Length of Stay Following Elective Surgery â Can We Improve Efficiency?

Abstract:

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Abstract
Increasing emergency admissions place significant demands on limited hospital resources. We assessed national practices and resources for initiatives to reduce length of stay (LOS) and thereby improve efficiency of resource utilisation. Consultant members of the Irish Association of Coloproctology received a questionnaire seeking information about available initiatives aimed at reducing LOS. 20 out of 32 (62.5%) consultants responded to the questionnaire. Pre-assessment clinics for day surgery were available to 18(90%). Only 13 (65%) had access to pre-assessment clinics for patients requiring longer admissions. 11 (55%) could admit major cases on the day of surgery. Only 9 (45%) surgeons could guarantee immediate re-admission of patients discharged from hospital if needed. There was a divergence of opinion regarding the acceptable average LOS and percentage suitable for day surgery for a variety of common surgical procedures. This study highlights a number of key areas in which certain well-established initiatives could improve efficiency.

Introduction
Admission of patients for elective surgery has become increasingly difficult [1,2]. Health Service Executive (HSE) policy mandates reductions in the duration of Emergency Department (ED) stay, resulting in prioritised access to what is a finite and limited bed capacity. Cancellations adversely affect patients [3], impact negatively on hospital resources and reduce surgical training opportunities. Too often elective patients cancelled on one day become the following dayâ s emergency.

A number of initiatives have been implemented to varying degrees in different institutions to improve organisational efficiency but significant variations in practice occur. Length of hospital stay (LOS) for scheduled procedures varies between hospitals [4]. Increased use of day surgery, improved discharge planning, less invasive surgical techniques and more appropriate anaesthesia and analgesia can all contribute to reduced LOS [5]. Same day admission for major surgical procedures might reduce a patientâ s overall hospital stay but careful planning is needed to avoid cancellation or delays on the proposed day of surgery. Pre-operative assessment clinics and appropriate administrative protocols are a necessary precursor to its successful implementation. Earlier discharge from hospital after surgery can also reduce LOS, however some operations carry a risk of serious complications that might not become apparent even within 24 hours of surgery [6]. Facilities to treat such complications promptly must be present if surgeons are to have the confidence to discharge patients earlier after surgery. In 2011, The Elective Surgery Programme was launched as a collaborative initiative between the Royal College of Surgeons in Ireland and the HSE with a view to optimising the surgical pathway of patients focussing on a number of key areas including LOS and day case surgery rates.

The aims of this study were to assess the practice and attitudes of members of the Irish Association of Coloproctology in relation to appropriate LOS for a selection of general and colorectal surgical operations and to assess the current status of day case and day of surgery admissions (DOSA) within the Irish healthcare system.

Methods
The Irish Association of Coloproctology (IACP) is an all-Ireland organisation of surgeons specialising in colon and rectal surgery. All Republic of Ireland consultant members of the IACP were circulated with a questionnaire and asked to reply anonymously in less than 30 days. Consultants were asked about the availability of anaesthetic pre-assessment clinics for 7-day, 5-day and day patients as well as the feasibility of admitting patients on the day of surgery. The facility to guarantee re-admission of patients who develop a complication of surgery was recorded. Respondents were asked to quantify the average LOS considered appropriate for a number of common surgical operations as well as the percentage of all such patients who would be considered suitable for day case surgery. These were HSE selected procedures that the association was requested to advise upon as a specialist group. Consultants were asked to specify the acceptable â averageâ and â optimalâ LOS for patients undergoing either a right hemicolectomy or partial colectomy, including both open and laparoscopic operations and encompassing all diagnoses encountered in their practice. Respondents had the opportunity to highlight areas of concern or recommendations in a free text section. Data outlining 2011 national statistics relating to percentage of patients treated as a day case and actual length of stay were provided by the national Elective Surgery Programme.

Results
There were 20 respondents to the questionnaire comprising a 62.5% response rate (n=20/32). Respondents included consultant surgeons based in university teaching hospitals, regional hospitals and county hospitals, as well as surgeons who held joint appointments to more than one hospital. Most surgeons (n=18, 90%) could refer patients for pre-operative anaesthetic assessment if day case surgery was planned. This facility was less developed for patients requiring longer admissions with only 65% (13/20) of respondents having access to pre-assessment in this setting. Day of surgery admission (DOSA) is recognised by surgeons as being a useful strategy in reducing LOS. Only 55% (11/20) of consultants had access to DOSA for patients undergoing major surgery.

The acceptable average LOS (in days) as suggested by respondents for a variety of commonly performed surgical procedures as well as the percentage of each deemed suitable to be done as a day case is illustrated in Table 1. There was a broad consensus on the acceptable average LOS for all except laparoscopic cholecystectomy, laparoscopic adhesiolysis and haemorrhoidectomy. Similarly, there was a divergence of opinions regarding the percentage of patients undergoing such operations who would be suitable for day surgery. On average, only 44%, 42.5%and 55% of patients were considered suitable for day surgery in each procedure respectively. Several surgeons commented that they would be reluctant to perform any of these three operations as a day case. This is at variance from the British Association of Day Surgery recommendation for laparoscopic cholecystectomy of 60% being suitable for day case surgery [7]. This may well be related to concerns in managing patients who develop post-operative complications in the community. The variation may be explained in part by the differing availability of free GP and public health nursing care between the National Health Service (NHS) and HSE systems. Less than half of surgeons (n=9, 45%) could avail of guaranteed immediate surgical re-admission of patients who develop post-operative complications. The majority had to refer such patients to the Emergency Department to await a bed. Surgeons commented that they would consider discharging post-operative patients earlier if they were confident in their hospitalâ s ability to re-admit patients with post-operative

problems to a surgical bed promptly.

More significant operations demonstrated a greater variability in the LOS considered appropriate by different surgeons. The average acceptable LOS for patients undergoing a right hemicolectomy or large bowel excision was 6.4 days (range 4 â 10 days) and 6.7 days (range 4 â 10 days) respectively. The optimal LOS was 4.4 days (range 2 â 7 days) and 4.8 days (range 2 â 7 days) for each operation. It is noteworthy that the actual results reported by the Elective Surgery Programme differ substantially from these aspirations.

Discussion

International best practice, personal experience and unique local factors are used by surgeons to determine the appropriate LOS for patients following elective surgery. While initiatives to reduce LOS can improve the utilisation of limited available resources, it is imperative that the correct infrastructure and support processes are available prior to implementation of system-wide changes to avoid adverse patient outcomes [8]. Such initiatives, while not always immediately cost-neutral, have the potential to improve efficiency of bed use over time.

In the present series, a broad consensus on the acceptable average LOS and percentage of patients suitable for day case surgery exists among consultant colorectal surgeons for many commonly performed procedures. Despite this apparent consensus, comparisons to actual 2011 HSE national data on elective admissions and day case percentage targets show national practice differs from these aspirations. A highlighted limiting factor to performing procedures as day cases was the inability to re-admit patients who experience a post-operative complication directly to a surgical ward. Non-availability of an immediate bed not only potentially compromises the outcome but it also reduces patient satisfaction. In the present series, only 45% of surgeons could guarantee urgent re-admission of their patients who experience complications. Large bowel resections are often performed in patients with major medical co-morbidities which can make estimating an â appropriateâ LOS difficult. Nonetheless, respondents felt an average LOS of 6.4 for right hemicolectomy and 6.7 days for large bowel resection was appropriate. This varies significantly from actual practice in 2011 (Table 2). The study participants were explicitly asked about LOS relating to the surgical procedure. Prolongation of LOS by medical co-morbidity or placement issues are not included in the estimates, which by their nature exclude such variation. It was noted that centralisation of cancer surgery has resulted in some surgeons practicing on multiple sites. Such surgeons may of necessity adapt their practice to ensure patient safety depending on the services and staffing available at each centre and their personal commitments on each site. A shorter optimal LOS of 4.4 and 4.8 days respectively was thought possible with appropriate support.

Out-patient pre-operative assessment ensures that patients are optimally prepared for surgery and significantly reduces the risk of cancellation on the day of surgery [9]. While nearly all respondents had the facility for pre-operative anaesthetic assessment of proposed day cases, less than two-thirds had such facilities available for 5 or 7 day admissions. Such patients tend to have significant medical co-morbidities or are undergoing major surgery with potential for significant complications. Availability of timely pre-assessment for such cases could optimise medical conditions, reducing the risk of cancellation or postponement on the day of surgery, thereby improving utilisation of scarce theatre time and reducing patient distress. This area of practice is currently a priority for development in most anaesthetic departments.

In keeping with modern international practice, the majority of patients can be admitted on the day of their planned elective surgery [10]. This has the potential to reduce LOS for every elective patient by at least 1 day [11], but careful planning is necessary for this to be introduced as routine practice. Most operating theatres commence work at 8am, so efficient administrative, medical and nursing processes are necessary to ensure patients are ready for surgery in good time. Such systems were available to only half of consultants in the present series. Introduction of successful day of surgery admission policies require hospital-wide changes including greater out-patient workup, guaranteed bed availability on the day of surgery and changes in work practices so that relevant staff are available earlier in the day. Patients who live remote from the hospital might need to be facilitated with low cost non-hospital based accommodation in close proximity, as is common practice in North America. Despite the potential to improve efficiency and reduce overall LOS, introduction of day of surgery admission on an ad hoc basis could in fact be more costly to the system due to inefficient use of scarce operative time, costly theatre overruns and cancelled surgery.

Surgeons are supportive of improving efficiency within the health care system through a number of means including reducing length of stay. The introduction of a number of factors such as pre-assessment clinics, increasing day surgery and more day of surgery admissions, which are all included in the Elective Surgery Programme, can all combine to result in significant cost savings. However, it is imperative that the correct infrastructure and support processes are available prior to implementation of system-wide changes to avoid adverse patient outcomes and to prevent inefficient use of theatre time with subsequent theatre overruns or the cancellation of operations.

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