

Day surgeries scoring system

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Abstract :

((No one deny the influence of one day surgery on many aspect on health care provider , 'Using day surgery more efficiently could reduce pressure on ward beds, bring down waiting lists and improve care for patients (<http://www.healthcarecommission.org.uk/>)

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Day surgery has many advantages for patients and their families, hospitals and the healthcare system as a whole , The full future potential for day surgery will only be realized if adequate facilities are provided for its practice. Patients overwhelmingly endorse day surgery, with acceptable waiting times, less risk of cancellation, lower rates of infection, and the preference of their own surroundings to convalesce .

Total quality management programs are important in the ambulatory surgery program to help provide the best quality at a competitive price. To achieve this goal, we must define quality management and improve quality related issues to meet the challenge of ambulatory anesthesia and surgery that will continue to grow and expand in the future. the main objective of the project is to find accurate and justice method to evaluate day surgery performance of the hospital reflecting its work , also , to improve the quality of the type of day surgery especially after advances in anesthesia and surgical techniques).

Keywords: Surgery, anesthesia, Complexity of surgeries.

Introduction

Day surgery is now established practice with rates still increasing around the world and has greatly evolved since the early days of the specialty which saw minor procedures carried out on fit patients. Now due to advances in anesthesia and surgical techniques, day surgery is the standard pathway of care for many complex patients and procedures traditionally treated through inpatient pathways.

Day surgery represents high-quality patient care with excellent patient satisfaction. Shorter hospital stays and early mobilization reduce rates of hospital-acquired infection and venous thromboembolism. Patients overwhelmingly endorse day surgery, with acceptable waiting times, less risk of cancellation, lower rates of infection, and the preference of their own surroundings to convalesce. The need for an efficient use of hospital beds in times of shortage, day surgery became popular and showed a quantitative and qualitative increase, with more extensive procedures being performed in patients of older age who had more comorbidity. Procedures were considered suitable for day surgery when the operation time was less than 60 minutes, when the postoperative course was predictable with a small risk of postoperative hemorrhage, and when postoperative pain and nausea could be controlled outside the hospital. With a higher volume of performance, the predictability of outcome of a specific procedure in a specific center grew.

Aim of study :

the main objective of the project is to find accurate and justice method to evaluate day surgery performance of the hospital reflecting its work , also , to improve the quality of the type of day surgery especially after advances in anesthesia and surgical techniques .

Definitions :

Day surgery : is defined as a carefully selected and prepared patient being admitted to hospital for a planned procedure and discharged home on the same calendar day. This typically incorporates a stay of 4–6 h, but with more complex surgical procedures, longer stays may be required. The procedure must have been planned and booked as a day case before the patient's admission to hospital. Patients who are planned as inpatients but discharged home on the day of surgery count as inpatients with zero length of stay rather than day cases.

Routine surgery : is the term for operations planned in advance (cold cases)

Types of anesthesia :

General anesthesia :

General anesthesia involves the patient being put into a medication -induced state which, when deep enough, means that the patient will not respond to pain and includes changes in breathing and circulation.

Under general anesthetic, a patient is in a state of carefully controlled unconsciousness. anesthesia

Spinal anesthesia :

is a method of partially anesthetizing the spine by injecting anesthetic into the spinal canal, specifically the meninges near the spinal column.

Regional anesthesia :

Regional anesthesia involves the injection of local anesthetic around major nerve bundles supplying body areas, such as the thigh, ankle, forearm, hand, shoulder or abdomen.

Regional anesthesia is sometimes achieved by using a nerve-locating device, such as a nerve stimulator, or by using ultrasound

Local anesthesia :

Local anesthesia involves the injection of local anesthetic into the tissues near the surgical site.

Methodology :

Evaluation of day surgeries now depend on quantitative and risk factor measure which is not accurate measure to evaluate hospital effort done in day surgeries (highly selected operations from the routine surgeries) , quantitative data tells you **what** users did, and qualitative data helps you learn **why** they did its terms of the actual data, here are some of the key differences:

- Qualitative data is not countable. It's chunks of text, photos, videos, and so on.
Quantitative data can be counted as it's numerical.
- Qualitative data is usually unstructured, which means it's not ordered or grouped logically. You can turn qualitative data into structured quantitative data through analysis methods like coding.
- Most of the time qualitative data will be collected from a smaller sample size than quantitative data, because generally you're not looking for statistical significance with qualitative research.
- Qualitative data is quite rich, and can give you directional insights about people's thoughts, feelings, emotions, and so on. Quantitative data can help to give you more confidence about a trend, and allow you to derive numerical facts.

..... suggestion for evaluation of day surgeries operations is depending on mixed methodology qualitative & quantitative measure of each operation according to certain strong fixed point of evaluation by which we can determine the weight of each operation this weight transformed into numbers which can be evaluated by our scoring system (Riyadh scoring system for day surgeries evaluation)

Weight of the operation depend on certain criteria :

In order to perform high quality surgery (one day surgeries), we need to improve the components of any surgery which depends on the surgeon who will perform the surgery, the quality of the surgery and the quality of the anesthesia. Based on these parameters, we can measure any surgical procedure in terms of quality and quantity , so , according to the surgeon doing the operation , complexity of the operation and type of anesthesia given , initiating the day surgeries score system depending on the following items :-

- Surgeon do the operation : (consultant - senior registrar - registrar - resident) .
- Complexity of surgeries
- Procedures are classified into the following 3 categories :
- Major - intermediate - minor
- Type of anesthesia (general - spinal - conscious sedation - regional- local) .

Scoring

1. Surgeon

surgeon	consultant	Senior registrar	Registrar	Resident
Score	4	3	2	1

2. Complexity of surgeries

Complexity	Minor	intermediate	Major
Score	5	10	15

3. Type of anesthesia

Type of anesthesia	General . A	Spinal . A	Conscious sedation . A	Regional . A	Local . A
Score	4	4	3	2	1

Sheet : Anecdotal evidence of the scoring system

Surgeon	Operation	Complexity	Anesthesia	Score
Consultant	Lap cholecystectomy	Major	General	23
Senior registrar	Lap cholecystectomy	Major	General	22
Registrar	Lap cholecystectomy	Major	General	21
Resident	Lap cholecystectomy	Major	General	20
Consultant	Hernia	Intermediate	General	18
Senior registrar	Hernia	Intermediate	General	17
Registrar	Hernia	Intermediate	General	16
Resident	Hernia	Intermediate	General	15
Consultant	Tendon release	Minor	Local	10
Senior registrar	Tendon release	Minor	Local	9
Registrar	Tendon release	Minor	Local	8
Resident	Tendon release	Minor	Local	7

Discussion

Methods of evaluation of one day surgeries performance

- No one denies the importance of one-day surgeries and the Saudi Ministry of Health's tendency to pay attention , day surgery Now a day , day surgeries evaluated in quantitative base according to the according to the key performance indicators below and there are 10 operations on dash board evaluated according to quantitative and patient risk factor management (lap.ch , cataract , tonsillectomy , hernia , anal operations , orchidopexy ,septoplasty , squint and breast lump) .
- Also , day surgeries percentage as all , day surgeries under general anesthesia , and , day surgeries under local anesthesia .
- All this methods are quantitative measuring tools , as example day surgeries percentage as all calculated by dividing the sum numbers of day surgeries operations done under local and general anesthesia by the sum of day surgeries and routine operations done on the same day and this give us percentage of day surgeries as this operations defined as a part of routine scheduled operation and by the same way we can get the day surgeries under general anesthesia separately and also day surgeries under local anesthesia sheet (2)
- Another method for evaluation of chosen 10 operations depending on The percentage of this operation done as one day surgery to the sum of the number of routine operations and one day operations performed on the same day , and according this percentage it well be sorted green or yellow or red as enumerated at the sheet (1) , sort green well take two point , sort yellow take one point and sort red well take zero point according to the sheet (1)
- We have 10 operations for evaluation as day surgeries cases so , if each operation gained 2 points , so , the total points for the ten operations well be 20 point and by multiplying by 100 and dividing on 2 well give us the percentage of each separate operation
- And for safety and risk factor some operations should be limited to percentage zone , as hernia , if, the percentage of day surgeries more than 90 % it well gain zero point So , trying to find more accurate and justice method for evaluation of day surgeries performance , using the new scoring system for evaluation of operations done routine and day surgeries using the main components of the operation (surgeon ,type of operation according to complexity and type of anesthesia used and each component well be scored according to the scoring system sheet , so we can get different scoring if any of the components of the operation changed as showing (Anecdotal evidence of the scoring system) , and by calculating the score of each operation as showing at the excel sheet we can get easily the total score of each operation done as day surgery and also the same operation done as routine surgery , so , we can

calculate the accurate percentage of each operation by using formula at the sheet
(2)

• Sheet : KPI;S for evaluation of ten operations

<u>OPERATION</u>	<u>PERCENTAGE & COLORS AND SCORE</u>					
CATARACT	90% and above	2	75%-89%	1	LESS THAN 75%	0
tonsillectomy	90% and above	2	75%-89%	1	LESS THAN 75%	0
<u>TYPE</u>	<u>PERCENTAGE & COLORS AND SCORE</u>					
hernia	70%-85%	2	55%-69% OR 86%-90%	1	<55% OR >90%	0
arthroscopy	70%-85%	2	55%-69% OR 86%-90%	1	<55% OR >90%	0
cholecystectomy	70%-85%	2	55%-69% or 86%-90%	1	<55% OR >90%	0

<u>OPERATION</u>	<u>PERCENTAGE & COLORS AND SCORE</u>					
septoplasty	90% and above	2	75%-89%	1	LESS THAN 75%	0
squint	90% and above	2	75%-89%	1	LESS THAN 75%	0
anal.s	70% AND ABOVE	2	60%-69%	1	LESS THAN 60%	0
E.B.B.L	60%-70%	2	50%-59% OR 70%-80%	1	LESS THAN 50% OR ABOVE 80%	0
ORCHIDOPEXY	60% AND ABOVE	2	50%-59%	1	LESS THAN 50%	0

• **KPI;S Of Day surgeries**

Sheet (2)

<p>One day surgery</p> <p>Kpi,s</p>	<p>~ Target 60 %</p> <p>~ Evaluation</p> <div data-bbox="659 369 1398 495"> </div> <p>~ Formula</p> $\frac{\text{Numbers of cases done as day surgery under general and local anaesthesia}}{\text{Total of routine cases +day surgery cases}}$
<p>Day surgery under general anesthesia</p>	<p>~ Target 60 %</p> <p>~ Evaluation</p> <div data-bbox="659 783 1398 947"> </div> <p>• formula</p> $\frac{\text{Day surgery cases under G.A}}{\text{Routine cases done under G.A + Day surgery cases under G.A}}$
<p>Day surgery under local anesthesia</p>	<p>~ Target 90 %</p> <p>~ evaluation</p> <div data-bbox="659 1194 1398 1320"> </div> <p>~ formula</p> $\frac{\text{Day surgery cases under L.A}}{\text{Routine cases under L.A + day surgery cases under L.A}}$

Pilot case study including four hospitals (king Khalid hospital & prince sultan center in Al-Kharj , Al- zulfy hospital ,Al-yamamah hospital , and king Khalid hospital in Almajmah) exploring , comparing and analyze one day surgeries data comparing between the already using method of evaluation and the new method of evaluation .

Studying (table 1)) shows one day surgeries data for alymamah hospital (maternity and pediatric hospital) ,percentage of day surgeries and percentage of day surgeries under general anesthesia , and (table 2) in it converting data according the scoring system (Table 79,80,81) calculating day surgeries percentage and day surgeries under general anesthesia ,

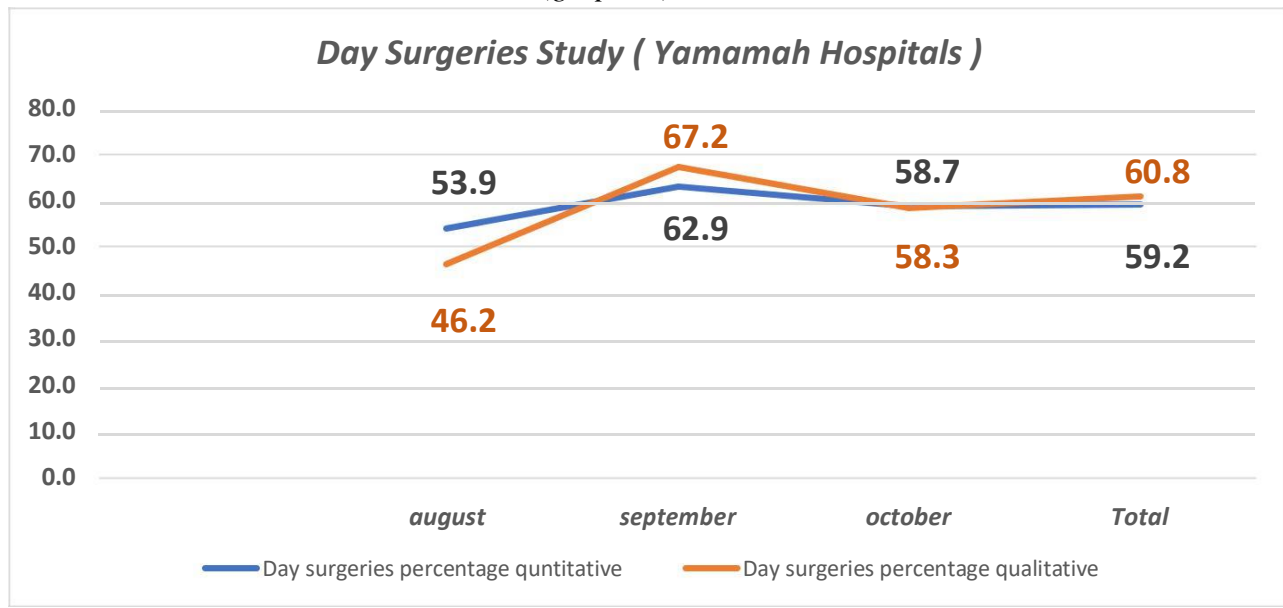
(Table 1)

Al-yamamah hospitals Day surgeries aug.,sept.,October quantitative							
Alyamamh hospital	Routine surgeries		Day surgeries		Total	Day Surgeries	Dday Surgeries
	General Anesthesia	Local Anesthesia	General Anesthesia	Local Anesthesia		Percentage Quntitative	Percentage Under General A
August	28	13	47	1	89	53.9	62.7
September	34	19	90	0	143	62.9	72.6
October	56	15	101	0	172	58.7	64.3
Total	118	47	238	1	404	59.2	66.9

(table 2)

Al-yamamah hospitals Day surgeries aug.,sept.,October Qualitative							
Alyamamh hospital	Routine surgeries		Day surgeries		Total	Day surgeries	day surgeries
	General Anesthesia	Local Anesthesia	General Anesthesia	Local Anesthesia		percentage qualitative	percentage under general A
August	535	269	675	16	1495	46.2	55.8
September	640	385	1309	0	2334	67.2	67.2
October	1078	311	1507	0	2896	58.3	58.3
Total	2253	965	3491	16	6725	60.8	60.8

(graph 1)



August one day surgeries data analysis :

(table 3)

Surgeon	Number Of Operation	Surgeon	GA	LA
Consultant (c)	12	Consultant (c)	12	0
Senor Registrar(sr)	0	Senor Registrar(sr)	0	0
Registerar(s)	35	Registerar(s)	34	1
Resident (r)	1	Resident (r)	1	0

(table 4)

(table 5)

Surgeon	Major	Intermediate	Minor
Consultant (c)	0	11	1
Senor Registrar(sr)	0	0	0
Registerar(s)	0	16	19
Resident (r)	0	1	0

12 cases done by **Consultant** ,all under GA ,11 are intermediate and 1 minor regarding to complexity , reveals that no major case done in this month as a day surgeries , which mean weak Performance from the consultant regarding to the complexity of surgery , also ,35 cases done by **Registrar** , 34 under GA, 1 under LA , 16 intermediate and 19 minor ,while , 1 case done by Resident under GA , intermediate in complexity reflecting also weak performance of resident in day surgeries (table 3,4,5).

While , in Routine cases :

(table 6)

Surgeon	Number Of Operation	Surgeon	GA	LA
Consultant (c)	3	Consultant (c)	3	0
Senor Registrar(sr)	0	Senor Registrar(sr)	0	0
Registerar(s)	26	Registerar(s)	17	9
Resident (r)	13	Resident (r)	8	5

(table 7)

(table 8)

Surgeon	major	intermediate	minor
Consultant (c)	1	1	1
Senor Registrar(sr)	0	0	0
Registerar(s)	23	1	2
Resident (r)	13	0	0

3 cases done by the consultant all under general 1 major , 1 intermediate and 1 minor also , 26 case done by registrar ,17 under GA and 9 under LA , 23 major , 1 intermediate , 2 minor and 13

case done by resident all major 8 case under GA , 5 under LA (table 6,7,8), Most major cases done by registrar and resident are C.S as noticed , also , in comparison between routine cases and day surgeries cases 37 case are major , while no major case done as a day surgery which is reflected at the score system by decrease the number of point gained regarding to complexity ,which means low quality of type of day surgeries operations done in this month although , 12 case done by consultant and 35 cases done by registrar as a day surgery cases but , 27 case intermediate and 20 case minor which means decrease the score points gained from this cases , reflecting good performance but with low quality of day surgeries operations , this difference in quality is reflected by the new score system in comparison between day surgeries percentage as calculated by quantitative method which is 53.9% and by new score system is 46.2% which is an accurate mirror reflecting an accurate (graph 1) , justice evaluation of day surgeries in this month .

September one day surgeries data analysis :

(table 9)		(table 10)		
Surgeon	Number Of Operation	Surgeon	GA	LA
Consultant (c)	12	Consultant (c)	12	0
Senor Registrar(sr)	0	Senor Registrar(sr)	0	0
Registerar(s)	78	Registerar(s)	78	0
Resident (r)	0	Resident (r)	0	0

12 cases done by the consultant all under GA , no major case , 10 case intermediate , 2 minor , 83,3% are intermediate and 16,7% are minor . 78 cases done by registrar all done under GA , 49 cases intermediate , and 29 cases minor 36,7% are minor (table 9,10,11)

(table 11)			
Surgeon	Major	Intermediate	Minor
Consultant (c)	0	10	2
Senor Registrar(sr)	0	0	0
Registerar(s)	0	49	29
Resident (r)	0	0	0