

# Delayed discharges and unplanned admissions from the Day Care Unit at Mater Dei Hospital, Malta

Jessica Sant, Glenn Paul Abela, Daniel Farrugia

## Abstract

**Introduction:** Day care units are playing an increasingly important role in healthcare provision, however they require the development of specialised resources to fulfil their role. The rate of unplanned admissions following day-case procedures is considered as one of several indicators of the quality of day-case services available.<sup>1</sup> The aim of this study is to identify how often there are delayed discharged or unplanned admissions following day-cases at the Day Care Unit at Mater Dei Hospital (MDH), Malta.

**Method:** A list of patients whose discharge did not go as planned was forwarded daily to the authors by the Bed Management Unit at MDH. The medical files of these patients were then reviewed and data collected. This included demographics, type of procedure carried out and reasons for delayed discharge or unplanned admission. The study was carried out over 45 days.

**Results:** 3599 patients were admitted to the Day Care Unit over the study period: 1855 as day surgeries and 1744 as endoscopy cases. 142 were not discharged as planned: 50 patients had their discharge delayed by up to 5 hours and 92 patients required overnight admission following a day-case procedure. This means that 3.9% of all DCU patients were not discharged as planned and 2.6% were admitted overnight. When only taking into account those patients who received a general anaesthetic or sedation in an operating theatre (n=1170), 64 patients (5.5%) were admitted to MDH.

**Conclusion:** MDH has a reasonable rate of delayed discharges and unplanned admissions following day procedures, especially when compared with data from UK hospitals. However, there is still room for considerable improvement.

## Keywords

delayed discharges, unplanned admissions, day case surgery, day case anaesthesia.

## Introduction

Day surgery is defined as “the admission of selected patients to hospital for a planned surgical procedure and the patient returns home on the same day.”<sup>2</sup> It presents a number of advantages over longer hospital stays, including less disruption to patients’ lives, reduced waiting times, speedier recovery, less hospital costs, improved use of theatre lists and more availability of inpatient beds.<sup>3</sup>

Day surgery units thus have a pivotal role to play within the healthcare system. The British Department of Health aims at having 75% of all elective surgeries to be carried out as day cases. However, this has not yet been achieved across UK centres and the present figure stands at 68%.<sup>2-3</sup>

In some instances, patients who are planned to be discharged home on the same day are either kept in hospital for a longer time or may even require an admission. The reasons may be varied but these unplanned prolonged stays may create pressure on the availability of acute beds and may also reflect a suboptimal standard in the management of day-case patients.

The aims of this study are to find out the number of day-case patients whose discharge were delayed or who were admitted to hospital, to identify the reasons for these unplanned events and to recognise patterns of patient movement that may impinge on resources and staffing levels.

## Methodology

Permission to carry out this study was sought from and granted by the Chairperson of the Department of Anaesthesia and Intensive Care at Mater Dei Hospital (MDH), Malta.

### Jessica Sant MD\*

Department of Anaesthesia and Intensive Care  
Mater Dei Hospital  
Msida, MSD2090  
jessica.sant@gov.mt

### Glenn Paul Abela MD MRCS

Department of Anaesthesia and Intensive Care  
Mater Dei Hospital, Msida

### Daniel Farrugia MD DESA EDIC

Department of Anaesthesia and Intensive Care  
Mater Dei Hospital, Msida

\*Corresponding Author

A discharge was considered as delayed when it occurred after 1800hrs on the same day. Some of these patients were kept in the day care unit while others were transferred to an in-patient ward prior to discharge. Patients were considered admitted for an overnight stay if they spent at least one night at hospital.

This prospective study was carried out during the 45 days in which the Day Care Unit (DCU) operated, between March 6th to April 30th, 2014. A list of patients who fell under the above criteria was forwarded daily to the investigators by the Bed Management Unit at MDH. The medical notes were then reviewed to identify patient demographics, type of procedure, reason for delayed discharge or admission and, in the case of an admission, duration of the hospital stay. The time of arrival to stage one recovery, defined as the time of entry to the Post-Anaesthesia Care Unit (PACU) and to stage two recovery, defined as the time of return to the DCU, were noted for all patients.

The total number of patients who were admitted through the DCU and details of the procedure, the anaesthetic and the respective firm were retrieved using the DCU register and the computerized Clinical Patient Administration System.

Data was then inputted and analysed using Microsoft Excel®.

**Results**

A total of 3599 patients were admitted to the DCU over the study period: 1855 patients were managed at the day surgery unit and 1744 were endoscopy cases. Further evaluation of the day surgery patients (n=1855) revealed that 820 patients (44.2%) were administered a general anaesthetic, 350 (18.9%) received sedation and 685 (36.9%) only had a local anaesthetic.

During the 45 days over which the study was carried out, there were 7 days in which there were neither delayed discharges nor unplanned admissions.

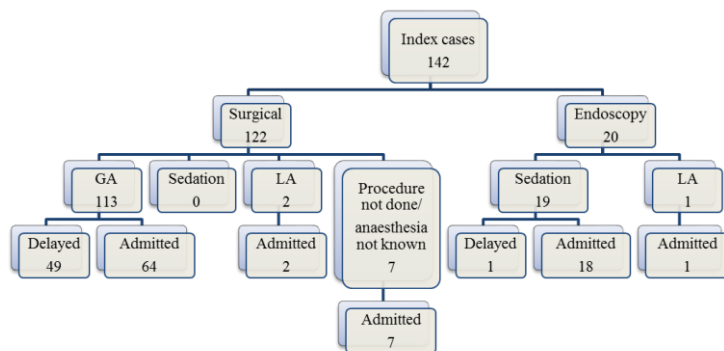
The number of patients whose discharge did not turn out as planned totalled 142; 113 of these patients received a general anaesthetic, 19 received sedation and another 3 had their procedure carried out under local anaesthetic. No data for type of anaesthetic for 7 of these patients was available.

Of the 142 patients, 50 had their discharge delayed for up to 5 hours while 92 patients were formally admitted to hospital. Twelve of these admissions had a hospital stay of more than one night. This means that 3.9% of all the DCU patients (including endoscopy) were not discharged as planned and 2.6% were admitted overnight. When only taking into account those patients who received a general anaesthetic or sedation in an operating theatre (“true day surgeries”, 113 cases),

49 (43.4%) had their discharge delayed and 64 patients (56.6%) were admitted to hospital (Figure 1).

**Figure 1:** Flow diagram demonstrating distribution of delayed and admitted patients according to anaesthesia received.

GA: general anaesthesia, LA: local anaesthesia, Delayed: delayed discharges (discharged later the same day after 18:00), Admitted: patients who were formally admitted to hospital for at least 1 night.



This translates into 5.5% of “true day surgery” cases (from a total of 1170 such patients) being admitted to MDH.

Most of the patients who had their discharge delayed or required an overnight stay had received a general anaesthetic (113 patients, 95.6%) and were general surgical patients (including breast surgery but excluding endoscopic procedures) (69 patients, 48.6%) (Table 1). Average age was 55.1 years and gender distribution was equal (71 people for both males and females) (Table 2).

Unfortunately, the reason for the delayed discharge or unplanned admission was not recorded in the notes of 41 patients (28.9%). The reasons for delayed discharge and unplanned admission for the remainder of the patients are listed below (Table 3). It is important to note that some patients had more than one reason for them to have a delayed discharge or needing an admission.

Only the time of arrival to stage one recovery was recorded in enough cases (116 patients) for it to be investigated. The time of arrival to stage two was rarely written down. The number of patients entering PACU every hour is demonstrated in Figure 2. 26% of patients requiring extended stay arrived to stage 1 recovery after 16:00 whereas 19% of patients arrived at stage 1 recovery between 16:01-18:00.

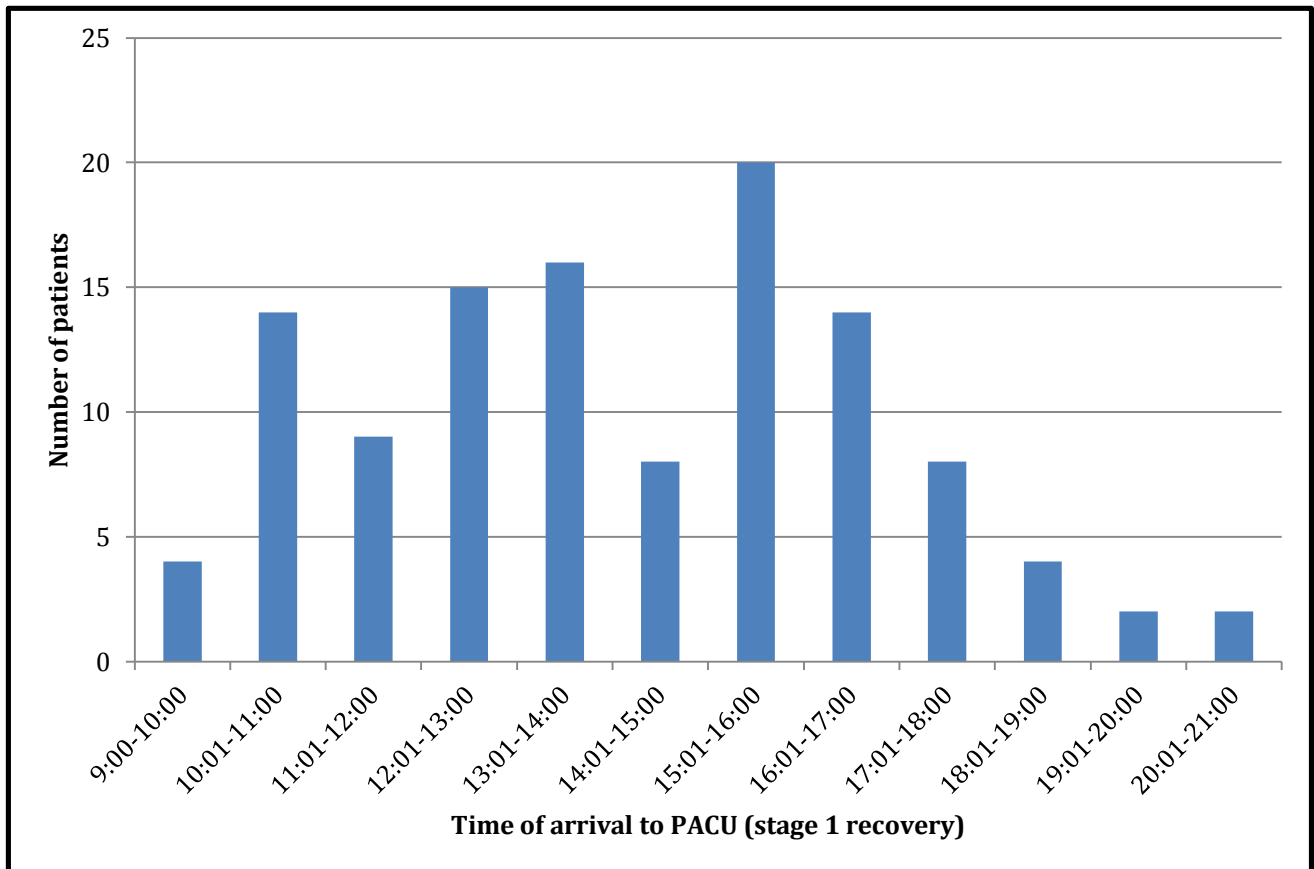
**Table 1:** Case distribution by type of procedure and the anaesthesia used.  
GA: general anaesthesia, LA: local anaesthesia

Type of Procedure	Total	GA	Sedation	LA
Endoscopy	20		19	1
Breast surgery excluding general	17	17		
General excluding breast surgery	52	51		1
Gynaecology	16	16		
Orthopaedics	18	18		
Dental	2	2		
ENT	1	1		
Urology	9	8		1
No specialty known	3			
Procedure not done	4			
<b>Total</b>	<b>142</b>	<b>113</b>	<b>19</b>	<b>3</b>

**Table 2:** Case distribution by gender and mean age  
GA: general anaesthesia, LA: local anaesthesia

Specialty	Male	Female	Mean age
Endoscopy	10	10	67
Breast surgery excluding general	0	17	59.4
General excluding breast surgery	39	13	52.6
Gynaecology	0	16	52.2
Orthopaedics	7	11	51.9
Dental	2	0	15.5
ENT	0	1	63
Urology	8	1	57.4
Specialty not known	3	0	
Procedure not done	2	2	
<b>Total</b>	<b>71</b>	<b>71</b>	

**Figure 2:** The average number of patients arriving at PACU (stage 1 recovery) every hour.



**Table 3:** List of reasons why patients were not discharged as per routine. Delayed discharges and unplanned admissions are separate. There are more reasons than index cases as some patients had more than one documented reason. TWOC: trial without catheter, BMI: body mass index, PMH: past medical history.

Reasons for patient not undergoing routine discharge from the DCU		Delayed discharge	Admitted	Total
Surgical	More extensive procedure than planned	1	13	14
	Pain	1	10	11
	Bleeding	0	3	3
	Wound packing, etc	0	2	2
	Urine not passed	3	4	7
	For assessment of mobilisation/continuous passive movement (other)	0	3	3
	Check x-ray ordered 1 day post op (other)	0	2	2
	Suspected or confirmed perforation (other)	0	3	3
	Prescription of IV antibiotics post-op (other)	0	3	3
	TWOC (other)	0	1	1
	Need for bladder irrigation (other)	0	1	1
	Patient requiring further in-patient investigation +/- treatment (other)	0	4	4
	Specified by surgeon but no reason documented (other)	0	2	2
Anaesthesia	PONV	3	2	5
	Drowsy	1	1	2
	Abnormal vital signs	1	5	6
	Spinal did not wear off	0	0	0
	Foot drop due to nerve block	0	0	0
Medical	High BMI	0	1	1
	Significant PMH	1	5	6
Social reasons	Social reasons	0	1	1
Patient returned late from theatre	Patient returned late from theatre	11	23	34
None	None specified	29	8	36
<b>Total</b>				<b>147</b>

### Discussion

The Day Care Unit at MDH has favourable rates of delayed discharges and unplanned admissions. This points towards overall good patient management by the personnel involved at all grades, however, there is still room for improvement. The Royal College of Anaesthetists (RCoA) sets the standard for unplanned admissions from day surgeries at 2%.<sup>4</sup> “True day surgeries” are defined as procedures requiring full operating theatre facilities and/or a general anaesthetic and this excludes endoscopy or local anaesthetic cases and/or procedures that can be carried out elsewhere (for example, in the community or an outpatients clinic).<sup>5</sup> Our rate of 5.5% unplanned admissions for day surgeries is above the RCoA standard but is less than some centres in the UK (10.3% at the Gateway Surgical Centre, Newham University Hospital in East London and 6.64% at the Forth Valley Royal Hospital in Larbert, Scotland).<sup>1, 6</sup>

The study also highlights the need to upgrade certain day-to-day practices. For instance, there is a definite need for better documentation by both clinicians and nursing staff. There were too many cases whose discharge was either delayed or who were admitted without any justification found in the case notes. Also, too many patients were admitted to hospital because their procedure started late in the day as is reflected in late arrivals at the PACU (stage one recovery). This may point towards the need of extending DCU opening hours beyond 1800hrs, as well as the scheduling of day cases earlier during the day. Careful planning of operating theatre lists may also help in this regard, for example, patients who are more likely to arrive late or fail to turn up may be given later slots to reduce delays during operating sessions.

A fair amount of work is already underway to facilitate the management of day cases in Mater Dei Hospital. This includes the development and implementation of clinical guidelines on the management of postoperative nausea, vomiting and pain and the piloting of a nursing checklist prior to patient discharge.

Other recommendations include the design of an enhanced recovery programme specific for day case surgeries. This would include pre-operative assessment in close collaboration with anaesthetists, the introduction of measures that minimize perioperative stressors (such as carefully titrated fluid therapy and strict maintenance of normothermia), early postoperative mobilization and physiotherapy and the prompt management of acute pain by experienced staff.<sup>7</sup> Also, the ring-fencing of beds to be used for day case procedures only may be beneficial to the running of the DCU, although one understands that this may be difficult in times when demand for acute hospital beds is high. Both may be challenging undertakings but will improve care for day case patients.

The main limitations of the study include the standard of documentation in the patients’ files and time period over which it was carried out. Data collection relied heavily on the patients’ notes, and since in some cases documentation was incomplete or difficult to interpret, results may be flawed too. Also, the study was done over a relatively short period of time which may not be truly representative of the workings of the DCU throughout the whole year. Data was collected only over a six week period but similar studies were carried over longer a span of time.<sup>1, 6</sup>

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