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Unscheduled patients: the introduction of a structured booking form to enhance workflow patterns from point of booking until transition to the operating theatre.

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“I hereby certify that this material, which I now submit for assessment for part fulfillment of MSc Healthcare Management is entirely my own and has not been submitted for assessment at any other university.”

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Abstract

Background:
The management of unscheduled patients presenting to an operating theatre poses a major obstacle for service planning and provision. The ability to schedule these cases during rostered working hours, where possible, is safer for the patient\(^1\) and a more efficient use of theatre, staff and hospital resources\(^2\).

Aim:
The aim of this project was to introduce a structured booking form to enhance workflow patterns from point of booking until transition to the operating theatre for unscheduled patients.

Methods:
The project was conducted among the theatre staff and stakeholders of a level two hospital in the west of Ireland over a two month between January and February 2014. Focus groups were employed to identify barriers to change. The author employed SWOT and force field analysis to determine a strategy for change. A structured booking form was designed for theatre and endoscopy. The change process was delivered using Kotters change model facilitated by action learning sets. Ethical approval was granted to conduct this study.

Results:
Over the two month period that the study was conducted there was a 52% reduction in procedures performed out of hours for January when compared to the same period the year before. Similarly, there was a 17% reduction for the month of February when compared with same month the year before. Post introduction of the booking form the minimum time taken to schedule an unscheduled patient was 5 minutes and maximum time spent was 7 minutes (a net reduction ranging from 74% – 82.5% in the time taken prior to the introduction of the booking form. If time saved during the booking process was transferred into increased theatre utilisation, this would translate to a potential cost saving ranging between €124,050 – €240,900; assuming every unproductive theatre hour costs €1500 under the productive operating theatre model.

Conclusions:
This study has shown that unscheduled patients presenting to theatre can be scheduled in an efficient and effective manner. A structured booking process can translate into considerable cost savings where this results in increased resource utilisation.
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Section 1: Introduction to the Dissertation

1.1 Overview

Healthcare managers encounter extreme challenges in face of change and adoption of new concepts and technology in healthcare organisations (Glacken et al. (2004) Magee et al. (2003) Nembhart et al. (2006)). Managers must be dynamic at implementing quality improvement initiatives that are innovative, patient centred and cost neutral, as our health service tries to meet increasing demand twinned with reducing budgets. We, as healthcare managers, have a duty to ensure that within the resources available to us; we must provide the best possible care to our patients. We must be committed to effective service provision but equally accountable to deliver these provisions within our agreed annual budget.

This chapter begins by outlining the nature of the change proposal within the author’s organisation. This is followed by a discussion of the proposed project scope, inclusion and exclusion criteria and the cultural and economic climate in which the change is framed. The aim and objectives of the change process are discussed and are guided by SMART principles. Finally the author provides the reader with a change map for their proposed change process.

The term ‘author’ will be used throughout the dissertation in reference to the person who wrote this thesis.
1.2 Nature of the change

The change initiative focused on the introduction of a structured booking form to enhance workflow patterns from point of booking until transition to the operating theatre. The author conducted a literature review of the current evidence around scheduling within the operating theatre, specifically, unscheduled patients. The Productive Operating Theatre (TPOT) acted as a framework with which to devise and develop the change idea. The aims and objectives of the change project were delineated and underwent SMART analysis to determine feasibility given the time frame.

The work initially focused on the identification of barriers to scheduling unselected unscheduled patients presenting to the operating theatre. Focus groups were conducted with theatre stakeholders who identified issues within scheduling and delays in the transition of patients from the clinical ward to the operating theatre. The author proposed a systematic booking form as a solution to the barriers identified. Kotters model of change (1996) was adopted to frame the introduction of the structured booking form. The author modified Kotters model (Figure 1.1) to incorporate a method for formative evaluation of how the change process was progressing at each step. This allowed for continuous refinement of the change process.

A test booking form was designed (Appendix 1) and trialed over a two month period during November and December 2013. A steering committee was created to oversee and evaluate the acceptability and application of the form, and further iterations of the booking form were developed and evaluated.

Once the form was satisfactory to all stakeholders, ethics was applied for to conduct the study and was granted on chairs approval (Appendix 2). The study was conducted over the months of January and February 2014. The document underwent sever-
al iterations (current version 1.7 is included in Appendix 3) and subsequently became a controlled document. All stakeholders were offered training in how the booking process would operate using the form. The Kirkpatrick model of evaluation (Kirkpatrick 1959) was used to evaluate the alignment of process, outcome and impact (return organisation) of each objective of the change process.

All work undertaken in this project was conducted by the author with the input of key stakeholders involved in the running of the theatre, and the permission of senior management within the hospital. Persons who made specific contributions are acknowledged where appropriate.

1.3 Scope of project

1.3.1 Inclusion criteria

The project involved all unselected and unscheduled presentations to the operating theatre, which includes the endoscopy suite. The study was inclusive of the months of January and February 2014 on a twenty four hour, seven day a week basis.

1.3.2 Exclusion criteria

All obstetric patients presenting to the theatre were excluded for the purpose of this study as their presentation is usually on an emergency “crash call” basis which requires immediate access to theatre from the wards.
1.4 Rationale for carrying out the project

The author is currently employed as a theatre manager in a level three teaching hospital in the west of Ireland. The management of unscheduled patients presenting to theatre during normal working hours poses a major obstacle for service planning and provision. The very nature of a case being unscheduled undermines one’s ability to plan for their presentation. However, the ability to schedule these cases during rostered working hours is a more efficient use of theatre, staff and hospital resources.

The genesis of the structured booking form followed a critical incident, in which an unscheduled procedure was added to an overbooked day ward theatre list. This was a supposedly ‘quick case’ involving transient conscious sedation and a five minute diagnostic test. There was minimum staffing on site and the patient’s condition evolved deleteriously requiring emergency surgery, massive blood transfusion, recovery in intensive care and a staff member receiving an eye splash requiring occupational health involvement. The patient’s deterioration was compounded by the lack of any past medical history on the patient, and poor preparation of the surgical team, as booking staff were not made aware of the indications for the procedure and the subsequent risk for clinical deterioration. On reflection, this could have been a possible fatality.

The author, with the help of theatre stakeholders, devised a trial booking form. This forms the basis for this change programme. The author performed a force field analysis of barriers and enablers to efficient scheduling in the face of adding unscheduled patients to an already burgeoning day list. Several modifiable factors in the transition period between patient booking and admission to theatre were identified. One of those factors identified as being suitable for a change project, was the process of booking itself. The booking of an unscheduled patient puts in train a process
of reorganisation of the scheduled theatre list. As a result, it was decided also to look at the workflow generated when an unscheduled patient present to theatre.

1.5 Context of the change (Climate/Culture)

Health care in Ireland is managed and delivered through the Health Service Executive (HSE) to a population of four and a half million people with an approximate budget of thirteen point four billion euros (National Service Plan 2013). Taking into consideration that people are living longer with more chronic disease burdens (Health Status Report 2008), their health needs will put greater demands on the service we provide. Health plans have expanded within our hospital and as we are now part of a group trust, consisting of a group of seven hospitals made up of a model one, a model two and a model three hospital respectively.

The author’s hospital demographics for 2014 included; a budget of forty four million euro’s, six hundred and forty eight whole time equivalent staff, of which eighty are medical staff, two hundred and eighty three nursing staff, one hundred and nine managerial staff and approximately one hundred and eighty six support and administrative staff. The hospital has one hundred and ninety four beds in addition; twelve five-day beds, twenty four daycare beds of which four are designated paediatric, four maternity and sixteen medical/surgical beds. The population area is predominantly rural with a population of forty two thousand people. The hospital group catchment area is seven hundred and fifty thousand people.

Through government initiatives such as the acute clinical care programme, increasing focus is being placed on developing local strategies to promote innovation while delivering a quality service to patients. The provision of resources according to patient throughput (money follows the patient), agreeing and achieving targets for day
surgery and average length of stay (AvLOS) is becoming germane to day to day practice. However, given that the hospital provides twenty four hour emergency cover, unscheduled unselected cases can present at any time. Thus, identifying a method which could improve the usage of resources and theatre time while ensuring a safe and efficient service for the patient is an unmet need at present in the author’s hospital.

1.6 Aim and objectives

1.6.1 Aim
The aim of this project is:

In the setting of unscheduled patients presenting to the operating theatre, to introduce a structured booking form to enhance workflow patterns from point of booking until transition to the operating theatre.

1.6.2 Objectives

1. To **identify** barriers and enablers to effective scheduling in the operating theatre with respect to unscheduled cases.

2. To **enhance** workflow processing at the point of booking an unscheduled patient

3. To **reduce** the burden of administration for theatre nurses during an unscheduled booking for theatre

4. To **enforce** the provision of accurate and robust patient demographics at the time of booking to minimise risk to patients at the transition points of care.
5. To **improve** the journey for patients as they transition to the operating theatre through more efficient scheduling and timely access to theatre

6. To **maximise** scheduling within rostered working hours and to quantify potential savings in doing so

7. To **promote** staff morale by reducing time spent duplicating administrative information, allowing this time to be spent directed towards patient care.

### 1.7 Change concept diagram

![Change Concept Diagram](image)

**Figure 1.1** Proposed change road for this project.

### 1.8 Conclusion

Effective leadership at all levels is essential to delivering the goals of an organisation and ensuring high quality, safe and effective care. It is recognised throughout the literature that that leadership development is a life-long activity and should be intro-
duced early in organisations and not confined to specific levels or groups of the workforce (Baulcomb 2003, Joyce 2005 & Tomlinson 2012).

The question therefore, is how can we transform stakeholders in healthcare into high performance individuals and equip them with the necessary tools and skills to address service improvements and bring about positive outcomes for the future?
Section 2: Literature Review

2.1 Introduction
Shepherd (2009) noted that effective nursing management was fundamental in the reduction of procedural delay within the operating theatre. The current drive for reduction in procedural delay is emboldened in the promotion of the productive operating theatre. Importantly, procedural time is the time from when the anaesthetist takes responsibility of the patient until the patient leaves the operating room. This alters the focus of the observer, to one of the pathway a patient takes within the theatre and not on the individual procedure or surgeon involved. This allows one to focus on quality of service, three hundred and sixty degree workflow analysis, and resource management. This is in juxtaposition to the previous use of throughput as a single measure of productivity, thus giving more weight to quantity at the expense of quality, a disparity that was identified as a root cause of failure of care in the Mid Staffordshire Trust Report (Francis Report 2013).

Factors affecting a patient’s transition from clinical assessment to the operating theatre are multifaceted. From the point of view of the author, this literature review will look at process improvement methods that can enhance efficiency within the theatre prior to a patient undergoing their procedure. Factors which are beyond the control of the theatre and outside its working arena will not be addressed in this review. Given that TPOT was introduced first in the United Kingdom in 2007, the author chose to limit the review of primary literature to those articles published in the last six years. Any research papers which may have been referenced within the literature identified, that fit the search strategy but lie outside the time limits, will also be included in the review through hand searching.
2.1.1 Search Strategy
For this literature review, the following databases were searched, PubMed, CINAHL, and Emerald. The following search strategy was used as listed or modified slightly depending on the search engine (subject headings were not used in ERIC or Emerald) theatre[All Fields] AND ("emergencies"[MeSH Terms] OR "emergencies"[All Fields] OR "emergency"[All Fields]) AND scheduling[All Fields]) OR scheduling[All Fields] AND theatre[All Fields] AND ("2009/03/22"[PDat] : "2014/03/20"[PDat]) AND English[lang]). This yielded twenty eight hits on PubMed, eleven on CINAHL, ninety five on Emerald. Abstracts were read where available and articles selected based on original research and relevance, further key author papers noted through the literature search were also selected. This yielded seventeen articles which were included in the review.

Due to the specific nature of the topic being searched, locating all the relevant articles through systematic database searching was difficult. Often articles were coded under alternative MeSH terms; however, review of the reference lists in the selected literature yielded further primary research to include. The following review will evaluate the current literature on the scheduling, particularly unscheduled patients since the introduction of the productive operating theatre model and given the lack of primary literature, the author will also examine key drivers or enablers for scheduling of unscheduled patients, as identified by the authors force field analysis.

2.2 Health Services under Pressure
Healthcare managers must encompass extreme challenges in the face of change and adoption of new concepts and technology in healthcare organisations (Glacken et al. (2004) Magee et al. (2003) Nembhart et al. (2006)). Managers must be dynamic at implementing quality improvement initiatives that are innovative, patient cen-
tered and cost neutral, as our health service tries to meet increasing demand twinned with reducing budgets. In 2007, the NHS in the United Kingdom faced huge financial losses. Each department within the health service was tasked with the identification of cost savings and the introduction of cost containment measures. The former chief executive of Granada Television Gerry Robinson was employed in a hospital trust to “fix the NHS” in a six month period. He was visible in the workplace and innovative with the frontline staff, encouraging them to adopt new schemes in their work ethic to bring about small changes in the workplace. This cut through complex structures in implementing change; however, there was some resistance from senior colleagues who did not like his management style, especially when operating theatres were used to maximum capacity on Friday afternoons’ (Murphy 2007). However, this innovation helped in the reduction of waiting lists by more efficient use of resources and by involving frontline staff this helped to ensure change occurred. Gerry Robinson was also successful in decreasing the paediatric outpatient waiting list by increasing the number of patients per out-patient session.

Gerry used an autocratic management style; however he encouraged staff to work collaboratively with other departments. This brought about change in the organisation as staff was supportive of each other, adopting new innovations and improvements. Not everyone agreed with Gerry Robinson’s logic, Halpern (2007) criticises Robinson for his hand in increasing salaries and recruiting more senior management figures, which he argued took resources away from frontline services. Halpern implied that the only change that Robinson introduced was an increase in bureaucracy (Halpern, 2007).
2.3 The Productive Operating Theatre
Within the arena of surgery, a new initiative was introduced and implemented across all hospital trusts. This initiative was termed The Productive Operating Theatre (TPOT) (Shepherd 2009). TPOT successfully saved over seven million pounds sterling for the average Trust which comprised approximately sixteen operating theatres in each trust hospital (NHS 2009). This modular series has attracted acclaim for its inventiveness and was commended for its sequential developmental approach which focuses on patient safety, satisfaction, reliability and staff morale. It applies research and best practice using techniques from industry such as “Lean Management Tools”. These tools are used to gain an understanding of current practice and sustain programmes of change which aim towards continuous improvement. The speed of change depends on the culture of the organisation, resources and capabilities to see the opportunities and focus on conceptualising them (Shepherd 2009). TPOT was adopted by the Health Service Executive (HSE) of Ireland in 2012. The HSE applied the TPOT cost efficiency model across the Irish surgical budget and projected that for each hour of inefficient use of theatre time, fifteen hundred euros was being wasted.

The introduction of TPOT improvement programmes have proven advantageous, a study by Ahmed, Khan et al. (2013) highlighted the benefits of TPOT in not only improving efficiency measures as measured by overrun times and cost savings, but also in identifying key barriers to such improvements. There is also some evidence that it has positive effects on patient experiences (Ahmed, Khan et al. 2013). The effect of scheduling on the use of operating theatre time has been studied for several decades (Rose and Davies 1984). Prior to the arrival of TPOT, the initial measure of productivity was a focus on average length of common operations and best use of operating time. However, the focus has now moved to procedural time which incor-
portrays the totality of a patient's journey within an operating theatre. The author however wishes to extend the scope of these time savings further from booking to arrival at the operating theatre door.

2.4 Challenges within the surgical arena
Health care in Ireland is managed and delivered through the Health Service Executive (HSE) to a population of four and a half million people with an approximate budget of thirteen point four billion euros (National Service Plan 2013). Taking into consideration that people are living longer with more chronic disease burdens (Health Status Report 2008), their health needs will put greater demands on the service we provide. An aging population and rising prevalence of chronic disease is not a phenomenon unique to Ireland. Kargar, Khanna et al. (2013) described the implementation of a computer aided scheduling algorithm in an Australian hospital in face of year on year surgical list increases. However, their algorithm was used on for elective scheduling. A similar study was conducted by Agnetis, Coppi et al. (2014) in an Italian setting. Again their focus was on elective scheduling. Using scheduling as an effective means of dealing with increasing workload was a common theme evident in both studies. Similarly both papers identified secondary benefits such as efficient use of surgical suites, higher productivity, lower productivity costs and improved patient outcomes; however these research findings were only described after ad hoc analysis and their studies were not designed to assess these as primary outcomes.

Pandit, Stubbs et al. (2009) defined the optimal surgical list efficiency as one which maximises use of operating space, while simultaneously keeping over runs and cancellations to an absolute minimum. They further elaborate on the difference of effi-
ciency versus productivity, whereas the former emphasises maximum outputs for a
given input, the latter stresses total output. In the case of the authors workplace, ar-
eas for efficiency improvements could encompass recovery areas, portering, instru-
ment decontamination, and in the case of the structured booking form, the transition
from booking to entry to the operating theatre. Further pressure has been placed on
surgical services ability to realise efficiencies with the implementation and staggered
(2012) found that EWTD implementation did not reduce trainee access to consultant
led operating lists, and hypothesised that in studies that argued against their find-
ings, improved rostering and scheduling may have overridden this effect.

Fitzgerald, Lum et al. (2006) conducted a survey to identify theatre stakeholder’s
opinions on how to categorise emergency cases presenting to the operating theatre.
The very nature of emergency cases are their unpredictability, and the results of the
survey concluded that different stakeholders had widely varying views on what cate-
gorised urgent, semi urgent or least urgent. The largest variance was seen in the
semi urgent category, this was further illuminated when the stakeholders were asked
to evaluate the commencement time for semi urgent procedures. This highlighted
considerable need for risk assessment to ensure optimum patient triage and care
(Fitzgerald, Lum et al. 2006). These findings chime with the authors experience in
the operating theatre, where unscheduled case present on a daily basis and their
emergent needs must be quantified quickly and accurately to ensure effective patient
care and efficient use of theatre resources. Inherent within this decision process is a
risk benefit analysis. Arguments could therefore be made to streamline the assess-
ment, triage and admission. However, a qualitative narrative study by Adejumo and
Adejumo (2009) concluded that irrespective of the dexterity of the surgical team, the
exclusion of the stakeholders at the point of developing innovation within existing resources will be unlikely to realise the planned efficiencies. The author is cognisant, that if a change is to be successfully implemented and sustained, all stakeholders must be involved from the onset and included at every stage of the change and evaluation process.

There has been considerable interest in using mathematical models and simulations to prediction patient flow through the operating theatre (Cardoen, Demeulemeester et al. 2010, Guerriero and Guido 2011, Agnoletti, Buccioli et al. 2013, Bowers 2013). However, the author must stress that current innovations based within their organisation must be at a minimum cost neutral and at best cost saving. The capital outlay and specialist expertise to design, implement and evaluate electronic scheduling is lacking. Although plans are included for the tender installation of a standardised theatre logbook system across the HSE network in line with the roll out of TPOT programme (HSE 2010), this has still not been implemented. This was further highlighted by a recent study of Irish theatre activity with the HSE. Cronin, Healy et al. (2013) conducted a cross sectional analysis of theatre scheduling systems within the Republic of Ireland. They found that sixty one percent of acute hospitals used a manual non-computerised theatre register. Only fifteen percent had a fully electronic system. This highlights the challenges facing theatre managers, who must deliver enhanced productivity in an environment of increasing demands, reducing budgets and poor information technology support and resources.

However, simple interventions such as improved rota administration can improve patient flow through the operating theatre and have knock on effects for better bed management (Divecha, Smith et al. 2011). Granted that this study looked at surgeon scheduling, the downstream effects of improved bed management on the trauma
ward demonstrates the benefits of a small intervention. The author theorises that the introduction of a simple structured booking form can have similar effects on patient flow through the operating theatre, but also downstream benefits of reduced theatre overruns, enhanced patient safety, and improved staff morale.

This concept of carrying productivity forward has been advanced by Bloodworth (2011) with the concept of “The Productive Ward”. The author feels that while theoretical schema, such as the one developed by Pandit, Stubbs et al. (2009) can be modelled quite completely and robustly, implementation can be very difficult. There are often variables, in the authors experience, that can cause such models to underperform, for example; patient factors (such as complex co-morbidity), internal factors (such as staffing levels) and external factors (such as budgets and service reconfiguration). This observation is supported by subsequent work by Pandit, Abbott et al. 2012, who found that inter hospital theatre start and finish times for similar procedures were very poorly correlated. They concluded that in the case of productivity, focusing primarily on procedural times was insufficient and indeed the primary focus should be on scheduling. This concept is supported and developed further through the TPOT programme by focusing not only on scheduling, but on all inputs and outputs within the theatre arena.

2.5 Conclusion
The author recognises that there is scope for identifying increased efficiencies within the theatre environment, by focusing on the transition of a patient from the clinical ward to the theatre. The author observed that there are delays and discrepancies in their daily schedule in the operating department that could be improved by the introduction of the TPOT programme. These delays appeared to revolve around the effective and accurate transmission of patient information from the assessing clinical
team to the theatre staff. Gaps in patient information lead to unnecessary time delays for theatre staff as they follow up outstanding laboratory results, omitted clinical details, and errors in procedure requests. This is often exacerbated by conflicting information emanating from multiple stakeholders within theatre teams. This leads to unnecessary duplication of work which has been already carried out but not collated in a robust fashion. These issues were further compounded by the manual non-computerised, “diary” nature of the booking system within the hospital and the lack of an integrated theatre information system.

While the considerable literature on scheduling focuses on elective patients, the author is interested in the scheduling of unscheduled patients who require access to the theatre on an emergent basis during the running of elective theatre list. The author chose the term unscheduled as opposed to emergency to refer to a case or cases presenting for scheduling. Not all cases presenting are emergency upon presentation to hospital. Unscheduled cases can range from patients who present for a surgery on the day of surgery, but have not been scheduled on the theatre list of the day in question, to patients who may have a condition that requires surgery but are stable in the short term, to patients who are unstable and require immediate surgery.

This problem may not arise in other hospitals with dedicated emergency or overflow theatres. However, the author’s hospital has three theatres, one of which is ideally protected for emergency cases, while the other two are scheduled daily with operative lists. However, given increasing pressures on theatre resources and waiting lists, all three theatres operate during the day with no more than two major procedures and one minor procedure at one time, to accommodate an emergent case if needs be. The process of booking an unscheduled case can have serious knock on conse-
quences for scheduled elective patients, theatre staffing, critical resource provision, patient safety, and cost containment targets. The very nature of an unscheduled patient is the unpredictability of their presentation. Consequently, planning for their occurrence is not feasible; however, organisational factors that delay a patient’s transition to theatre can be addressed. This forms the basis of the authors research and change programme.
Section 3: Change Process

3.1 Introduction
Social change has been present since the development of civilisation, however the art and science of how that change is managed is a relatively recent phenomenon by the same standards (Diefenbach 2007). Within the literature on change management, there are a plethora of change models, each with their own strengths or limitations. The strength of using a model lies within the logical framework it provides to tackle a problem (Okumus & Hemmington 1998). However, no model can be a perfect fit and it is the authors own personal interpretation and execution of the model within their organisation that will stipulate its success or failure.

In this chapter the author will explore the change process introduced within her organisation; starting with an overview of change itself, the climate in which change is to be delivered, the model chosen, the actions taken and the steps taken to evaluate its implementation.

3.2 The concept of change
Schein (1985) states that work culture is embedded in organisational artefacts, which are the department layout, policies, procedures, guidelines, legislation, structures, rituals and its history. Hofstede et al (1990) further elaborates that culture has many characteristics which may be holistically and historically determined, anthropologically related, socially constructed and difficult to change. Sirkin et al (2005) outlines one of the successful drivers of a change initiative as being the commitment from senior management and their visible presence in support of the change. The importance of same revolves around the perception of staff towards change as being negative and
a threat to their job. Kotter (2000), (whose change model the author adopted for this project) also stresses the importance of senior management to be supportive, visible and open to communication for change to be implemented successfully.

3.3 The current workplace climate
Glyn et al (2000) reinforce the importance that organisations have a shared vision which is congruent with the culture of an organisation. When the author first joined the surgical department, the dominant culture in the department was mercenary. The staff worked long hours and there was no collaboration with senior management in relation to managing performance in the department. The management leadership style was hierarchal and was not conducive to fostering staff initiative or the embracing of new ideas. Communication was ad-hoc, with low levels of dialogue with hospital or Health Service Executive policy makers regarding the strategic goals of shared service provision. The author felt the working relationship between stakeholders was compounded by a high risk working environment in respect to the nature of the work and further hindered by a subversive blame culture.

That was thirteen years ago and the author now has the benefit of being in position of senior management. Albeit, through a current period of flux within surgical service provision. Vast changes are being embraced and large challenges have to be surmounted in the author’s surgical department. These internal transformations are owing to retirements, new and visiting consultants, and reducing budgets to name but a few. External transformations owing to reconfigurations both within the hospital and also within the HSE are placing increasing pressure on surgical services. The creation of new hospital groups and the vision of hospital trusts on the horizon portend to further system reconfiguration and likely rationed budgets.
Annually the author’s organisation undertakes surgical procedures on approximately nine thousand patients which range from laparoscopic bowel resections to emergency caesarean sections. The work within the theatre can be likened to an arena, which has a confined space which is specific to the work provided, and against the clock. Staff very occasionally leaves the department for meal breaks but are accessible by phone on a constant basis while on duty.

3.4 Choice of change model for this project

Within the literature a myriad of different models of change are referenced. One of the earliest change models for example, is that of Lewin’s (1951). Kurt Lewin (1951) developed a three stage theory of change, to motivate and guide people through the change process. These three stages consisted of unfreezing, change and refreezing. This theory can be thought of as firstly challenging the dominant ideology or status quo, subsequently a new vision or strategy is created, a change is then introduced to attain this vision and the new equilibrium or status quo is subsequently adopted and propagated.

The degree of success or failure of the change proposal will hinge on the balance of driving forces and restraining forces. For one to succeed, one must increase or generate sufficient driving forces to outweigh restraining forces, or ideally increase driving forces but also reduce restraining forces where possible.

Other models are based on the psychological framework for change, this includes; behavioral approaches (Prochaska, Di Clemente 1984), social cognitive theory approaches (Bandura 1988), emergent approaches (Pettigrew 1990), prescriptive approaches (Kotter 1996), bottom up, or top down approaches (Shanley 2007), and best evidence models such as the HSE change model (McAuliffe, Van Vaerenbergh 2006).
Kotters (1996) model for change was selected by the author as the preferred model for their change initiative. The author favored the prescriptive nature of the model, owing to it being their first change project. Similarly, its logical and stepwise approach was easier to conceptualise and “sell” to the stakeholders within the surgical unit. One criticism often leveled at this model is that it is linear and therefore unrepresentative of the dynamic nature of change. The author further modified the concept to include a continuous cycle of implementation, evaluation and action. This in the author’s opinion renders the linear model somewhat cyclical in reply to critiques that it is not flexible enough to reflect the dynamics of the change process (Applebaum et al. 2012).

3.5. The Change Process

3.5.1 Overview

The author as previously discussed, chose Kotters model of change (figure 3.1). However, the author further modified the concept to include a continuous cycle of implementation, evaluation and action.
3.5.2 Create an Urgency for Change

Step one of Kotters model involves establishing a sense of urgency for identifying and discussing a change initiative. As the author discussed in the introduction, the genesis for this change project evolved from a critical incident in which a patient was added to a theatre list with no patient information and no indication for their procedure. Consequently, the patient had a significant clinical deterioration requiring emergency surgery and a long rehabilitation in the intensive care unit. A member of staff unfortunately also suffered an eye splash during the resuscitation of this patient and this caused significant distress to the staff member involved.
Plan
The author realised that this critical incident would require a change to bring about a satisfactory reduction in risk to staff members and patients. Possible solutions involved organisational development and the author selected this as a suitable case study on which to base their change proposal. The trigger and onus for change was already established given the recent clinical incident outlined above. The clinical incident was discussed at the theatre staff meeting and the interest was such that the author elected to investigate the possible solutions further.

Do
The author decided on convening a staff meeting to garner interest and expressions of opinion from all relevant parties on issues relating to the scheduling of unscheduled patients presenting to the operating theatre. A focus group expression of interest document (Appendix 4) was developed and circulated to all clinical and allied health staff affiliated within the surgical department.

Evaluate
A focus group was convened from the expressions of interest forms circulated among the stakeholders. The initial focus group consisted of three operating room staff nurses and two non-consultant hospital doctors (NCHDs). The recent clinical incident and problem regarding scheduling were discussed. The proposition of implementing a structured booking form was adopted.

Action
It was agreed the author would design a draft template booking form (Appendix 1) for theatre and endoscopy. A further focus group would reconvene to discuss the template and its contents and also to look at a SWOT analysis of the surgical arena.
3.5.3 Create a Guiding Coalition

Step two of the change process involves assembling a team of stakeholders with the authority to effect change and the power to lead the change effort by example. The author used Rodgers (1983) model (Figure 3.2) for the diffusion of innovation, as a framework to help identify early adopters when building a guiding coalition. This model was used to help frame the change process going forward.

![Diffusion of innovation](image)

**Figure 3.2** Diffusion of innovation (adapted from Rodgers (1983))

**Plan**

The focus group was reconvened as they agreed to form a steering group for advising on the development of the booking form and the implementation of same. The author devised a set of semi structured interview questions with which to identify strengths, weaknesses, opportunities and threats to change within the surgical department.
Do

Semi structured interview questions (Appendix) were created and discussed with each stakeholder within the steering group. Recurrent and significant themes emerging from the group were collated. It was decided that the internal environment needed to be considered and that a force field analysis would present the SWOT analysis in context. Themes were divided into drivers and resistors to change.

Evaluate

A force field analysis (Burnes 2004) was created (Figure 3.3).

![Figure 3.3 Force Field Analysis](image)

**Figure 3.3 Force Field Analysis.** When the net effect of drivers is greater than the net effect of resistors, then the change process is likely to proceed. This map shows that initially there were as many drivers as resistors to change identified by the steering group.
Action

The author and the steering group agreed that communication would be paramount in helping to engage the necessary stakeholders to adopt the change process. Initial evaluation of the force field analysis concluded that the likelihood of instigating change was as likely as failure. It was agreed to complete the draft booking document and test it during November and December 2013. The new form would need to be disseminated among all theatre staff for appraisal prior to testing. The Medical Records Department were contacted and informed of the introduction of the form on a test basis and that it would be filed in the patient notes after the procedure within the surgical notes section. This was agreed by the Medical Records department.

3.5.4 Create a Powerful Vision and Communicate that Vision

Steps three and four of the change model were undertaken simultaneously. This involved creating a vision to help direct the change effort. The author aligned the aim and objectives of the change proposal to achieve this vision. The author helped communicate this vision by leading by example but also in troubleshooting situations where the opportunity to use the form were not undertaken.

Plan

The author took ownership for the design of the booking form and disseminated draft one to the steering group. The aim of the change project was decided on, the focus of which was then narrowed to look at the transition of patients from the clinical ward to the theatre, prior to entering the theatre for induction of anaesthesia. The aims of the project were chosen based on the force field analysis drivers. The author wished to use the positive effect of the drivers to lever the resistors. In effect, if the change
process showed positive outcomes initially, it would become self-propagating, as long as resistors were maintained or decreased.

**Do**

The steering group were shown draft one, further suggestions were made and the form was returned to the author for further modifications. Permission was sought from hospital management to implement the test document in the theatre and endoscopy suite. This was granted on a test basis for November and December 2013. Stakeholders within the surgical unit were informed by email of the new booking process for unscheduled patients and the clinical directors of the respective departments were notified. The mission and vision statements for the theatre were reviewed and the change process aligned with same.

**Evaluate**

The test booking form (draft two) was introduced in November and December 2013. Compliance with completion of the document and use by theatre staff was monitored by the author. Compliance with the form was poor initially. Theatre staff reported that time and extra paper work was an issue. Filing of the form in the patient notes was not occurring. The author felt that there were few early adopters, and felt that in her absence the forms were not being completed. One NCHD did report some areas where the form could be improved, including adding the person whom the booking was made to increase accountability, including the mandatory medical council record number for NCHDs, and a stipulation of where to file the chart. In cases where the author used the form, it was felt there was considerable time saved. Also, NCHDs noted in their feedback that as the form was going to a patients chart and signed by the booking clinician, this created a paper trail and a greater sense of responsibility on the booking NCHD. On several occasions, when challenged on booking details
left blank, NCHDs returned with new important information that would not have been made available if not asked for.

**Action**

The author decided to implement the changes suggested by the NCHD (draft three). The author felt that despite poor buy in from some stakeholders, the central premise of the booking form worked very effectively. The decision was made to bring the test to a full implementation for the beginning of 2014. Ethical approval was sought. It was felt that as new NCHDs were joining the surgical unit in January, including the booking form in the training induction day would help increase awareness and empower NCHDs to use the form. The form was also included as part of the induction day for new theatre nursing staff. As performance regarding completion of the form was not considered for the test phase, the author decided to audit the completion of the form (compliance with answering and providing information where asked) and examine the time taken for booking staff to schedule a patient when the booking form was used versus when it is was not. This will form the basis of the summative evaluation of the change project.

**3.5.5 Empowering others to act on the vision**

Step five of the change model involved removing barriers to change. Several of these barriers were identified in the force field analysis and also during the audit cycle of steps three and four.

**Plan**

Training and education were identified as barriers to effecting change amongst the medical staff. Introduction of the booking form needed to be incorporated into the in-
duction programme. Further feedback from stakeholders regarding wider infectious risks needed to be incorporated into the booking form.

**Do**

The author provided a short induction training session on the use of the form to new NCHDs and also to theatre nursing staff. The steering group was brought together to assess progress to date. The theatre nurse manager in the affiliated tertiary hospital was informed of the change process underway. Input on the new booking form was sought from all relevant parties. Version four of the booking form was implemented. The insertion of a bleeding risk score on the back of the endoscopy booking form was requested to help triage patients for endoscopy.

**Evaluate**

Chairs approval was received from the ethics to start the organisational change from January 2014. The change process was evaluated at the end of January. Compliance with completion of all fields within the form was eighty nine percent. Twenty nine unscheduled cases were booked with theatre during the month of which twenty three used the booking form to do so. Timings for delays associated with use or non-use of the form indicated a potential time saving of between fourteen and twenty three minutes per patient for unscheduled bookings.

**Action**

Further emphasis will be placed on compliance with all required fields at the point of booking. Results to date regarding compliance and time savings are to be made available to the stakeholders. The Blatchford bleeding risk score was applied to the endoscopy booking form.

**3.5.6 Creating Short Term Wins and Consolidating Improvements**
Steps six and seven were completed simultaneously as the pace of the project progressed and also given the short time frame for implementation.

**Plan**

The initial results from the evaluation in January were very positive. The plan was to disseminate these results to all stakeholders and the surgical directorate. This quick gain would help cement the change process and begin the process for adopting this change permanently.

**Do**

The author convened the steering group once more and relayed the preliminary results. A presentation was made at internal meetings detailing the progress of the change project to date.

**Evaluate**

The steering group made further suggestions regarding the layout of the booking form. It was decided to remove the general tick boxes and instead create questions where a yes or no response must be identified. It was also agreed to develop an audit tool to evaluate compliance with the form at the point of booking and also to analyse time savings. Evaluation data from February 2014 revealed a compliance rate of eighty six percent. Twenty two unscheduled cases presented to theatre, of which nineteen used the structured booking form. It was disappointing to see that the conformance measures had remained stationary.

**Action**

It was decided to use the TPOT projected cost savings per hour of productive theatre time, to translate potential productivity savings (based on last year’s statistics for unscheduled cases) and extrapolate for this year’s figures. Version number five of the
booking form will be generated reflecting the new requirements. The results from February would be disseminated among all the stakeholders.

3.5.7 Institutionalising new Approaches

Step eight is the final step in the model for change. It prescribes that positive new behaviours fostered by the change process should be anchored within the organisation. This is based on the premise, that by nesting a change within an organisational culture it will become sustained.

Plan

Despite continued interventions on behalf of the author, compliance rate with the booking form were static in February 2014 compared to January 2014. The author felt that there were laggards among some theatre staff that were not enforcing the change process. Feedback from new NCHDs who arrived in January reported that the form could be further improved to enhance credibility with respect to layout. Feedback from anaesthetic and nursing staff requested the inclusion of anticoagulant and anti-platelet medications to be requested on the form.

Do

The author in conjunction with the steering group instigated getting the document controlled on the hospital network document management system, Q Pulse™. It was proposed that this would give greater credibility to the form and also allow the generation of noncompliance notices if necessary into the future.

Evaluate

It was proposed that getting the booking form controlled would give greater credibility to the form and also allow the generation of noncompliance notices if necessary into
the future. This also allows the booking form to become common practice and easily accessible to all stakeholders and not through the author as before. The booking form underwent three further iterations and is now currently version seven (Appendix 7). The author decided that two months data, while promising, is insufficient to demonstrate a sustained change.

**Action**

The compliance with using the booking form is to be evaluated longitudinally. The author will look into generating key performance indices on the back of increased scheduling efficiency. This could involve comparing agreed booking time with the actual time the patient presented to theatre. A more robust method of calculating theatre savings needs to be evaluated. Patient satisfaction measures are lacking and a more effective way of determining how improved scheduling affects patient wellbeing needs to be identified. Staff satisfaction measurements are also not supported beyond anecdotal evidence. Methods to capture staff morale need to be investigated.

**3.6 Conclusion**

A seminal work by Clayton Christensen (2012), the foremost authority on disruptive innovation, centres on the question of why is successful change so difficult to sustain. Disruptive innovation, a term coined by Christensen is a transformative process requiring fashioning of a product or service traditionally too complex into something less prohibitive in terms of ease of access and process.

Glyn et al (2000) and Kotter (2000) propose effective leadership of change involves involvement of all stakeholders to propagate the importance and relevance of the change necessary and the importance to lead by example. Borill (2002), Baulcomb (2003) and Kotter et al (2008) all concur that individuals are naturally fearful of any
disruption to the normal day to day events and may not perceive a need for change to be implemented. Prochaska et al (1992) found that peoples’ behaviour changed because of pressure from employers; however they soon revert back when the pressure is off. The author found similar traits among their organisation. Some stakeholders took the cynical view that the test phase would never evolve into a change process. As a consequence these persons either did not engage or only engaged superficially by acknowledging the effort involved but without them becoming involved themselves.

The author argues that these short term gains are unsustainable and from experience, cause resentment among the stakeholders as they have not bought into the change. This early stage of behavioural change within the model proposed by Prochaska et al (1992) is termed “precontemplation”. It is at this juncture where time spent in education and support is crucial for the sustainment of change (Bandura 1977). The author spent considerable time trying to increase awareness of the project through training induction and dissemination of results. Shanley (2007) suggests that rigid adherence to only one model is unlikely to yield success because change occurs in a variety of different ways. The author was cognisant of this and although used Kotter as a main model, borrowed from Lewin (1951) and the HSE change model (2006) respectively.

Kotter (1996) promotes that failure to engage the right people from the beginning will more than likely result in failure. The author decided from the outset that all stakeholders should be represented to ensure the correct vision (Kotter & Schlesingher 2008) is implemented but also that the correct direction and trajectory is maintained. One stakeholder that is missing from the author’s focus group is the main protagonist, that is; the patient. Current methods of assessing patient satisfaction revolve around the “your service your say” HSE initiative. However, this is a global hospital
rating, and more specific patient feedback will help greatly in shaping future process mapping and service provision.

The sustainability of the authors organisational development change process lies in whether or not such an approach to scheduling, as adopted by the author’s hospital, can be effectively introduced using Kotters change model? Despite the short time frame the answer appears to be “yes”. However, the challenge now becomes identifying what type of innovations in policy, procedure and practice are necessary to sustain change in the current clinical and fiscal environment. Because the vision for change is strategic it can take some time to achieve, or indeed may never be attained as strategic aims change. Therefore, to maintain momentum, it is important to articulate the short, medium and long term actions needed to keep the long term vision in sight (Kotter & Cohen 2002).

This approach to scheduling unscheduled patients has demonstrated great promise in reforming current clinical and management practice; and reinforced the productive ethos of the productive operating theatre model. The author and their organisation have demonstrated how a simple paper based structured booking form can be implemented to achieve improved outcomes. Furthermore could this cost neutral change be translated and simulated for other such hospitals within the HSE network, for which this innovation would have synergies? It remains to be seen if the time saved in the booking process can translate into increased theatre procedures and throughput.
Section 4: Evaluation

4.1 Introduction

Evaluation can be defined as a method of measuring the extent to which an intervention achieves its stated objectives (Lazenbatt 2002). Stufflebeam and Shinkfield 2007 further develop this concept by describing evaluation as exploring whether what had been planned in a given project has been achieved, how this happened and how it was perceived by those involved. The use of the term explore, alludes to the role of reflective practice among stakeholders in determining success of an intervention, and not just descriptive measurements (Patton 2001). The author kept a reflective diary during the change process and this forms part of the reflections which accompany this thesis.

This chapter begins with an analysis of the categories of intervention which can be evaluated and how these apply to the authors’ project. The goal orientated model of evaluation will then be applied to each stage of the change process, corresponding to each stage in the Kotter (1996) change model, as discussed in chapter three. Subsequently the overall aim and each objective (as outlined in chapter one) will be further evaluated using a process, outcome and impact framework. The chapter concludes with a reflection on the how well the overall aim was met and key learning points from an organisational development and leadership perspective will also be discussed.

4.2 Healthcare evaluations; what can be evaluated?

Øvretveit (1998) describes four categories of intervention in healthcare organisational development. Namely;
1. Treatments
2. Services
3. Health Policies
4. Health organisations

How you design, deliver and administer an evaluation depends on the type of healthcare intervention being interrogated. From the point of view of the authors change project, the intervention in question is related to a health policy, in the form of a structured booking form. It could also be argued that work flow alterations occurring under the change project could also fall within the realm of services and health organisations, but to a lesser extent. For the purpose of discussion within this chapter, the intervention will be taken to represent a new health policy.

4.3 Why carry out an evaluation?

Green and South (2006) detail six reasons as to why to carry out evaluation.

Namely;

1. To establish whether or not interventions have worked
2. To improve health programme implementation
3. To provide accountability to funders
4. To increase support for sustaining or expanding an intervention
5. To contribute to the scientific base for interventions
6. To impact policy decisions
From the perspective of participating in action learning sets, these reasons helped to frame the choice and delivery of evaluations during the change project. These reasons listed above incorporate the fundamental premise of evaluation; in essence what worked? They also incorporate the applied aspect of evaluation, such as return on investment and organisational impact. With this in mind, the author will evaluate each objective of the study from the perspective of process, outcome and impact. By constructively aligning each objective to outcome, both intended and unintended consequences of the change project can be captured.

4.4 Choice of model/framework for evaluation
For the purpose of formative evaluation of the change process the author adopted the Kirkpatrick model of evaluation (Kirkpatrick 1959). This model of evaluation was used to evaluate the alignment of process, outcome and impact (return on investment) of each objective of the change process.

The Kirkpatrick model consists of four levels and is hierarchical in nature (Figure 4.1). The first level is reaction which garners an employee’s reaction to the intervention. The second level is learning where by the employee’s knowledge and application of the new system is assessed. The third level is behaviour and involves evaluating if the employee actions or behaviours have been modified to achieve the desired intervention. The final level is that of results, it is at this level that impact on an organisation is evaluated. As you ascend Kirkpatricks model, there is increasing rigor in the types and methodology of evaluation necessary to measure the desired outcomes. There is no onus on to evaluate at each level and the model does not have to operate in sequence (Kirkpatrick 1959). Critiques of the model include that it implies evaluation is standardised and that there is a causal link between satisfaction with an intervention, knowledge acquisition and behavioural change (Bates 2004). However, given its widespread use in organisation development projects, ease of
application and ability to transcend healthcare and business domains, the author chose this as the evaluation model to best fit their needs.

Figure 4.1 Kirkpatrick levels of evaluation (Adapted from Kirkpatrick 1976)

4.5 Scheduling Process
The study period was January 2014 through February 2014 inclusive. Descriptive statistics for period of January 2013 to December 2013 are also provided to allow direct comparison of the study period to the year immediately prior and also to allow extrapolation of data for future projections.

4.5.1 Sources of Delay
Feedback from the first focus group identified several recurring themes with respect to sources of delay. Namely;

- Communication

  Contacting each of the involved stakeholders in order to collect the required information was very difficult. At times it was necessary for the scheduler to walk down to the person in question, often several floors away, in order to collect the required information. In the case of contacting individuals by phone or pager, this was even more difficult.

- Accuracy of Information
Due to difficulty in contacting those directly involved with the patient in question, it was often necessary to rely on second-hand information relayed through the stakeholders’ co-worker. This is not ideal and risks misinformation.

- Accountability

While it was the scheduler’s responsibility to allocate a time for the procedure in question to be carried out, this process did not name any individual or group responsible for ensuring the patient was properly prepped for the operating room. There was no one person to be held accountable for ensuring the patient was seen by an anaesthetist in a timely manner and should a complication arise, a clear chain of accountability could not be established. This represented poor clinical governance on behalf of all stakeholders.

In some cases, delays owing to incomplete preoperative procedures were so severe that procedures had to be pushed back to outside core hours (1700 – 0900) and even rescheduled until the following day.

4.5.2 Workload within the theatre department

Over the fourteen month period from January 2013 to February 2014, ten-thousand, eight-hundred and eight-nine surgical patients were admitted to the hospital. Of these patients two-thousand, six-hundred and eleven were booked and emergency surgical admissions, two-thousand nine-hundred and eighty six were booked and emergency gynaecological admissions and two-thousand, five-hundred and seventy-two were admitted for endoscopes as shown below in figure 4.2. For the purpose of this study, emergency Obstetrics (i.e. Caesarean sections) will not be considered.
4.5.3 Procedure completed within core hours

A total of three-hundred and eighty-four unscheduled patients were operated on over the fourteen month period. This number excludes emergency obstetric procedures. Of these three-hundred and eighty-four, two-hundred and ninety-two were performed inside of the core hours of 08-00 and 22-00hrs and ninety-two were performed outside of these hours.

The monthly breakdown is shown below in table 4.1 and figure 4.3 respectively. For total surgeries performed in each month, the proportion of surgeries performed outside of normal working hours (between 2200 and 0800) decreased for the months of January and February 2014, when the booking form was introduced. In January 2013 twenty four percent of unscheduled procedures were carried out outside core hours compared to twelve percent in January 2014. Similarly in February 2013 twen-
ty two percent of unscheduled procedures were out of hours, this reduced to eighteen percent in February 2014.

<table>
<thead>
<tr>
<th>Month</th>
<th>Before 22.00</th>
<th>22.00 to 08.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-13</td>
<td>28</td>
<td>9</td>
</tr>
<tr>
<td>Feb-13</td>
<td>25</td>
<td>7</td>
</tr>
<tr>
<td>Mar-13</td>
<td>21</td>
<td>8</td>
</tr>
<tr>
<td>Apr-13</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>May-13</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>Jun-13</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Jul-13</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Aug-13</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>Sep-13</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>Oct-13</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Nov-13</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>Dec-13</td>
<td>27</td>
<td>8</td>
</tr>
<tr>
<td>Jan-14</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>Feb-14</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>292</strong></td>
<td><strong>96</strong></td>
</tr>
</tbody>
</table>

Table 4.1 Breakdown of all unscheduled surgeries completed within or outside core hours from January 2013 through to February 2014 inclusive. The study period is shaded in green. Time is given in 24 hour clock format.
**Figure 4.3** Histogram representation of monthly unscheduled procedures carried out either inside (blue bar) or outside (red bar) of normal working hours for all procedures from January 2013 through to February 2014 inclusive.

It is noted that as only two months of data were collected after the implementation of the booking form, that this figure may be unreliable. The author believes however that it is a positive indication of the improvements possible with the use of this form and an example of change in behaviour among stakeholders with respect to theatre overruns and improved scheduling.

This decrease in late working hours can be seen in figure 4.4, with the booking form test months indicated inside the shaded oval. The mean percentage of procedures for the twelve months previous is also given.

**Figure 4.4** Percentage of Procedures Performed Outside of Core hours relative to annualised mean for year previous.
4.5.4 Workflow mapping
At the outset of the writing of this study, the booking process which was in place was 
a very heterogeneous. Once the patient had been approved for theatre by the surg-
cal team, the patients name was sent to the scheduler/theatre sister for allocation.

On receipt of the patients’ name, it was the schedulers’ responsibility to find out all 
needed details of the patient. This involved a long and laborious process of phoning 
each of the respective stakeholders (Consultant/NCHD, Ward Staff, X-Ray, and Labs 
e etc.) in order to establish the history, condition and present needs of the patient in 
question. This process was repeated for every patient and proved very inefficient. It 
was agreed to calculate the time spent during the booking of an unscheduled patient. 
This was done by the author through direct observation of the process prior to the 
implementation of the booking form. Convenience sampling of ten sequential un-
scheduled patients was performed. This process is represented graphically with the 
upper and lower range of timings for each step in figure 4.5.
Figure 4.5 Workflow map of individual steps taken to schedule an unscheduled patient during an active theatre list. Times are given as a range from the shortest to the longest period of time taken to complete each task for unscheduled patients during the observation period (n=10).
4.6 Introduction of the booking form

4.6.1 Compliance with use of the booking form
Prior to introduction of the booking form, each member of theatre staff involved in booking unscheduled patients were given an induction on how to complete the form by the author. While the feedback towards the booking form was positive, there were some compliance issues.

For the month of January 2014, twenty-nine unscheduled were referred to the operating room. Of these twenty-nine, twenty-six were carried out in the month of January and twenty-three booking forms were completed. This corresponds to a compliance of eighty-eight percent. For the month of February 2014, twenty-two unscheduled cases were referred to the Operating Room. All twenty-two were performed that month and nineteen booking forms were completed for these procedures. This corresponds to a compliance of eighty six percent (table 4.2).

4.6.2 Compliance with completion of booking form
There were some issues with full completion of the form. Of the forms that were submitted when the patient was being scheduled for theatre the most frequently omitted demographic were the time and date the surgical team wanted the procedure, the recording if consent was obtained and recording if the anaesthetist was contacted (table 4.3). However the author believes that with continued training and usage of the form, the omissions seen during this initial trial period will decrease. However, further training must be given to scheduling nurses to ensure they refuse incomplete forms.
<table>
<thead>
<tr>
<th></th>
<th>January 2014</th>
<th>February 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unscheduled patients referred</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Patients Deferred/Cancelled</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Surgeries Performed</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>Booking Forms Completed</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>% Compliance with Booking Form</td>
<td>88.46%</td>
<td>86.36%</td>
</tr>
</tbody>
</table>

Table 4.2 Compliance with completion of the structured booking form for all unscheduled cases presenting to theatre during January 2014 through February 2014 inclusive.
### Table 4.3 Compliance with completion of demographics within those booking forms submitted during the scheduling of an unscheduled patient during the study period.

<table>
<thead>
<tr>
<th>Demographic Field</th>
<th>January 2014 N=23</th>
<th>February 2014 N= 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addressographs</td>
<td>21 Yes 2 No</td>
<td>16 Yes 3 No</td>
</tr>
<tr>
<td>Handwritten Name etc.</td>
<td>2 Yes 21 No</td>
<td>3 Yes 16 No</td>
</tr>
<tr>
<td>Booking time and date</td>
<td>23 Yes 0 No</td>
<td>17 Yes 2 No</td>
</tr>
<tr>
<td>Request date &amp; time for procedure</td>
<td>17 Yes 6 No</td>
<td>16 Yes 3 No</td>
</tr>
<tr>
<td>Type of procedure (urgent/routine)</td>
<td>23 Yes 0 No</td>
<td>17 Yes 2 No</td>
</tr>
<tr>
<td>Request of Procedure type</td>
<td>23 Yes 0 No</td>
<td>17 Yes 2 No</td>
</tr>
<tr>
<td>Relevant Past Medical History (PMH)</td>
<td>23 Yes 0 No</td>
<td>17 Yes 2 No</td>
</tr>
<tr>
<td>Allergies etc.</td>
<td>22 Yes 1 No</td>
<td>17 Yes 2 No</td>
</tr>
<tr>
<td>Consent</td>
<td>17 Yes 6 No</td>
<td>15 Yes 4 No</td>
</tr>
<tr>
<td>Anaesthetic team contacted</td>
<td>20 Yes 3 No</td>
<td>14 Yes 5 No</td>
</tr>
<tr>
<td>Signature of requesting NCHD</td>
<td>23 Yes 0 No</td>
<td>17 Yes 2 No</td>
</tr>
<tr>
<td>Name of performing consultant</td>
<td>23 Yes 0 No</td>
<td>17 Yes 2 No</td>
</tr>
</tbody>
</table>

4.6.3 Workflow mapping post introduction of booking form
The workflow mapping exercise involving theatre staff in the process of booking unscheduled patients was undertaken after the introduction of the booking form. This was done by the author through direct observation of the process prior to the implementation of the booking form. Convenience sampling of ten sequential unscheduled patients was performed. This process is represented graphically with the upper and lower range of timings for each step in figure 4.6.
The introduction of the booking form addressed a number of the issues raised by the focus group. The main objective was to create a process which reduced duplication, ensured the involvement of all the required stakeholders at the onset of booking, provided more effective information about booking to the patient and had a clear line of accountability.

With the new scheduling pathway, the booking form is initiated by the surgical team once the patient has been deemed to be clinically stable to progress to the theatre. The surgical team fills out all fields of the booking form on the ward or in theatre. The team then meets with the scheduling theatre floor coordinator on duty to agree a time for the surgery, eliminating the need for a follow up phone call from the scheduler sometime later.

The team then must ensure the patient has obtained consent and has notified the anaesthetist and all other relevant persons where appropriate. They then sign the form, naming themselves accountable for the veracity of the declaration. The form then remains at theatre reception until the patient’s arrival, and once all checks have been completed, the form is filed in the patients chart.

Considerable potential time savings have been identified by the author. In comparison to the system of booking prior to the introduction of the structured booking form, on average, a minimum time saving of twelve minutes and maximum time saving of thirty three minutes has been realised. This has considerable consequences when these measurements are generalised to the unscheduled patient workload over a yearly period.
Figure 4.6 Workflow map of individual steps taken to schedule an unscheduled patient during an active theatre list post the introduction of the structured booking form. Times are given as a range from the shortest to the longest period of time taken to complete each task for unscheduled patients during the observation period (n=10)
The author included an added step to the process to ensure that each form was being adequately audited. This time is not factored into the time calculation as it is done as part of quality assurance and performed outside of normal clinical time.

4.6.4 Time demands to book an unscheduled patient

By performing a process mapping exercise the author was able to approximate the time taken to book an unscheduled patient on average and the causes of delay (table 4.3) versus booking a patient post the introduction of the structured booking form (table 4.4). This data can be used to extrapolate the time demands unscheduled patients place on theatre staff within the service. Using unscheduled patient data from the previous year, the total time taken per month during the year 2013 can be calculated based on the minimum time saving (table 4.5) or maximum time saving (table 4.6).

<table>
<thead>
<tr>
<th>Actions</th>
<th>Minimum time</th>
<th>Maximum time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact lab</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>X-ray</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Completion of x-ray</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Confirm history with ward staff</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Contact anaesthetist</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Contact blood bank</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td><strong>Pre-booking form total delay</strong></td>
<td><strong>19</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

**Table 4.3.** Time taken by theatre staff to schedule an unscheduled patient for theatre and areas where delays occurred expressed in minutes

<table>
<thead>
<tr>
<th>Actions</th>
<th>Minimum time</th>
<th>Maximum time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required fields have all been filled</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Agrees booking time and date</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Recording in theatre booking diary</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Post booking form total delay</strong></td>
<td><strong>5</strong></td>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>

**Table 4.4** Time taken by theatre staff to schedule an unscheduled patient for theatre and areas post introduction of booking form where delays occurred expressed in minutes
<table>
<thead>
<tr>
<th>Month 2013</th>
<th>Potential hours saved within core hours</th>
<th>Potential hours saved outside core hours</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>5.6</td>
<td>1.8</td>
<td>7.4</td>
</tr>
<tr>
<td>February</td>
<td>5</td>
<td>1.4</td>
<td>6.4</td>
</tr>
<tr>
<td>March</td>
<td>4.2</td>
<td>1.6</td>
<td>5.8</td>
</tr>
<tr>
<td>April</td>
<td>4</td>
<td>1.2</td>
<td>5.2</td>
</tr>
<tr>
<td>May</td>
<td>4</td>
<td>1.6</td>
<td>5.6</td>
</tr>
<tr>
<td>June</td>
<td>2.2</td>
<td>1.2</td>
<td>3.4</td>
</tr>
<tr>
<td>July</td>
<td>4</td>
<td>1.2</td>
<td>5.2</td>
</tr>
<tr>
<td>August</td>
<td>4.6</td>
<td>2</td>
<td>6.6</td>
</tr>
<tr>
<td>September</td>
<td>4</td>
<td>2.2</td>
<td>6.2</td>
</tr>
<tr>
<td>October</td>
<td>2.8</td>
<td>0.8</td>
<td>3.6</td>
</tr>
<tr>
<td>November</td>
<td>4.4</td>
<td>1.2</td>
<td>5.6</td>
</tr>
<tr>
<td>December</td>
<td>5.4</td>
<td>1.6</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50.2</strong></td>
<td><strong>17.8</strong></td>
<td><strong>68</strong></td>
</tr>
</tbody>
</table>

Table 4.5 Potential total time savings in hours within, outside core and total hours based on 2013 unscheduled patient activity data when the minimum time saving generated by the booking form is applied.

<table>
<thead>
<tr>
<th>Month 2013</th>
<th>Potential hours saved within core hours</th>
<th>Potential hours saved outside core hours</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>15.4</td>
<td>5.0</td>
<td>20.4</td>
</tr>
<tr>
<td>February</td>
<td>13.8</td>
<td>3.9</td>
<td>17.6</td>
</tr>
<tr>
<td>March</td>
<td>11.6</td>
<td>4.4</td>
<td>16.0</td>
</tr>
<tr>
<td>April</td>
<td>11.0</td>
<td>3.3</td>
<td>14.3</td>
</tr>
<tr>
<td>May</td>
<td>11.0</td>
<td>4.4</td>
<td>15.4</td>
</tr>
<tr>
<td>June</td>
<td>6.1</td>
<td>3.3</td>
<td>9.4</td>
</tr>
<tr>
<td>July</td>
<td>11.0</td>
<td>3.3</td>
<td>14.3</td>
</tr>
<tr>
<td>August</td>
<td>12.7</td>
<td>5.5</td>
<td>18.2</td>
</tr>
<tr>
<td>September</td>
<td>11.0</td>
<td>6.1</td>
<td>17.1</td>
</tr>
<tr>
<td>October</td>
<td>7.7</td>
<td>2.2</td>
<td>9.9</td>
</tr>
<tr>
<td>November</td>
<td>12.1</td>
<td>3.3</td>
<td>15.4</td>
</tr>
<tr>
<td>December</td>
<td>14.9</td>
<td>4.4</td>
<td>19.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>138.1</strong></td>
<td><strong>49.0</strong></td>
<td><strong>187.0</strong></td>
</tr>
</tbody>
</table>

Table 4.6 Potential total time savings in hours within, outside core and total hours based on 2013 unscheduled patient activity data when the maximum time saving generated by the booking form is applied.
4.6.5 Potential monetary savings under TPOT provisions

Using TPOT as a model allows for extrapolation of cost benefits within the theatre arena. TPOT lists the principal cost of a running a theatre at fifteen hundred euro per hour. That is, this is the cost of having a theatre open and ready to receive a patient with ancillary staff and resources ready. Therefore, any downtime in the system is prohibitively expensive. Using this information, the author can make projections of possible cost savings to the theatre system, if savings garnered during through booking efficiencies could be translated to increased resource utilisation in the theatre. Table 4.7 lists the potential projected savings based on the time savings applied to unscheduled patients in 2013. Figure 4.7 details the cumulative potential time savings per month for 2013 (assuming maximum potential time savings) for unscheduled patients. Figure 4.8 details the cumulative potential monetary savings (based on maximum potential time savings) in euro using the fifteen hundred euro per hour savings as described under the TPOT framework.
<table>
<thead>
<tr>
<th>Month 2013</th>
<th>TOTAL SURGERIES</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MIN (€)</td>
<td>MAX (€)</td>
<td></td>
</tr>
<tr>
<td>January</td>
<td>11100</td>
<td>30525</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>9600</td>
<td>26400</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>8700</td>
<td>23925</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>7800</td>
<td>21450</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>8400</td>
<td>23100</td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>5100</td>
<td>14025</td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>7800</td>
<td>21450</td>
<td></td>
</tr>
<tr>
<td>August</td>
<td>9900</td>
<td>27225</td>
<td></td>
</tr>
<tr>
<td>September</td>
<td>9300</td>
<td>25575</td>
<td></td>
</tr>
<tr>
<td>October</td>
<td>5400</td>
<td>14850</td>
<td></td>
</tr>
<tr>
<td>November</td>
<td>8400</td>
<td>23100</td>
<td></td>
</tr>
<tr>
<td>December</td>
<td>10500</td>
<td>28875</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>102000</strong></td>
<td><strong>280500</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.7 Total potential monetary savings for all unscheduled surgeries performed during 2013, (using the TPOT cost framework) based on minimum and maximum time savings obtained post the introduction of the structured booking form.

Figure 4.7 Cumulative potential time savings as applied to unscheduled cases during 2013, based on time maximum time savings through the introduction of the structured booking form.
4.7 Reflections on key learning on leadership and organisational development through evaluation

The author has become acutely aware of the difference between their current role as manager and the skill sets needed to lead a change project. Management often revolves around managing the status quo whereas becoming a change agent necessitated influencing multiple stakeholders and causing organisational disruption and change within the theatre department. The author also recognises the importance of having a vision and communication with colleagues face to face. Similarly, there is a constant need to communicate ones vision clearly and effectively at all times. Often there is a need to lead from the front and by example, it was necessary for the author to become the champion for the test form in its infancy as initially resistance was high, and it was viewed as another paper exercise.

Reflecting on the diffusion of innovation by Rodgers (1983) helped reinforce the importance of distributed leadership, shared ownership and responsibility. Once the
change process was running and being embraced, it was imperative that leadership occurred at all levels and among all stakeholders to ensure its implementation was robust, valid and not fragmented. Finally, the author acknowledges the need to be aware of the micro-politics of leading a change project, which necessitates dealing with multiple stakeholders and the requirement for constant bargaining, negotiation and conflict resolution.

4.8 Conclusion
The surgical environment can be a dangerous place to be even under normal conditions. Scott et al. (2004) demonstrated that patients in the peri-operative phase are exposed to increased levels of adverse incidents, Hannes et al. (2012) outline the importance of a trusting supportive environment combined with managers’ who prioritise safety and adhered to safety protocol had a positive effect on the culture of incident reporting. Rothrock (2003) discuss the risk to patients within the operating theatre, namely; infections, chemical and electrical hazards. The booking of an unscheduled patient onto a theatre list can therefore be fraught with danger for those not properly assessed.

The introduction of this structured booking form has its evolution in a patient safety incident. However, the change process allowed for the evolution of the project to look at organisational development, risk minimisation, effective documentation, scheduling efficiency, and patient and staff satisfaction. The potential savings identified in this change process cannot be ignored. Given the progressive retrenchment of budgets within the HSE, and a priority to maintain frontline services, such wastage must be removed from the system at all points in service delivery. The author feels that there is a moral and ethical responsibility among senior managers to provide the best possible service to our patients and implement initiatives that will ensure adequate resources for our patient services. The implementation of a robust, cost neu-
tral and auditable method of theatre scheduling, in the form of a structured booking form has shown to mitigate against untoward delays during the day and less over-runs into non-core hours. This has resulted in enhanced productivity in terms of waiting times, avoidance of delays, minimisation of cancellations, and effective cost containment.
Section 5: Discussion

5.1 Introduction

Research by Glacken et al. (2004) and Nembhard et al. (2006) identifies that a perceived lack of authority, autonomy and evidence based knowledge are at the root of failures in the initiation of change processes. This coupled with inadequate support and facilities are key barriers that healthcare teams encounter when implementing change (Nembhard et al. 2006). Whilst it can be argued that a lack of knowledge is one of the main barriers to change, there is research to indicate that nurses do not use research appropriately in their evidence based practice. In the authors experience, time allocation and buy in from all stakeholders, especially senior management, is fundamental in instigating a change within an organisation and evaluating change against best practice to ensure safe practice. There are some noteworthy Irish cases that highlight the catastrophic consequences of poor audit and ineffective quality improvement, for example Dunne versus Holles Street (1990), the Lourdes Inquiry (2006), and most recently the 2014 report into Portlaoise maternity services.

All steps within the risk management process should be subject to regular monitoring and review (Weir, 2005). The author considers analysis of risk should be germane within the surgical environment, and also considered as an opportunity for growth and learning, allowing for the identification of opportunities to enhance current practices. The risk management process involves a standardised approach to the identification, analysis, evaluation and treatment of risk (National Patient Safety Agency, 2005). This process is communicated to relevant internal and external stakeholders.
at all stages. In the focus group analysis poor documentation, poor communication and ineffective interaction among stakeholders were some of the modifiable reasons that theatre lists ran over into out of hour’s provision. It has been well documented that operations provided outside of core hours are at a higher risk of complications owing to the effect of fatigue on reducing performance (Wyatt, Houghton et al. 1990, Bertram, Hyam et al. 2013).

5.2 Impact of the change on the organisation

The aim of this project was; in the setting of unscheduled patients presenting to the operating theatre, to introduce a structured booking form to enhance workflow patterns from point of booking until transition to the operating theatre.

This was successfully met through the delivery of the change process through addressing each objective collectively.

1. The introduction of the structured patient booking form for unscheduled procedures has reduced some barriers to change, through identification, education, coaching and effective communication.

2. It has improved the communication between stakeholders and allied health professionals at the interface of the surgical and clinical environments, thus minimising risks to patients through adverse incidents.

3. The burden of administration is reduced through the completion of a single form by the person making the booking, limiting phone calls to wards, labs and delays in operation etc.
4. The booking form is the first line of communication between the person making the booking and agreeing a time for procedure. This has reduced miss-communication between staff, as all the relevant information is on the booking form once completed.

5. The booking form has maximised utilisation within core working hours when adequate staffing is on site and available to carry out the procedure.

6. The booking form has shown a reduction in out of hour’s operations, as procedures are scheduled at an agreed time within core working hours where possible.

7. Staff morale is heightened as they are working their agreed rostered hours and a reduction in delay of off-duty work through more efficient scheduling, based on complete clinical information.

5.3 Strengths and limitations

5.3.1 Strengths

The patient booking form is a continuous model for improvement with evidence of improvement in work being completed more often within core hours. The author reports anecdotal evidence of decreased glitches e.g. surgeon is late, patient healthcare records are misplaced, patients are not ready for agreed procedure as a result of having all the information collated in one place etc.

There is documentary evidence of improvements in efficiencies as patients are having their procedures performed in an agreed time frame thus saving time, resources and decreasing the risk of an adverse event. This could be attributable to the time
saved by theatre staff in chasing patient results and alerting allied health support staff or patient requirements. Reducing duplication of workload and unnecessary distraction of theatre staff allows their deployment towards more productive endeavours such as handover of recovery patients.

HIQA Standards for Safer Better Healthcare (2013) reiterate that safety of patients is paramount and steps taken in anticipation of an adverse event are crucial. The NHS Never Taskforce (2014) concluded that to achieve a continual reduction in harm, three strategies are essential: reduction in variation in practice, the promotion of learning from mistakes and promoting professional accountability. The structured booking form allows for an auditable “paper trail” should an incident need to be investigated for process failures.

The process was cost neutral and initial process mapping suggests enhanced workflow, reduced errors through omissions, and potential for considerable cost savings should time savings be translated into increased theatre utilisation and productivity. The author has anecdotal evidence that by increasing the certainty to which they can provide a booking time to a patient, the patient and their family are more satisfied with the service, and consequently are less likely to be upset while in theatre as a result of arriving late. Similarly, there is further anecdotal evidence from the author that staff morale has increased owing to improved adherence to rostered hours and less necessity to ask staff to work late due to theatre over runs.

5.3.2 Limitations

Given that the form is paper based, it is always going to suffer at the hands of ineffective documentation of patient information. It must be noted that the form does not substitute good clinical judgment, as over reliance of what is contained in the form
has the potential for an adverse incident if it is incorrect. This is not unique to paper systems however (Keenan, Yakel et al. 2013).

The author’s workplace is a moderate sized surgical unit, it is not surprising the lack of innovators to drive change and sustain the quality improvement initiative. The author was surprised at how little support was forthcoming within her own specialty initially and depended on the steering group for continued support. The author could counter this argument, by saying that the diversity of opinion gave a better perspective. However, it did involve being much more isolated within the working environment.

The current dearth of clinical standards for theatre scheduling has compounded the author’s ability to create a stronger sense of urgency which can be easily understood by all stakeholders & service staff users. Creation of key performance indices may go some way in ameliorating these challenges.

With the shift away from looking at procedural time, the monitoring of the efficiency of the theatre system mandates continuous monitoring and auditing of form compliance and time of booking. The number of variables to be collated has increased, as has the work load in their analysis.

Currently, senior hospital management have supported the author’s master’s programme and change project from a logistical viewpoint. However, there is inadequate support from senior management with respect to governance structures to monitor and provide optimal training and education for all those involved with responsibilities for patient care who are embracing TPOT processes.

5.4 Implications for management, and leadership challenges
Leadership has many definitions, however in its simplest forms leadership is about coping with change (Kotter 2001). The author would contend that at the interface of change, there is often tension and it is this tension which necessitates good leadership, and poses a great challenge. In the correct hands this tension can facilitate development and can be used to leverage change. In the absence of good leadership this tension can become toxic and paralyse a workforce.

Despite the strengths of this change process and the relatively surmountable weaknesses it must be noted that resistance to change was evident. This was prevalent from the outset, and there were still pockets resistant to accepting the concept of TPOT to mitigate against ineffective scheduling of unscheduled patients in our organisation. In the UK, NHS hospitals are rewarded with additional resources if they manage their budget effectively. However, this strategy has not been adopted in Ireland. With the advent of money, follows the patient policy. This may be forthcoming and increased productivity will see commensurate an increase in resources. The classic leadership theory discuss terms such as subordinate and follower (Tannenbaum and Schmidt 1973, Kotter 2001). The author found it difficult to deal with this tension at times and despite continued efforts, there is a small body of resistance towards change among theatre stakeholders.

Unfortunately, in the absence of this initiative, the author is aware of the perception from some stakeholders that these initiatives are more work for less pay with fewer resources. Management at all levels, and not just those confined to the author’s pay scale, need to be alert to the drift in support for change and the reestablishment of the old equilibrium. The change process may be linear on a page but it must be cyclical in practice to ensure that change is anchored and actively practiced.
5.6 Recommendations for future improvements

Key decisions for the future direction of this change project include the continued monitoring of the effect of this intervention. The evaluations to date remain potential and it remains to see if the reductions in out of hour’s procedures are sustained or transitory. It may be a factor that stakeholders were aware of the study being undertaken and this may have affected the observed results, the so called Hawthorne effect. The author believes that this is unlikely, given that these cases are unscheduled and therefore by their very nature unpredictable.

The author intends to continually record compliance regarding usage and completion of the booking. Furthermore, plans are in train to establish a prospective monitoring of time scheduled (agreed time at booking) versus time presenting to theatre. This will allow further investigation of whether time saved during the booking process can be translated into increased theatre throughput within core hours.

It must be noted that this process may be made redundant by electronic theatre booking systems. Currently the author’s theatre operate a paper based system and this project has demonstrated that simple interventions in a paper system can give a return on investment in lieu of computerisation. While the advancement of information technology remains a threat to this project, this project has highlighted the needs of the department from the point of view data collection, and may help contribute towards further needs analysis within the department.

5.7 Conclusion

Theatre start times as previously discussed are not a useful measure of efficiency. This is not surprising as theatre efficiency cannot be taken in isolation, and the larger theatre arena of surgical services must become the focus of inquiry. The theory that
late starts will lead to late finishes and is consequently a surrogate for efficiency; fails to ask the question of where the delays are that are causing the inefficiencies and late starts? The system must be looked at in its entirety, including for example; the time the patient arrives on the clinical ward, pre-assessment and consent, clinical factors such as patient stability, co morbid illness or infections, availability of surgeons, theatre allocation, ancillary services such as ITU, laboratory, radiology, porter ing, agreed booking time, presentation in the anaesthetic room, and anaesthetic start time etc.

This list is not exhaustive but helps illuminate the multi-faceted environment a patient must transition as they make their way to theatre. By deduction, the most opportune place to implement such an investigation is at the interface of those two environments. One such area is patient booking, where responsibility of care is transferred from the clinical ward to the surgical service. The process of scheduling cannot and should not be a bastion that ignores all its supporting structures or operates in isolation of its stakeholders which importantly includes the patient.

Results to date have demonstrated that the anticipation and effective provision of scheduling has resulted in increased resource utilisation within theatre and associated cost savings. The author would also acknowledge that there is sufficient observational evidence to conclude the project has resulted in improved satisfaction for patients and their families through the provision of more reliable information on the timing of their procedures and their subsequent return to post-surgical wards. Similarly, the author would conclude that staff morale and wellbeing has been improved owing to increased use of theatre resources during core working hours, resulting in less over runs, less out of hours working and reduced the stress associated with the presentation of an unscheduled patient to the theatre arena. These final two observations form part of further evaluations which are currently being planned.
Section 6: References


7.2 Appendix 2 – Ethical Approval from CREC West North West Hospital Group

Ms. Bernadette Kilmartin
CNM III
Portumna Hospital
Ballymacole
Co. Galway.

Ref: C.A. 1036 – Scheduling additional (emergency) patients for surgery outside scheduled lists

Dear Ms. Kilmartin,

I have reviewed and considered the above project, and I wish to grant Chairman’s approval to proceed.

Yours sincerely,

[Signature]

Dr. Shaun T. O’Keeffe
Chairman Clinical Research Ethics Committee.
Appendix 3 – Current version (version 7) of booking form (theatre and endoscopy)
7.4 Appendix 4 – Focus group expressions of interest

Letter to Employees in the organisation. 21/10/13

Dear colleagues

Working in Theatres-Focus group.

I am currently undertaking an MSc in Healthcare Management at Royal College of Surgeons Ireland. I am working to improve operating theatres schedules and improve employee satisfaction and morale. To help achieve this objective, you are invited to complete this consent to participate in the survey/focus groups.

The findings/results will be completely confidential. The results will be analysed by the author and a summary report will be shared with employees. Some employees will be invited to join a focus group to discuss views in more detail. These focus groups will allow employees to spend time exploring the main concerns raised in the survey, individual contributions to the focus groups will remain completely confidential.

The results of the data collection and focus group meetings will provide valuable information about what changes are possible to improve patient flow and increase employee satisfaction and morale.

Your views are important. Thank you for your contribution to this important survey. If you have any questions about the survey, please contact me on the phone number or e-mail below.

Yours sincerely,

Bernadette a Kilmartin,
Clinical Nurse Manager III

Bernie.kilmartin@hse.ie

Phone 0909648272/0876787395
7.5 Appendix 5 – Focus Group Semi structured questions

Focus Group I Patient Booking Form.

General questions about the Draft Booking form.

Please tick Yes or No in the boxes below.

- Is the language used clear? [ ] Yes [ ] No
- Is the layout of the form clear and easy to follow? [ ] Yes [ ] No
- Have all the important areas been covered? [ ] Yes [ ] No
- Are there any areas that should be included or excluded? [ ] Yes [ ] No
- Are there any words in the document that need to be clarified or explained? [ ] Yes [ ] No

If you answered “No” to any of the questions above, please provide comments and suggestions in the space provided below. If your comments relate to a specific part of the booking form please note which part.

Focus Group II- Agenda.

Improve transition in care:

- Identify key strategies and tactics for controlling the over booking of scheduled care within the organisation.
- Strengthen stakeholder involvement and patients in their care. (Satisfaction survey Executive Management buy in).
- Apply effective tools to identify and leverage opportunities for improvement.
- Create attainable strategies for engaging all stakeholders across the continuum of patient involvement and care.

Demand Vs Capacity.

Overbooking of scheduled care.
7.6 Appendix 6 – Gantt chart for proposed change project
7.7 Appendix 7 – Poster

Unscheduled patients: the introduction of a structured booking form to enhance workflow patterns from point of booking until transition to the operating theatre.

Introduction & Background
- The management of unscheduled patients presenting to an operating theatre poses a major obstacle for service planning and provision.
- The ability to schedule these cases during rostered working hours, where possible, is safer for the patient and a more efficient use of theatre, staff and hospital resources.
- The change initiative focused on the booking of unscheduled patients. The Productive Operating Theatre (TPOT) acted as a framework with which to devise and develop the change idea.

Aims & Objectives
- Aim: To introduce a structured booking form to enhance workflow patterns from point of booking until transition to the operating theatre for unscheduled patients.
- Objectives:
  1. To identify barriers and enable effective scheduling.
  2. To enhance workflow processing at the point of booking.
  3. To reduce the burden of administration for theatre nurses.
  4. To ensure the provision of accurate and robust patient demographics at the time of booking.
  5. To improve the journey for patients as they transition to the operating theatre through more efficient scheduling timely access to theatre.
  6. To promote staff morale by reducing time spent duplicating administrative information.
  7. To maximise scheduling within rostered working hours and quantify potential savings.

Methodology
- Focus groups
- SWOT analysis
- Force field analysis
- Designed a structured booking form for theatre and endoscopy
- Formed a steering committee
- Delivered the change process using Kotter’s change model facilitated by action learning sets

Evaluation
- Evaluation was undertaken using Kirkpatrick’s model.
- Each objective evaluated for outcome against each Kirkpatrick level.
- Results/Impact – considerable potential savings identified as a result of time savings.
- Behaviour – marked reduction in inefficient workflow and time savings.
- Learning – Good congruence between induction programme and compliance.
- Reaction – Stakeholders adherence to booking form was high.

Organisational Impact
- Procedures performed outside of core hours:
  - % of procedure performed outside of core hours January – Dec 2013 = 28.64%.
  - % of procedure performed outside in January 2014 = 11.5% (January 2013 24%).
  - % of procedure performed outside January 2014 = 62%.
  - % of procedure performed outside in February 2013 = 17.3% reduction.
- Process mapping time saved and potential cost efficiencies:
  - Pre introduction of booking form the minimum time taken was 19 minutes and the maximum time spent was 40 minutes per patient.
  - Post introduction of the booking form the minimum time was 6 minutes and maximum time spent was 7 minutes (a net reduction ranging from 74% – 82% in the time taken to book an unscheduled patient). If this time saving was transferred into increased theatre throughput utilisation it would translate as a cost saving of between €124,060 – €240,800 assuming every theatre hour costs €1500 under TPOT model.

Conclusion
- Unscheduled patients can be scheduled in an efficient and effective manner.
- A structured booking process can translate into considerable cost savings where this results in increased resource utilisation.

References

Figure 1. Force Field Analysis. Resistors versus Drivers. When the net force in favour of drivers change can occur.

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