public sector performance indicator designs have been implemented on the assumption of yielding gains in efficiency without paying too much attention to the potential costs of such schemes or to the unintended consequences of such systems. Five unintended consequences identified in the current ambulance performance framework are discussed next.

Tunnel vision

Tunnel vision is defined as an emphasis by management on phenomena that are quantified in the performance measurement scheme at the expense of those that are unquantified (Smith, 1995, p.286). The study found clear recognition that the current response time indicators, and especially the eight minute target, do not give a holistic view of the trust performance. The single minded focus on the eight minute response has diverted attention from equally important but unmeasured or immeasurable aspects of performance (e.g. clinical performance). Many senior executives argued that if the service solely concentrates on the Category 'A' target, the ambulance service will never change:

> *"In reality we don't want to be obsessed with 75% and I think it's a real frustration within the organisation that that 75% within eight minutes is the*

obsessive picture…I don't care if we get there in 8 minutes or 7 minutes and 57 seconds or 8 minutes and 2 seconds... The issue should be what difference we make to that patient when we got there."

Senior Board Executive I

The NHS ambulance trusts in England are funded by the local Primary Care Trusts (PCTs). This funding is often based upon projections of future service demand. The weekly performance of each PCT was a regular item on the agenda of weekly internal review meetings in the Delta trust attended by the author. This was frequently cited as diverting attention and resources away from other important aspects of the trust performance such as the training of ambulance crews and managers:

"*While we'd love to modernise, actually every time we get anywhere near it they {PCTs} give us another target to achieve with the money they've got... They either invest in us and they get what they pay for or they don't invest and they get nothing but they can't have something for nothing.. Simple."*

Senior Board Executive II

Ambulance boards have been criticised for being heavily focused on response time targets and the board discussions for having an operational focus (drfoster intelligence, 2006, p. 21). As one participant lamented:

"The board should continue to remember that we are a clinical organisation, we are not an operational organisation and we are not a financial organisation. The operations and the finance support our mission which is to deliver good clinical care."

Senior Board Executive III

Evidence gathered in the study reveals that the agenda of clinical education and workforce training appears to have been 'hijacked' to some extent by the operational exigencies of meeting eight minute response target. This hypothesis is confirmed by the views expressed by many participants that staff development was sacrificed and staffs were re-deployed to meet performance targets:

"If I'm honest, everyone says training is very important and everyone probably does think it very important. In practice, it's sacrificed to meet targets and we've done that here. So, unfortunately training is one of the first sacrificial lambs when it comes to meeting targets."

Senior Training Manager

From the discussion above, we can argue that the ambulance response time targets have caused a 'tunnel vision' due to the emphasis on measuring operational

performance at the expense of important but unmeasured aspects of the organisation's performance (e.g. clinical outcomes). Emphasis on response time targets distorts the nature of the ambulance service to the detriment of non quantifiable objectives.

Myopia

Myopia is the pursuit of short term targets at the expense of legitimate long term objectives induced by performance indicators (Smith, 1995, p.288). We argue that the current ambulance performance indicators distort the priority for long term clinical performance indicators or sometimes pushed to deliver short term targets without a view to the long term. The new eight minute standard, called ''Call to Connect'' reflects how a short-term approach can be detrimental to the development of clinical outcomes for the ambulance trusts.

'Call to Connect' is one of the recommendations of the government (DoH, 2005a, p.39) to address concerns about inconsistencies across ambulance services applying different performance requirements. The review recommended that for the purpose of measuring 999 Category 'A' and Category 'B' response times, the clock should start when the call is connected to the ambulance control room and not when the key information regarding the location of the caller and the main problem is collected by the Call taker in the EMDC control room (see figure 2). This change was scheduled to be introduced in April 2007 to allow sufficient time for the necessary technical and operational changes to take place. However due to various difficulties, the date was moved to 1st April 2008 after which the new standards became operational. Evidence from the study suggests that this new target can cause 'myopia' and can lead to perverse consequences.

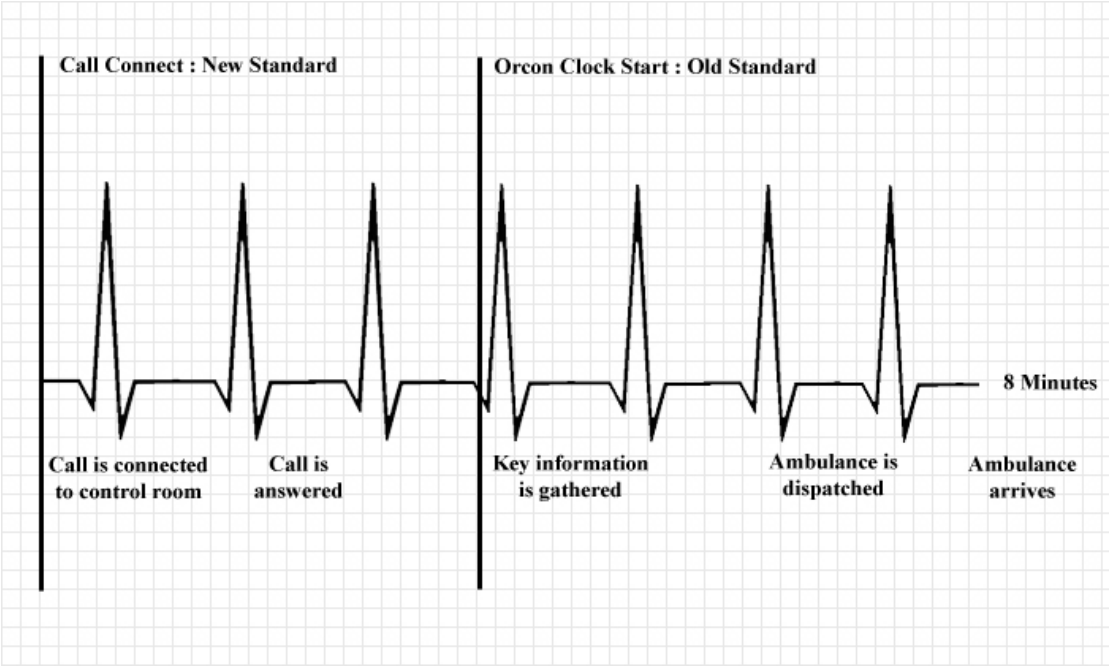

Figure 2: New 'Call to Connect' Standard

The implications of this change are enormous for the ambulance service due the manner in which the Category 'A' Call is being measured along with its impact on service delivery. Senior executives were quick to point out its immediate implication:

> "*'Call to Connect as a target will mean that we have to gain or lose 50 seconds from our current time… If we did nothing to work differently and just put the additional amount of resources required to now have enough ambulances to hit that target, that extra 50 seconds, you are talking about having to get a performance gain of around 18%. Every 2% gain you are looking at something like £1.5m costs. You are talking £25-30 million. And that's just us."*
>
> *Senior Board Executive IV*

Some respondents were concerned that the 'Call to Connect' target has the potential to derail the process of developing the clinical skills of the paramedics due to further shortening of the eight minute response time:

> *"Taking Health Care to the Patients hangs about identifying what the patient actually requires as early as possible and then doing it. Well how can you do that when you've got 8 minutes to get there which is now reduced to 7 minutes and 10 seconds anyway due to 'Call to Connect'? You can't afford to take more risks anyway."*
>
> *Senior Board Executive V*

Informal discussions with managers and observations made during performance meetings suggest that many members of staff did not still grasp the real implications of 'Call to Connect' and perceive it to be a management problem:

> *"Staff thinks that 'Call to Connect' is only a control room issue and it is their job to ensure that calls are handled faster and vehicles dispatched more efficiently."*
>
> *Senior Operational Manager I*

Paramedics who participated in the research seemed to be aware of this new target but found it difficult to understand the rationale behind it. Informal discussions in the 'stations' left a feeling that 'Call to Connect' is probably seen as a route to make people do things they prefer not to:

> *"The clinicians out on the road haven't got a clue. They don't even know this is in the background. 'Call to Connect' just hasn't registered, it's just gone straight through because it means neither pay nor improvement in terms and*

conditions.. Staffs think it is a conspiracy against their working conditions because of Agenda for Change and the job evaluation process."

Senior Paramedic I

One expert believed that this new target was 'short-termist':

"Call to Connect, the latest short term target is putting pressure on response times. What get sacrificed when everybody has to go out and do the job are training, education and supervision."

Ambulance trust Specialist, Audit Commission

Another expert outlined the relative gains for the patients due to a quicker ambulance response but acknowledged some perverse behaviour on account of the new standard:

"It has affected the speed of other reforms in the service absolutely because it's been all-consuming so everyone is always looking out; everyone is always focused predominantly on performance and this target. Has affected some of the other things we would do? Yes it has. There's no doubt about that"

DoH Professional Expert I

Other experts were also quite candid in accepting that the current target has affected the ambulance service reform process set out in the ambulance review (DoH, 2005a):

"I think the aim of Taking Healthcare To The Patient had been to try and move away from time targets…So the aim was to try and focus more to have speed for those that count but then the rest have outcomes or indicators or clinical indicator measures. Now, has that happened in the right order and at the right speed? The answers probably is no. Does it encourage dysfunctional behaviour? Probably yes, it does."

DoH Professional Expert II

During the period of study, the management of the Delta trust grappled with devising strategies to meet this new national target. It dominated the agenda of the internal and trust board meetings and constantly occupied the minds of senior executives. While the implementation of the target is a relatively recent phenomenon (since April 2008) it is fair to say that ambulance services are currently spending lot of their time and efforts in meeting the 'Call to Connect' target. The concerns from various quarters indicate a need for greater debate on the subject. One respondent summed this issue quite nicely:

"Let's deliver the service in a different way; let's not start the clock in a different way."

Senior Area Executive I

Ossification

Ossification is organisational paralysis brought about by an excessively rigid system of performance evaluation inhibiting innovation (Smith, 1995, p.299). It occurs when performance measures have lost their purpose but are not revised or removed. Previous section has argued that the eight minute target is not evidence based. Experts and clinicians interviewed in the study questioned the clinical evidence behind the eight minute target:

"Now we could argue whether it should be 8 minutes or 10 minutes or 7 minutes or 9 minutes… To be honest, if it is a cardiac arrest and you are not there within 2 minutes, then 8 minutes was the tipping point to say nobody survived. So why we picked 8 minutes as the response time is a mystery to me."

Clinician I

One expert was more explicit about the lack of clinical evidence for the eight minute target:

"I must admit I'm a big cynic of the 8 minute target…Actually a third of people who have a cardiac arrest don't even get into Category A. So you've got a third of patients who don't even need 8 minutes and don't even get into the target and of course then the target is only 75% anyway. So actually you've probably only half of cardiac arrests who get an ambulance within 8 minutes."

DoH Professional Expert I

There was recognition by senior policy experts about the relative lack of clinical evidence behind the ambulance eight minute target:

"Well it's pragmatic in the sense that probably 6 minutes is better but is unrealistic and I think to have something like the 8 minutes. I don't think we can make it shorter at the moment. I think, it is not unreasonable and it really keeps people on their toes... But you've got to be realistic about resources and what we've got."

DoH Professional Expert II

One expert agreed that the current response time regime placed too much emphasis on the time element at the cost of developing clinical aspects of patient care or clinical performance indicators:

> *"There's definitely a correlation. It's not just down to one thing; its not just speed. Obviously it is what happens at the scene as well."*
>
> *DoH Professional Expert III*

It was interesting that the trust management was still contemplating and talking about the ways to deal with the new clinical agenda more than two years after the recommendations of *Taking Healthcare to the Patient* (DoH, 2005a) came into effect:

> *"I think it's a good opportunity to start afresh… We will bring in a much stronger clinical management structure at an operational level. I will now have the structure to push clinical governance forwards right down to patient level."*
>
> *Clinical Governance Manager (March 2007)*

But later:

> *"The lack of clinical governance is still there. There is a clear divide between operational management versus clinical direction. The organisation is still run very operationally."*
>
> *Clinical Governance Manager (June 2008)*

The arguments of the research participants in the case study on the relative benefits of the eight minute target are supported in the literature:

> *"There appears to be no robust evidence on the health benefits resulting from improvements in response times above 8 minutes other than from reducing ambulance response times to below 8 minutes for cardiac arrest patients."*
>
> *DoH (2005a), p.2*

Ambulance response time targets have not been put up for scrutiny of review and have remained largely unchanged since 1996. The national review (DoH, 2005a) re-visited the targets but only for the purpose of making them more stringent with the new 'Call to Connect' standards discussed above. As a result, the opportunity to look for alternative methods to measure performance has been missed. It thus appears that current performance framework is stifling innovation and leading to ossification. While it is important to acknowledge that no measurement scheme can hope to capture all the consequences of a complex healthcare organisation's activity, it is however important, as Smith (1995) argues, to constantly scan the environment to

detect unanticipated consequences and to embed the performance measurement scheme in broader monitoring system such as peer reviews and accreditation (Audit Commission, 2000; Bevan and Hamblin, 2009).

Sub-optimisation

Sub-optimisation is the pursuit of narrow local objectives by managers at the expense of organisational objectives as a whole (Smith, 1995, p.286). This problem can be endemic to any hierarchically structured organisation in which control is secured by explicit performance criteria. This study found that the corporate objectives of the Delta trust were not always aligned with the specific incentive structure for different staff of the trust. This was evident in the manner that good performance against the eight minute response was seen by the trust management as an important aspect of maintaining good relations with the PCT Commissioners who fund trust activities. While there was a clear executive focus on attempts to engage staff in major strategic issues and to facilitate 'clinical ownership', some participants mentioned difficulties in getting the other occupational communities 'on board':

> "*If you went down to a sector manager and said what this Trust is about, they'd say, 'operational performance.' They wouldn't even think about clinical quality. So we've got a long way to go."*
>
> *Senior Area Executive II*

The need for better clinical supervision and leadership to improve the clinical governance structure in the trust was identified by a small number of respondents. Senior trust executives stressed the strong desire to increase the ability of the staff. Evidence from this study suggests that there can be difficulties for staff involvement in objective setting if cultural differences exist between different staff groupings within an organisation:

> *"If you talk to road staff about achieving Category 'A' performance they just laugh in the sense of well that's your problem to get the ambulances in the right place, to make sure we can get there within the time…* W*hat we actually need to do is to take a non professional blue-collar workforce and migrate it into being a professional workforce."*
>
> *Senior Board Executive VI*

> *"I think operational managers understand what the performance targets are, why we have got them. But whether they agree with them is another issue."*
>
> *Senior Area Executive III*

Few managers shared the executive concern about the levels of commitment of frontline staff towards the performance targets:

"There is widespread misunderstanding amongst staff about performance targets... Stafsf are unsure as to their value and in some cases hostile to the targets."

Senior Operational Manager II

The reasons for these differing perceptions are quite peculiar to the ambulance service. Frontline staffs are based in stations which are scattered over a large geographical area distant from their headquarters and work mostly without direct supervision. This makes communication within the ambulance service difficult. The different nature of work of the different occupational cultures places different pressures on each group (Wankhade, 2007a cited in Radcliffe and Heath, 2009). The lack of a clear perception by staff about performance targets also reflects a lack of communication and education both within the organisation and within the wider NHS.

Measure fixation

Measure fixation is defined as an emphasis on measures of success rather than the underlying objectives (Smith, 1995, p.290). If a measure does not fully capture all dimensions of the associated objective then managers may be encouraged to focus on the performance indicator itself rather than the desired outcome. The current eight minute response target does not make any distinction between geographical localities to expect an ambulance response within eight minutes in rural areas affecting patient safety and quality of care:

"Rather than everything being life threatening and needing urgent responses within 8 minutes and then 19 minutes, there has to be some recognition as it is in Scotland that there is a urban model, a rural model and the remote-rural model and no matter how quickly you are wanting a technician to respond to somebody in a remote rural environment you are not going to get there in 8 or 19 minutes. It's just physically not possible."

Senior Board Executive I

Measure fixation was also noticed by studying the tactics used by the trust to meet the eight minute target, jeopardising the safety of the staff and the patients. Ambulance trusts make use of the Rapid Response Vehicles (RRV) to meet the eight minute target by using what is referred to as the 'Front Loaded Model' in the ambulance jargon. Such a model was also in use in the Delta trust. What it means in practice is that once a single paramedic in a RRV (car) reaches the scene of an accident within eight minutes, the patient might then have to wait for a further period of time for an ambulance to arrive to carry the patient to the hospital since sending a back- up ambulance may not be a priority once an emergency is responded to within eight minutes. Such a practice has implications on organisational costs. Another tactic used by the ambulance trusts (across England) is the involvement and use of the Community First Responders (CFRs) in responding to urgent 999 calls. In an opinion survey of paramedics, Price (2006) found some evidence that CFRs with basic

training and inadequate clinical skills were deployed in a number of inappropriate emergency situations solely to meet the targets. Such tactics can have a de-motivating effect on staff morale and performance:

> *"I'd like to wait ten minutes for a paramedic rather than just have some person as a first responder who hasn't really got a clue but because they've got a defibrillator so you can tick the 75% box and I think that's incorrect."*
>
> *Paramedic II*

Further evidence of measure fixation was recorded by examining the actual experience of meeting the 'Call to Connect' target in the Delta trust. In order to meet the pressure of this new target, staff and vehicles were dispatched once a Category 'A' call is made to the EMDC control. This meant that staff had to rush to the scene of the emergency without having any details about the main problem (e.g. social or medical condition) of the caller. This has implications for the safety of the crews.

Some respondents further argued that the current eight minute target only measures one aspect of performance- whether ambulance trusts hit this target within 75% of the cases which is rather simplistic and should look across the distribution of response times rather than just considering performance at a single point of eight minutes (crowding performance towards the target):

> *"We need some measure of, well actually we were achieving 8 minutes but its not a skewed 8 minutes, and it's a normal distribution with 50% of people…. You know you could almost say you know it could get too complicated to manage, but it's almost 75% within 8 minutes and 50% within 6 minutes and 25% within 4 minutes. You know so you have a series so it has to be a normal distribution and not just aiming at 8 minutes so you have to have a generalised improvement."*
>
> *DoH Professional Expert I*

Evidence discussed here suggests a clear measure-fixation in the ambulance performance measurement. It further suggests that what has happened with the eight minute target is that it has 'skewed' how people react. It also highlights the need for better education, publicity and appraisal of any performance targets.

Systemic dysfunctions

The Government's focus is on improving the ambulance response time targets by making it more stringent in the form of new 'Call to Connect' standards. We argue that the stated objective is in conflict with and contradicts the broader emergency care strategy. While the new 'Call to Connect' target has the potential to put additional pressure on ambulance performance, the issue of hospital (A&E) relocation can nullify any gains that might be achieved due to this new target. This decision of the government has major implications for ambulance services in terms of their job cycle and can seriously undermine their performance targets:

"I think the hospital issue about reconfiguration is a really serious one because even if you look at the hospitals that have reconfigured already, they can be actually furthest from all previous hospitals. Well that increases the travel time which means their availability for 999s back in the job cycle they have come from is obviously reduced."

Senior Board Executive II

Performance of an ambulance service will improve if the job cycle is completed more quickly releasing the crew for the next job. There are also issues regarding the handover of patients at the hospital A&E departments. Often ambulance crews are seen waiting outside A&E departments unable to respond to other calls. In its report the Commission for Health Improvement (CHI, 2003) expressed serious concerns about the handover of patients at A&E which sometimes may be due to the need for A&E departments to achieve their own target that no patient should wait for more than four hours from arrival in A&E to admission, transfer or discharge a phenomenon noticed by the author while travelling with the crews. Some of the respondents complained about the lack of consultation on this issue:

"There's always a great load of talk about silo working isn't there? But the people who silo work the most are the Government. I think fundamentally they don't care because the agenda which is driving that is a political one; it is not a clinical agenda. You have to understand why they want to close hospitals."

Senior Board Executive IV

The Government's policy was defended by one expert who argued that this issue could be handled locally by individual ambulance trusts:

"The ambulance service has calculated what extra cover they need to ensure that in terms of ambulances and complete set of paramedics and that is built into the costing and the PCTs then have to fund that… It's not the department's problem. It's a local problem and I think each locality has to deal with it in its own way."

DoH Professional Expert II

Apart from having a bearing on organisational performance, this issue has legal implications not only for the ambulance service, but also for the wider NHS. A recent study has suggested that a 10 km increase in straight line distance is associated with around a 1% absolute increase in mortality (Nicholl *et al.,* 2007). While this evidence may not be conclusive enough to question the government's judgement on specialist centres, it does question some of the logic behind it:

"The hospital closures mean that we have to take more clinical risks then we would have to. For example there is a danger of more babies being born at

the back of the ambulance. Paramedics are not trained midwifes. If you look at the history of NHS litigation and the way risk is assessed, maternity services have a big chunk of those cases."

Senior Board Executive IV

The new agenda of building clinical leadership, the clinical governance framework for treating more patients at the scene and in the community is being threatened by the contradiction between faster ambulance response (Call to Connect) and hospital re-organisations leading to longer ambulance journeys. One respondent summed up the frustration:

"You've got these policy papers from experts coming out that say we can now take an extra 20 minutes to take a patient to hospital. So why have we got to get there so quickly if actually we can then say well actually now we are going to go 20 minutes further to reach the trauma centre. Well that doesn't stack up because what's the point of us running to get there in 8 minutes to then say well actually you can now take 40 minutes to get the patient into a hospital."

Senior Board Executive III

Discussion

The evidence discussed above questions the efficacy of the current ambulance performance framework used in England. The lack of clinical evidence alluded to by the policy experts puts the main target for ambulance trusts under scrutiny. It can then be argued that the ambulance response to a 999 call is essentially a response to the call, not to the patient. The AMPDS system used by a majority of ambulance trusts in England simply prioritises the speed of the response in terms of eight minutes (Category 'A') or nineteen minutes (Category 'B') responses. Since the tendency of the system is always to over-prioritise due to the specific nature of the questions the 999 caller is asked and notwithstanding the risk averse nature of the service, more calls are being categorised as Category 'A' than really need to be. One expert argued that if the staffs knew that it's got to be blue lights and sirens and even if only half of the time it really is needed, they would feel happy to "go for it".

It is nevertheless important to put in context any gains of the eight minute target for the ambulance service in light of the historical and cultural aspects of its integration within the NHS. Due to their small organisational size, uniformed culture, and the nature of their job in dealing with emergencies, ambulance services have traditionally been seen both by the public and other NHS colleagues as the health arm of the emergency services rather than an emergency arm of health services. They have still largely remained on the outer periphery of decision making networks within the NHS hierarchy. Many senior executives pointed out that the response time targets have helped ambulance trusts to build their capacity and capability in terms of greater funding, manpower, vehicles, and infrastructure. There was an overall consensus that there has been significant investment over the last two decades that has helped the

organisations to gain in confidence and aspire for a bigger role within the local health economy.

What this paper argues is that the eight minute target has distorted the actual functioning of ambulance trusts in England and has skewed the way different stakeholders react to the target. Most importantly, the continuing focus on the eight minute target has a potential to adversely affect the future modernisation agenda of developing clinical performance indicators and clinical education to its staff. Such counter-vailing tendencies are also supported in the literature that a single performance target has dominated and sometimes "distorted" ambulance service priorities CHI (2003, p.22); that the ambulance performance reports were heavily focussed on the response time targets (drFoster intelligence, 2006, p. 21) and recommendations of the Audit Commission (1998, p. 75). Radcliffe and Heath (2009, p. 419) have recently argued that performance measurement regime and the prevailing organisational culture in the ambulance service have also reinforced each other but to promote the primacy of response times thus acting as a "brake" on the reform process. These could be key factors in aiding their integration into the wider NHS and to their aspirations of becoming an active member in the local health economy.

Conclusion

This paper has discussed some of the unintended consequences of the current ambulance service performance measurement in England. The difficulty in measuring the quality aspects of the organisation's performance has meant that the organisational focus on the eight minute response has pushed out indicators that are difficult to measure but might be more relevant such as the CPIs. We have argued that the current performance targets are centrally driven and centrally directed, lack flexibility to deal with local differences, put pressure on the staff to perform, and can lead to serious unintended consequences. These arguments advance the central argument by Turner *et al*., (2006, p. 75) that further reforms should focus on better 'targeting and clinical care' rather than further response time improvements. One key consideration of decision makers in devising targets is to establish realistic levels of achievement before a target is set. It is been acknowledged that as any managerial tool targets need time to develop, performance targets should have capacity to be revised in the light of the experience in their implementation and should be responsive to change (Audit Commission, 2000; Jackson, 1988; Likierman, 1993) . This study has revealed that the main ambulance performance indicator of the eight minute response has been revisited (DoH, 2005a) but only for the purpose of making it shorter (Call to Connect target) thus putting further pressure on the organisation.

Such a detailed and systematic account of the unintended consequences of ambulance performance measurement system appears to be lacking in the literature. These findings are significant for our understanding of the current performance framework being used in the UK. Future evaluation of the performance measurement system should take into account, the various unintended consequences documented in this study. These findings bring fresh evidence to such an important issue and help to address the knowledge gap and encourage further research and published evidence discussed in the previous section.

However, it will be important to highlight the limitations of this study. The findings discussed in the paper are based on the perceptions and subjective experience of the key individuals who participated in the research and are mediated by the time-frame of the study. These arguments do suggest that performance framework should not only be evaluated on the basis of the expected behaviour in term of improvements in the chosen measures but should also take into account, the unanticipated consequences (Smith, 1996, 2005; Bevan and Hood, 2006). At one hand, the current performance framework and the specific policy solutions discussed earlier in this paper focus on the reform of the eight minute target. But the future direction of travel for ambulance trusts in England (DoH, 2005a) envisages amongst other things, the development of clinical performance and clinical skills of the ambulance paramedics which at present are not measured nationally.

The paper addresses the importance of finding out 'discernible' effects of a performance measurement system and a wide ranging educational effort about the role and interpretation of the performance data within the wider literature (Bevan and Hamblin, 2009; Hibbard *et* al., 2003; Bird *et al*., 2005; Goldstein and Spiegelhalter, 1996). Further research in this regard will help to identify the characteristics of different schemes which influence successfully the behaviour of the NHS staff to secure improved health outcomes as well as measured outcomes (Jacobs *al et*., 2006). There appears to be a genuine need to initiate new methods of communication and learning to imbue the staff with the requisite knowledge about individual contribution and organisational role in performance measurement. This will bring significant changes in organisational culture and practices (Mannion *et al*., 2005), along with the improved effectiveness in all areas.

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