

First

Kuwait National Bariatric Surgery Database Report

2019

Prepared by

Salman Al Sabah MD MBA FRCSC FACS

Peter Walton MBA FRCP **Robin Kinsman** BSc PhD

on behalf of the State of Kuwait Ministry of Health Dendrite Clinical Systems



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Dendrite Clinical Systems



The State of Kuwait Ministry of Health operates the Kuwait National Bariatric Registry in partnership with Dendrite Clinical Systems Limited. They gratefully acknowledge the assistance of Dendrite Clinical Systems for:

- building, maintaining & hosting the web registry
- data analysis and
- publishing this report

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April 2019 A catalogue record for this book is available from the British Library

ISBN 978-0-9929942-9-7

Published by Dendrite Clinical Systems Ltd

Fifth Floor, Reading Bridge House, George Street,

Reading RG1 8LS, Berkshire, United Kingdom

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Printed and bound by

Kindly supported by the Kuwait Association of Surgeons





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First Kuwait National Bariatric Surgery Database Report 2019



H.H. Sheikh Nawaf Al-Ahmad Al-Jaber Al-Sabah The Crown Prince of Kuwait



H.H. Sheikh Sabah Al Ahmed Al Jaber Al Sabah The Emir of the State of Kuwait



H.H. Sheikh Jaber Al-Mubarak Al-Hamad Al-Sabah Prime Minister

First Kuwait National Bariatric Surgery Database Report 2019

Message from the Minister of Health



It is with great pleasure that I commend this First Report of the Kuwait National Bariatric Surgery Database made available by Dendrite Clinical Systems. This Report presents data on bariatric surgeries performed in Government hospitals in Kuwait, baseline obesity-related diseases, operation types, operative outcomes and status after bariatric surgery.

Obesity is a major issue with medical implications for chronic comorbidities and subsequent financial impacts on our society in Kuwait. Kuwait has one of the highest rates of obesity in the world. While obesity itself is considered a debilitating condition, major studies have correlated obesity with the development of chronic metabolic disorders such as diabetes, hypertension, hyperlipidemia, sleep apnea, depression, impaired functional status, gastro-oesophagal reflux disorder and liver disease.

In a study conducted by the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO) of 42 countries that indicated metabolic trends worldwide, Kuwait ranks number one for the frequency of metabolic procedures performed as a percentage of the

national population. Bariatric surgery is instrumental in treating metabolic syndrome with significant remission or improvement in most cases.

All Government hospitals in Kuwait perform bariatric surgery, and therefore it is important to have a National Registry to analyse outcomes, our needs and study the disease and impact of the disease, as well as the impact of the surgeries. This data will also help in comparing our findings with the rest of the world to enhance knowledge and learn more about the management of obesity on a global scale. In a bid to achieve this, IFSO started this worldwide database wherein Kuwait has been contributing data for the past few years on a hospital-based level. However, now we are participating with the rest of the world on a national level based on this report.

There are only a few countries in the world that have the capability to have a unified registry under one network. Many countries maintain hospital-based registries. Even fewer countries have National Databases. Therefore we are very proud that we now have a National Registry established under one network for all the Government hospitals in Kuwait. We hope in the future we can collect more data, especially on the patients at follow-up, which is of great importance and can successfully transform this project to similar other projects in the country so we can have a better knowledge of what is happening in our health system, and we can act to reduce the burden of disease.

The First Kuwait National Bariatric Surgery Registry provides a vital component in monitoring and evaluating our response to this growing obesity epidemic. Through the establishment of this National Registry in the State of Kuwait, we now have a baseline of demographic characteristics for patients operated.

I encourage all key stakeholders in bariatric surgery especially surgeons and physicians, to embrace this data collection and reporting process at individual clinics and hospitals. Thus, this is the start of an iterative process as data accumulates over time. I would also like to thank all those surgeons who have committed their data for inclusion in this Report, and your contribution is very much appreciated. We recognize that it is hard work collecting data in any clinic or hospital setting, so we are especially thankful for those surgeons who have made an effort to contribute their data to the Registry. For those who have yet to join the initiative, we are looking forward to providing a warm welcome to you in the future.

H.E. Dr Basel Hamoud Al-Sabah

Minister of Health, Kuwait





Preface



It is an honour and a privilege to present this First Report of the National Bariatric Surgery Database made available by Dendrite Clinical Systems. This National Bariatric Surgery Database initiative is the first of its kind in the State of Kuwait. It has the potential to help the bariatric community establish essential benchmark knowledge and outcomes about the patients we are operating upon, their age and gender distributions, body mass index (BMI) and the burden of comorbidities as well as track national trends in surgery over time. Follow up continues to be a problem.

I encourage all key stakeholders in bariatric surgery especially surgeons, and physicians to embrace this data collection and reporting process at individual clinics and hospitals. It will require widespread involvement and on-going commitment from all those involved in the care of the bariatric patient to ensure high-quality data can be collected, properly analysed and shared, so that we will be better able to understand shifts in disease patterns, practice and outcomes on a national scale. I commend the hospitals that succeeded in submitting their data. Conversely, I

regret that in these evidence-based times a great number of practices still have widely omitted to submit their data, which undeniably biases the numbers presented in this report.

It remains a goal for the future to incorporate data from all surgeons and hospitals to collect data into a National Registry. At the same time, participants must be encouraged to include more complete details on patients.

In the future, we plan to incorporate data from all hospitals in Kuwait into the National Registry and to include more complete details on patients. In order to gather the maximum information concerning the efficacy of our surgical procedures there is a definite need of standardization in reporting the different comorbidities, as this would be the key towards achieving accurate reporting and a priority for national research to estimate the burden of obesity and the impact and outcomes of bariatric surgery on the treatment of obesity and obesity-related comorbidities. Over the long term, data from this Report will be instrumental in agreeing and developing risk stratification models and the setting of benchmarks for post-operative complications or mortality. The Registry could also help in these aims by standardizing data collection. As it progresses, the data it contains might also be useful in influencing policy.

Through the establishment of the Kuwait National Bariatric Surgery Database, it is our hope that this Report will guide policy, exhibit expenditure, and inform future planning and vision to improving quality of care and tackling the burden of obesity and its related comorbidities like dyslipidemia, hypertension, diabetes, sleep apnea to name a few and bring to the forefront the benefits of bariatric and metabolic surgery.

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First Kuwait National Bariatric Surgery Database Report 2019

Executive summary

Overview

- six public hospitals successfully collected data and submitted these data to the merged National Registry.
- the information presented in this report is based on the data submitted from the 6 hospitals. The effect of data not submitted by other centres undeniably biases the numbers presented here.
- 63 surgeons contributed information on their operations to the National Registry.
- the registry reports on 3,302 cases of which 2,704 were primary procedures, 411 were subsequent or revision operations and 187 were balloon insertions
- data collection was demonstrably of a very high quality; over 87% of entries for patients having their primary operation had either no missing data or one missing data-item amongst a list of 10 obesity-related diseases assessed pre-operatively. These related conditions were:
 - 1. type 2 diabetes
 - 2. back or leg pain
 - 3. **depression**
 - 4. impaired functional status
 - 5. gastro-esophageal reflux
 - 6. raised blood pressure
 - 7. dyslipidemia
 - 8. liver disease
 - 9. sleep apnea
 - 10. increased risk of DVT or PE
- the majority of surgery recorded in the National Registry is the patient's primary procedure (81.9% of operation records); this is in addition to gastric balloon placements (5.7%) and revisional surgery (12.4%).

At the time of primary surgery

- 73.6% of all patients are female; this is in line with results from bariatric surgery registries from across the world; comparison to data from the IFSO Global Registry shows that the proportion of female patients in Kuwait is right in the middle of the ordered distribution of countries that contributed.
- in Kuwait the patients have surgery at a younger age than most other countries; on average Kuwaiti patients are 32.6 years old at the time of their operation.
- the patients in Kuwait have a slightly higher body mass index (BMI) than the average reported from the IFSO Global Registry; the average BMI for a male Kuwaiti patient was 45.9 kg m⁻² and for the average female patients it was 43.3 kg m⁻².
- there is a significant burden of obesity-related disease in Kuwait. Only 1.8% of men and 2.0% had no reported obesity-related conditions. A minority of patients had 6 or more obesity-related diseases (6.5% of men and 3.6% of women). Most patients have between 1 and 5 conditions (91.7% of men and 94.4% of women).
- over 90% of patients had impaired functional status pre-operatively.
- three-fifth of patients had liver disease (66.0% of the men and 60.1% of the women)
- almost one-quarter of Kuwaiti patients had back or leg pain related to their weight (24.1% of the men and 23.9% of the women)
- there were a large number of patients with type 2 diabetes (16.40% of the men and 12.3% of the women), which is a significant burden for the country's healthcare system
- the rates of obesity-related disease tended to be higher for male patients

Executive summary

State of Kuwait Ministry of Health

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Surgery

- most operations in Kuwait were sleeve gastrectomy procedures (93.7% of primary surgery). This is the most common procedure internationally.
- OAGB / MGB was the next most commonly recorded operation (2.9%), and then Roux en Y gastric bypass (2.3%).
- in line with current accepted practice, almost all primary surgery was performed laparoscopically; only one operation was reported as having been converted to an open procedure.
- 6.5% of patients had an additional procedure in concert with their bariatric surgery (2.9% underwent cholecystectomy; 2.8% hernia repair; 0.1% liver biopsy; 0.9% another kind of minor procedure)

In-hospital post-operative outcomes

- operative complication rates were low:
 - 1.5% of patients had a related bleed (3.6% after Roux en Y gastric bypass).
 - 0.1% had a staple line leak.
- post-operative complications were also rare, considering the patients' rates of obesity-related disease pre-operatively:
 - 5.1% has a cardio-vascular complication; the majority of these complications were dysrhythmias.
 - **7.4% had an** *other* **complication** (almost half were simply vomiting or experienced poor intake after the surgery)
- half of patients were discharged home a little after two days post-surgery; patients who had a gastric band placed went home much sooner (60% were discharged by one day after surgery) and the patients who had a Roux en Y gastric bypass stayed a little longer (60% of these patients were discharged by post-operative day 3).
- reassuringly, the reported post-operative, in-hospital mortality rate was 0.0%.

The future

- as time goes on we hope to accumulate more data so that we can examine trends over time.
- we want to start collecting and reporting on follow up data, so that we can demonstrate that our patients benefit from their surgery, losing weight and seeing resolution of their obesity-related disease.
- it remains a goal for the future to incorporate data from all the key stakeholders in bariatric surgery, especially surgeons and physicians, to have them embrace this data collection and reporting process at all individual government and private clinics and hospitals throughout Kuwait.



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First Kuwait National Bariatric Surgery Database Report 2019

Introduction

It is a privilege to present data on baseline obesity-related disease, operation types, operative outcomes and disease status after bariatric surgery in Kuwait. This National Report that is the first of its kind has the potential to help the bariatric community establish essential benchmark knowledge about the patients we are operating upon, their age and gender distributions, body mass index (BMI) and comorbidity disease burden, as well as being able to track trends in surgery over time.

The prevalence of obesity is on a continuous rise worldwide ¹. Obesity has become an epidemic in the Arabian Gulf, according to the latest report from the World Health Organization (WHO) showing the Arabian Gulf region to be global leaders in the over 30% group ². Based on the WHO, Qatar ranks first for the prevalence of obesity at 40%, with Kuwait at second with a prevalence 38.3% ². Additionally, in the region is the United Arab Emirates with 33.8%, Bahrain with 30.6% and Saudi Arabia at 30% ². This significant increase in obesity in this region is attributed to affluence leading to major lifestyle changes in terms of diet and routine over the period of the last 70 years due to the discovery of oil ³.

One of the greatest mitigating factors in recent times that sky-rocketed the spread of obesity was the Iraqi invasion of Kuwait ³. After which, there was a significant increased trend in the establishment and multiplicity of fast food restaurants in Kuwait ³. This trend compounded with affluence and availability of high caloric foods and the significant change in physical activity that comes with affluence and modernization resulted in a growing population of obesity in Kuwait ³. Additionally, due to this sudden change in diet and also lifestyle, obesity inflicts 80% of the youth that will soon be part of the adult population of Kuwait that are at an even higher risk for developing obesity related disease like diabetes ³.

There are many contributing factors to this fast-evolving challenge of obesity ¹. Perhaps the single most important one is that lifestyles everywhere are changing and are doing so rapidly ¹. Life in general is becoming more sedentary, and even the work environment is requiring people to be less physically active and less mobile ¹. Better transportation means that people are walking less, and the technological revolution in communications means that much can be accomplished without leaving the office or home ¹. This comes at a time when the market is flooded with a wide range of industrially processed foods that are not always appropriate or balanced ¹. In much of the world, people now have more financial resources available to them and are consuming more food and drink than at any previous time in history, without routinely compensating for this through exercise and energy expenditure ¹.

In the face of this accelerated standard of living and modernization through communication, there is an emergent market that may directly even further impact these present dire conditions ¹. In the last decade, home delivery of foods has been revolutionized in Kuwait ⁴. Through the development of smartphone applications, ordering a high caloric meal with none to minimal movement has become possible through the click of a button ⁴! This in turn is a recipe for disaster in terms of the growing rates of obesity, and subsequently diabetes . In terms of the increasing population amongst the youth and adolescents that presently constitute 80% of the non-diabetic obese population, the risk factors based on genetics put these demographics at risk for developing diabetes ³. While obesity itself is considered as a debilitating condition, major studies have clearly correlated obesity with the development of chronic metabolic disorders such as diabetes, hypertension, and hyperlipidaemia as well as reduced quality of life, shorter life expectancy and an overall increase in the cost of care ¹.

Chronic metabolic disorders are complex diseases that need ongoing care and management ⁵. Of the many lifestyle factors such as lack of exercise, a poor diet and smoking, being overweight have been identified as the most critical predictor of obesity-related diseases ⁶.

In the Arabian Gulf region, due to the high prevalence of obesity, and the lack of national screening programmes and routine medical checkups, there is a higher potential for the delay in diagnosis, and commencement of treatment that increases the risks of complications, metabolic comorbidities and mortalities ⁷. Some of the complications of uncontrolled diabetes include diabetic retinopathy, diabetic neuropathy, diabetic nephropathy, microvascular events like cardiovascular diseases and diabetic foot ulcers and amputations ⁸. According to the International Diabetes Federation's publication titled Diabetes Atlas, Kuwait is ranked amongst the top 10 countries with a national prevalence of 15.8% in adults aged 20-79 years ⁹. While diabetes can be controlled and managed with oral hypoglycemic agents, insulin and lifestyle modification such as diet and exercise, recent updates from the Standards of Medical Care published by the American Diabetes Association also recommend metabolic surgery for the management of diabetes in appropriate obese patients ^{10,11}.





Metabolic surgeries have opened a new door for the management of obese patients with diabetes and became accepted as a safe and effective method for the treatment and control of diabetes in the obese population ^{12, 13, 14, 15, 16}. The American Diabetes Association, 2018 Standards of Care for the Management of Obesity and diabetes indicates that metabolic surgery is an effective treatment to improve weight loss measures and is beneficial in the treatment of diabetes 1^{0, 11}. In fact, no other treatment has produced such durable and ample control of diabetes ^{13, 14, 17}. Accordingly, in a study conducted by the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO) of 42 countries that indicated metabolic trends worldwide, Kuwait ranks number one for the frequency of metabolic procedures performed as a percentage of the national population ^{15, 18}.

In terms of surgery, there are many types of metabolic surgeries performed for the management of obesity *e.g.*, Roux-en-Y Gastric Bypass, Adjustable Gastric Band and Laparoscopic Sleeve Gastrectomy ¹⁹. Bariatric surgery is instrumental in treating metabolic syndrome with significant remission or improvement in most cases ^{13, 14, 16, 19}. Metabolic outcomes have improved over time with these surgical procedures, and while all these procedures have been studied in terms of their relation to metabolic syndrome and obesity, LSG has been gaining popularity and is the highest performed surgery in the Arabian Gulf region and especially Kuwait for the management of obesity ^{14, 16, 20-24}.

In terms of funding in Kuwait, bariatric/metabolic surgery is covered by government sector (Ministry of Health) with the exception of medical equipment specific to the procedure like ports, stapler, energy device *etc*. The Ministry of Health covers pre-operative, intra-operative and post-operative care including clinical investigations, doctor visits, operating room fees, multidisciplinary bariatric team professional visits and hospital stay. Additionally, the Ministry of Health covers management of complications, revisional procedures and international visitors workshops for challenging cases. The Ministry of Health also covers international care for eligible patients abroad. Bariatric procedures performed in the private sector hospitals are not covered by insurance. However, the Government covers complications that originate from private sector bariatric procedures.

With the increasing frequency of bariatric procedures performed in Kuwait, and with Kuwait being ranked as one of the countries with the highest frequency of bariatric surgeries performed *per* capita, it is important to collect this growing body of data into national registries. One of the most important facets of collecting this data is the need for standardization in reporting the different comorbidities. In this Report, there is a need to include more complete details on patients, consistently and accurately ²⁵.

It remains a goal for the future to incorporate data from all key stakeholders in bariatric surgery especially surgeons, and physicians to embrace this data collection and reporting process at individual clinics and hospitals. It will require widespread involvement and on-going commitment from all those involved in the care of the bariatric patient to ensure high-quality data can be collected, properly analysed and shared, so that we will be better able to understand shifts in disease patterns, practice and outcomes on a national scale. Therefore the data is presented using a small and necessarily far from comprehensive dataset, as simple tables and graphs using usually 2 variables, one for each axis, plus a dedicated commentary for each.

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A note on the conventions used throughout this report

There are several conventions used in the report in an attempt to ensure that the data are presented in a simple and consistent way. These conventions relate largely to the tables and the graphs, and some of these conventions are outlined below.

The specifics of the data used in any particular analysis are made clear in the accompanying text, table or chart. For example, many analyses sub-divide the data on the basis of the kind of surgery performed, and the titles for both tables and charts will reflect this fact.

Conventions used in tables

On the whole, unless otherwise stated, the tables and charts in this report record the number of procedures (see the example below).

Primary surgery: age and gender

			Gender				
		Male	Female	Unspecified	All		
	<16	4	20	0	24		
	16-20	106	286	3	395		
	21-25	111	334	2	447		
	26-30	99	283	2	384		
rs.	31-35	123	316	4	443		
Age / years	36-40	90	253	3	346		
<u>e</u>	41-45	66	182	2	250		
Ą	46-50	59	151	2	212		
	51-55	24	82	1	107		
	>55	22	62	1	85		
	Unspecified	4	7	0	11		
	All	708	1,976	20	2,704		

Each table has a short title that is intended to provide information on the subset from which the data have been drawn, such as the patient's gender or particular operation sub-grouping under examination.

The numbers in each table are colour-coded so that entries with complete data for all of the components under consideration (in this example both age and gender) are shown in regular black text. If one or more of the database questions under analysis is blank, the data are reported as unspecified in orange text. The totals for both rows and columns are highlighted as emboldened text. Some tables record percentage values; in such cases this is made clear by the use of an appropriate title within the table and a % symbol after the numeric value.

Rows and columns within tables have been ordered so that they are either in ascending order (age at procedure: <20, 20-24, 25-29,30-34, 35-39 years, etc.; post-procedure stay 0, 1, 2, 3, >3 days; etc.) or with negative response options first (No; None) followed by positive response options (Yes; One, Two, etc.).

Row and column titles are as detailed as possible within the confines of the space available on the page. Where a title in either a row or a column is not as detailed as the authors would have liked, then footnotes have been added to provide clarification.

There are some charts in the report that are not accompanied by data in a tabular format. In such cases the tables are omitted for one of a number of reasons:

- insufficient space on the page to accommodate both the table and graph.
- there would be more rows and / or columns of data than could reasonably be accommodated on the page (for example, Kaplan-Meier curves).
- the tabular data had already been presented elsewhere in the report.



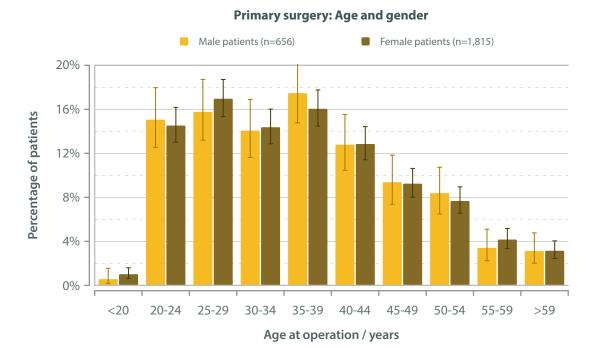
Conventions used in graphs

The basic principles applied when preparing graphs for this First Kuwait National Bariatric Surgery Database Report were based, as far as possible, upon William S Cleveland's book *The elements of graphing data*. This book details both best practice and the theoretical bases that underlie these practices, demonstrating that there are sound, scientific reasons for plotting charts in particular ways.

Counts: The counts (shown in parentheses at the end of each graph's title as n=) associated with each graph can be affected by a number of independent factors and will therefore vary from chapter to chapter and from page to page. Most obviously, many of the charts in this report are graphic representations of results for a particular group (or subset) extracted from the database, such as sleeve gastrectomy procedures. This clearly restricts the total number of database-entries available for any such analysis.

In addition to this, some entries within the group under consideration have data missing in one or more of the database questions under examination (reported as unspecified in the tables); all entries with missing data are excluded from the analysis used to generate the graph because they do not add any useful information.

For example, in the graph below, only the database entries where the patient is having primary surgery and both the patient's age and gender are known are included in the analysis; this comes to 2,471 patient-entries (656 for male patients and 1,815 for female patients; the 34 entries with unspecified data are excluded from the chart).



Confidence interval: In the charts prepared for this report, most of the bars plotted around rates (percentage values) represent 95% confidence intervals ². The width of the confidence interval provides some idea of how certain we can be about the calculated rate of an event or occurrence. If the intervals around two rates do not overlap, then we can say, with the specified level of confidence, that these rates are different; however, if the bars do overlap, we cannot make such an assertion.

Bars around averaged values (such as patients' age, post-operative length-of-stay, etc.) are classical standard error bars or 95% confidence intervals; they give some idea of the spread of the data around the calculated average. In some analyses that employ these error bars there may be insufficient data to legitimately calculate the standard error around the average for each sub-group under analysis; rather than entirely exclude these low-volume subgroups from the chart their arithmetic average would be plotted without error bars. Such averages without error bars are valid in the sense that they truly represent the data submitted; however, they should not to be taken as definitive and therefore it is recommended that such values are viewed with extra caution.

- 1. Cleveland WS. The elements of graphing data. 1985, 1994. Hobart Press, Summit, New Jersey, USA.
- 2. Wilson EB. Probable inference, the law of succession, and statistical inference. *Journal of American Statistical Association*. 1927; 22: 209-212.







First Kuwait National Bariatric Surgery Database Report 2019

Analysis

Hospitals

The Kuwait National Bariatric Registry currently comprises data being submitted from 6 public hospitals as listed below. The Al Amiri Hospital has the largest volume of practice.

All bariatric operations were performed using a laparoscopic approach (keyhole surgery). Laparoscopic operations are performed *via* small surgical incisions (between 5 mm and 15 mm in size), which minimises post-operative pain and facilitates much faster recovery from operations. The laparoscopic approach is therefore seen as the gold-standard approach for such surgery.

State of Kuwait National Bariatric Surgery Registry: contributing hospitals

		Count
	Al Adan Hospital	290
	Al Amiri Hospital	1,056
Ē	Al Jahra Hospital	410
Hospital	Al Sabah Hospital	566
운	Farwaniya Hospital	380
	Mubarak Al Kabeer Hospital	600
	All	3,302

Funding

In the Government hospitals, patients only pay for the surgical equipment used in their operation. However, the hospital stay and the fees for the surgeon are covered by the Government.

State of Kuwait National Bariatric Surgery Registry: funding category

		Count	Percentage
ory	Equipment paid by patient	3,273	99.5%
category	Equipment paid by Government	11	0.3%
g	Other	4	0.1%
Funding	Unspecified	14	
Fun	All	3,302	





Type of operation

The majority of cases logged in the registry are primary bariatric surgery operations. Subsequent bariatric surgery procedures (revision/conversion) comprise 12.4% of the total number of operations, which is similar to the subsequent bariatric procedures reported by the American Society of Metabolic & Bariatric Surgeons (ASMBS) at 14.1% in 2017. The Registry only reports a low number of gastric balloon insertions carried out in Government hospitals as most of these procedures are performed in the private sector.

State of Kuwait National Bariatric Surgery Registry: type of operation

		Count	Percentage
	Balloon	187	5.7%
	Primary surgery	2,704	81.9%
Type of operation	Subsequent bariatric operations 1	411	12.4%
operation	Unspecified	0	
	All	3,302	

State of Kuwait National Bariatric Surgery Registry: type of operation at each hospital

	Type of operation					
	Balloon	Primary	Revision	Unspecified	All	
Al Adan Hospital	22	241	27	0	290	
Al Amiri Hospital	97	821	138	0	1,056	
Al Jahra Hospital	0	378	32	0	410	
Al Jahra Hospital Al Sabah Hospital Farwaniya Hospital	61	497	8	0	566	
Farwaniya Hospital	7	322	51	0	380	
Mubarak Al Kabeer Hospital	0	445	155	0	600	
All	187	2,704	411	0	3,302	

1. Revisions and conversions.



First Kuwait National Bariatric Surgery Database Report 2019

Patient demographics

Gender

Data from the Kuwait National Bariatric Surgery Registry

The World Health Organisation (WHO) publishes data on the prevalence of obesity on a country-by-country basis, comparing rates for women and men aged over 17 years. The most recent data from 2016 shows that 45% of women and around 33% of men in Kuwait are obese, and this puts Kuwait in the upper extreme of the world rankings for obesity rates.

In the Kuwait National Bariatric Surgery Registry, female patients account for three-quarters of the patients undergoing bariatric surgery.

Primary surgery: patient's gender

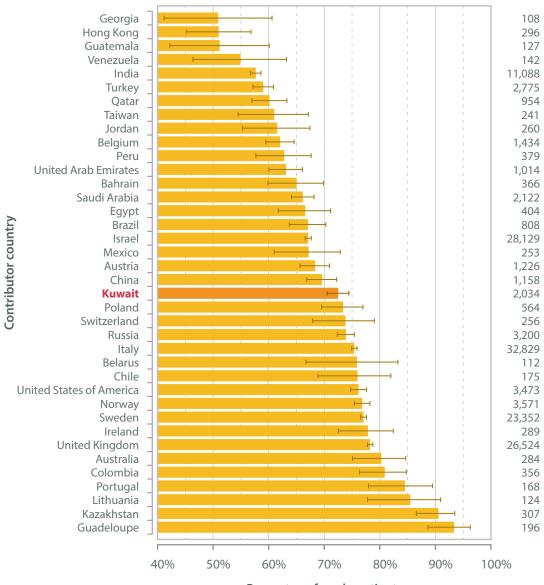
		Count	Percentage
	Male	708	26.4%
C	Female	1,976	73.6%
Gender	Unspecified	20	
	All	2,704	_

First Kuwait National Bariatric Surgery Database Report 2019

Comparison to data from across the world

In the general population in Kuwait there are approximately as many obese men as there are obese women. Despite this, as previously demonstrated, about three-quarters of the surgical patient population are female. A recent analysis (2018) from the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO) Global Registry shows that Kuwait's experience is in line with what is reported in other countries; in fact, Kuwait's percentage of female patients falls right in the middle of the global rankings as shown below:

Data from IFSO: Primary surgery: Proportion of female patients; calendar years 2014-2018 (n=151,098)



Percentage female patients



First Kuwait National Bariatric Surgery Database Report 2019

Age

Data from the Kuwait National Bariatric Surgery Registry

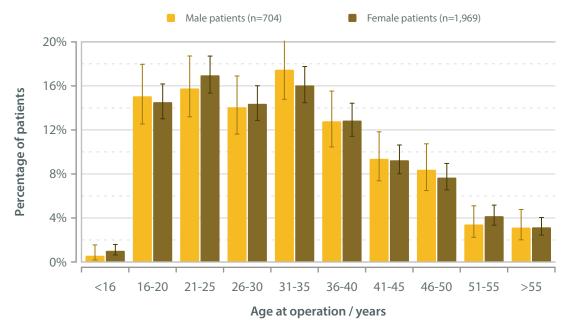
The table and graph below report the age distribution of patients undergoing bariatric surgery in Kuwait, according to gender. The average age for male patients was 32.6 years; and for female patients was 32.6 years.

The majority of patients were under the age of 35 years and this can be accounted for by the fact that Kuwait has a generally younger population compared to the rest of world. Also, patients do not have to wait years and years before proceeding to surgery, as in some other countries. In addition, the national policy stipulates that patients over 65 may not be offered this kind of intervention.

Primary surgery: age and gender

		Gender				
	Male	Female	Unspecified	All		
<16	4	20	0	24		
16-20	106	286	3	395		
21-25	111	334	2	447		
26-30	99	283	2	384		
<u>د</u> 31-35	123	316	4	443		
31-35 36-40 41-45	90	253	3	346		
41-45	66	182	2	250		
46-50	59	151	2	212		
51-55	24	82	1	107		
>55	22	62	1	85		
Unspecified	4	7	0	11		
All	708	1,976	20	2,704		

Primary surgery: Age and gender



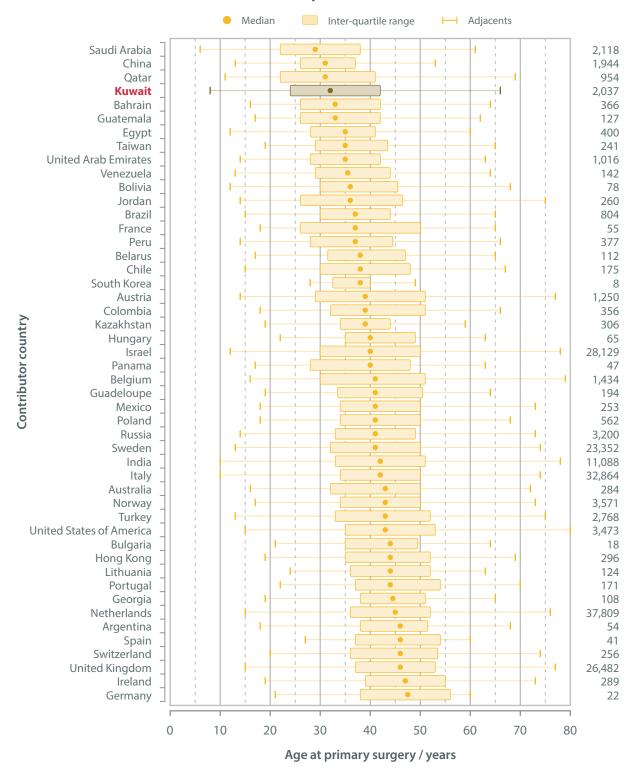




Comparison to data from across the world

The most recent IFSO Global registry analysis only serves to underline this point, showing that Kuwait has one of the youngest patient populations in the world.

Data from IFSO: Primary surgery: Patient's age at surgery; calendar years 2014-2018 (n=190,080)





First Kuwait National Bariatric Surgery Database Report 2019

Initial weight

The table below and the graph on the opposite page show the distribution of patients' weight in 10 kg bands, split according to the patient's gender. As might be expected, the average presenting weight for men is much higher than that reported for women (average for male patients = 139.3 kg; average for female patients = 109.9 kg).

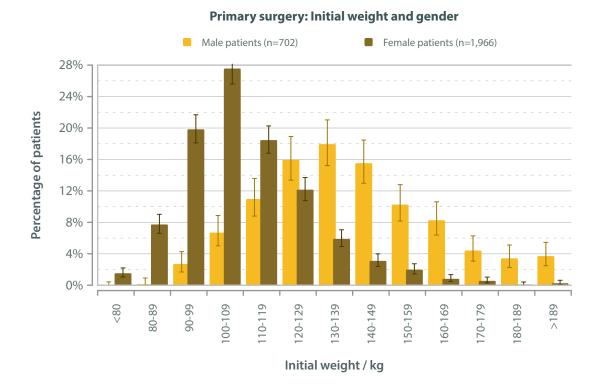
Primary surgery: initial weight and gender

	Gender					
	Male	Female	Unspecified	All		
<80	0	30	0	30		
80-89	1	152	0	153		
90-99	19	390	1	410		
100-109	47	542	3	592		
110-119	77	363	3	443		
120-129 130-139 140-149 150-159 160-169	112	239	4	355		
130-139	126	116	1	243		
140-149	109	61	1	171		
150-159	72	39	1	112		
160-169	58	16	1	75		
170-179	31	11	1	43		
180-189	24	2	0	26		
>189	26	5	0	31		
Unspecified	6	10	4	20		
All	708	1,976	20	2,704		





We know that men are, on average, a lot taller than women, so can carry more body mass before it starts to have a negative impact on their general health. The point at which an individual person's weight becomes a health issue is partly affected by genetic predispositions, but the body mass index (as shown on the next pages) is an internationally accepted measure of excess weight on a population basis. It allows us to compare men and women's excess weight in a sensible way.





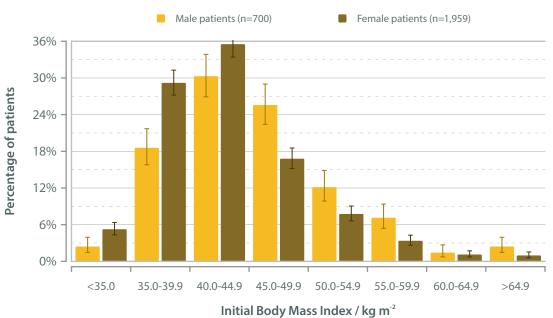
First Kuwait National Bariatric Surgery Database Report 2019

Body mass index

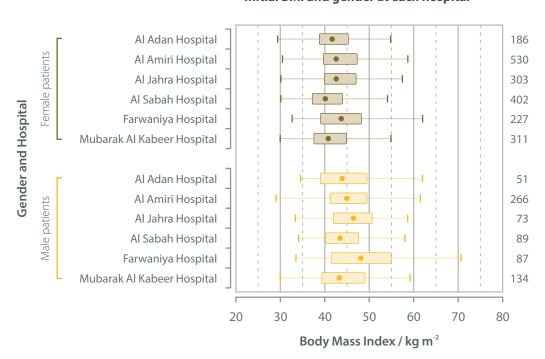
Data from the Kuwait National Bariatric Surgery Registry

The graphs below show the pattern of body mass index split by gender (average for male patients =45.9 kg m⁻²; average for female patients = 43.3 kg m⁻²), for all patients and then sub-divided by hospital.

Primary surgery: Initial BMI and gender



Primary surgery: Initial BMI and gender at each hospital

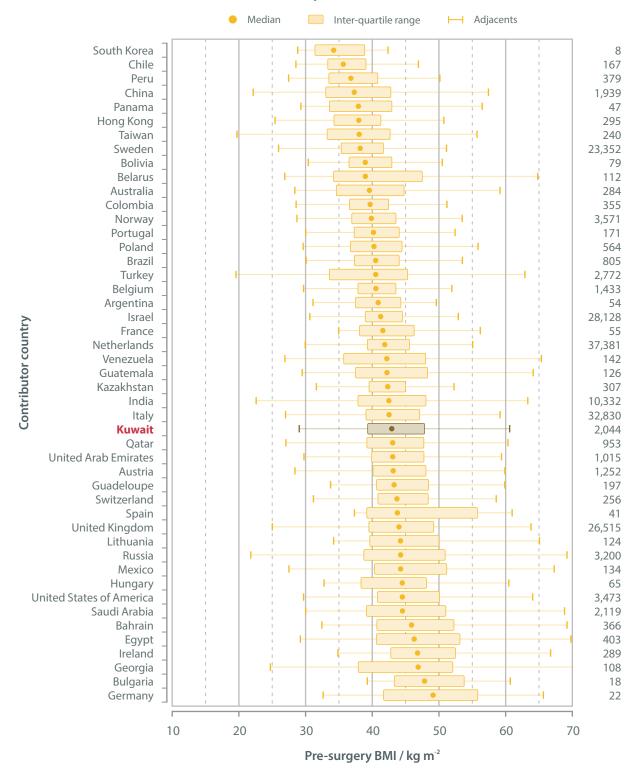




Comparison to data from across the world

Data from the most recent IFSO Global Registry analysis show that the patient population in Kuwait undergoing primary surgery falls right in the middle of the ordered distribution of BMIs by country.

Data from IFSO: Primary surgery: Patient's BMI before surgery; calendar years 2014-2018 (n=188,522)



Ministry of Health

State of Kuwait Ministry of Health

First Kuwait National Bariatric Surgery Database Report 2019

Obesity-related disease

Number of obesity-related diseases

This next section of the report explores the prevalence of obesity-related diseases in the Kuwaiti population undergoing bariatric surgery.

The Kuwait National Bariatric Surgery Registry records the status of 10 obesity-related diseases for each patient. These 10 obesity-related diseases are:

- Type 2 diabetes.
- Back pain or leg pain.
- Depression.
- Impaired functional status.
- Gastro-esophageal reflux disorder (GERD).
- Hypertension.
- Dyslipidaemia.
- Liver disease.
- Sleep apnea.
- Increased risk of deep vein thrombosis (DVT) or pulmonary embolus (PE)

When we look for missing information some recorded options are treated as if they are missing data, as they do not provide any positive information on the patient's health:

- Type 2 diabetes option Not investigated.
- Hypertension option Not investigated.
- Dyslipidaemia option Other.
- Sleep apnea option Not investigated.
- Increased risk of DVT or PE option Not assessed.

Positive responses (data denoting patients who have the condition) were:

- 1. Type 2 diabetes:
 - i. Impaired glycaemia or impaired glucose tolerance.
 - ii. Insulin treatment.
 - iii. OAD & insulin treatment.
 - iv. Oral hypoglycaemics.
- 2. Back pain or leg pain:
 - i. Yes
- 3. Depression:
 - i. Depression on medication.







4. Impaired functional status:

- i. Can climb 1 flight of stairs without resting.
- ii. Can climb half a flight of stairs without resting.
- iii. Walking.
- iv. Requires wheelchair or is housebound.

5. GERD:

- i. Daily medication (H2RA or PPI)
- ii. Intermittent medication.
- iii. Intermittent symptoms; no medication.

6. Hypertension:

- i. Treated hypertension.
- ii. Untreated hypertension.

7. Dyslipidaemia:

- i. Dyslipidaemia.
- 8. Liver disease:
 - i. Fatty liver.
 - ii. Mild steatosis.
 - iii. Severe steatosis.

9. Sleep apnea:

- i. Yes.
- 10. Increased risk of DVT or PE contains any one or more of:
 - i. History or risk factor for DVTor PE.
 - ii. Venous oedema with ulceration.
 - iii. Vena cava filter.
 - iv. Obesity hypoventilation syndrome.



First Kuwait National Bariatric Surgery Database Report 2019

Missing data

The following table and chart list the completeness of the data recorded for obesity-related diseases.

The take-home message is that over 87% of patient records have less than two data-items missing. This is a remarkably positive achievement for a registry that is in the early stages of maturity. Collecting complete data is a very arduous task, and all the hospitals should be commended for their diligence.

In the future data from private sector hospitals will be included in this project, as a large volume of bariatric surgery procedures are known to be performed in the private sector.

Primary surgery: missing data on obesity-related disease

		Male	Female	Unspecified	All
	0	491	1,341	2	1,834
	1	143	381	2	520
	2	40	159	1	200
	3	19	42	0	6
	4	5	25	4	34
	5	3	11	11 3	
Counts	6	3	7	0	1
	7	1	6	2	
	8	2	2	0	•
	9	0	2	2	
	10	1	0	4	
	All	708	1,976	20	2,70
	0	69.4%	67.9%	10.0%	67.8%
	1	20.2%	19.3%	10.0%	19.5%
	2	5.6%	8.0%	5.0%	7.4 9
	3	2.7%	2.1%	0.0%	2.3%
	4	0.7%	1.3%	20.0%	1.39
Percentages	5	0.4%	0.6%	15.0%	0.69
	6	0.4%	0.4%	0.0%	0.49
	7	0.1%	0.3%	10.0%	0.39
	8	0.3%	0.1%	0.0%	0.19
	9	0.0%	0.1%	10.0%	0.19

First Kuwait National Bariatric Surgery Database Report 2019



This graph again illustrates that data collection has been performed very well in Kuwait.

Primary surgery: Missing obesity-related disease data (n=2,704)

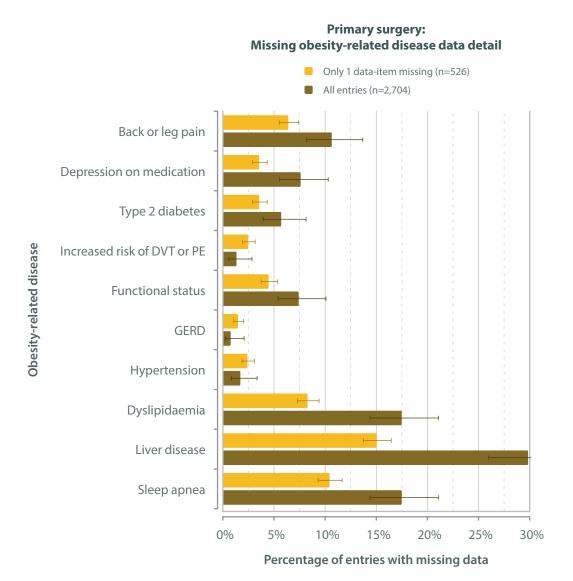




This chart shows the completeness of the obesity-related disease data for entries where only one item is missing, and for all entries in the central Kuwait National Bariatric Surgery Registry.

Where a single data-item is missing, it is largely the liver disease, sleep apnea, dyslipidaemia and back | leg pain questions that have not been completed.

Across the board, the biggest issues seem to be with the same four questions in the database. This is an issue that we can address going forward to improve data collection even further.



32





Number of obesity-related diseases

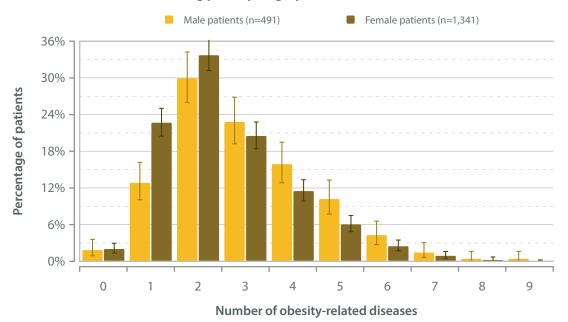
The following chart and table together show the distribution of the number of obesity-related diseases for men and women. The data clearly show that on average the men have more obesity-related disease.

The majority of patients have 1, 2 or 3 conditions (65.6% of male patients; 76.9% of female patients), very few have no recorded disease associated with their excess weight (1.8% of male patients; 2.0% of female patients), and only a minority (6.5% of male patients; 3.6% of female patients) have 6 or more conditions.

Database entries with no missing obesity-related disease data for patients having primary surgery: number of obesity-related diseases

		Gender					
	Male	Female	Unspecified	All			
0	9	27	0	36			
1	63	304	0	367			
0 1 2 3 4 5 6 7 8 9	147	452	0	599			
3	112	275	0	387			
4	78	154	2	234			
5	50	81	0	131			
6	21	33	0	54			
7	7	12	0	19			
8	2	3	0	5			
9	2	0	0	2			
All	491	1,341	2	1,834			

Database entries with no missing obesity-related disease data for patients having primary surgery: Number of related diseases





First Kuwait National Bariatric Surgery Database Report 2019

Obesity related disease overview

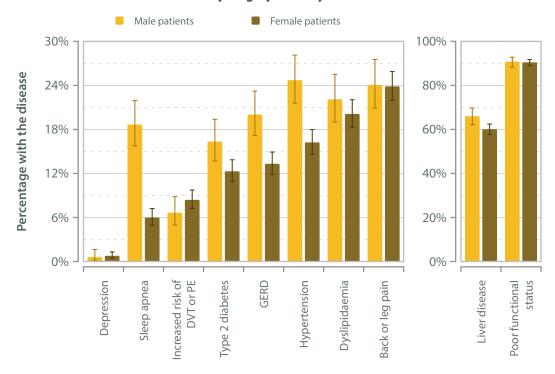
Data from the Kuwait National Bariatric Surgery Registry

As shown in the last chart, male bariatric surgery patients in Kuwait tend to have higher rates of obesity-related disease; the chart below makes this even clearer. Interestingly, rates of medication for depression are very low in absolute terms, and also low in comparison to the rates reported for other geographical regions according to data from the latest IFSO Global Registry Report.

Primary surgery: obesity-related disease and gender

		Male			Female			Rates	
		8	Yes	Unspecified	o Z	Yes	Unspecified	Male	Female
Obesity-related disease	Back or leg pain	505	160	43	1,413	443	120	24.1%	23.9%
	Depression	663	4	41	1,918	15	43	0.6%	0.8%
	Type 2 diabetes	573	112	23	1,677	235	64	16.4%	12.3%
	Increased risk of DVT or PE	646	46	16	1,777	163	36	6.6%	8.4%
	Poor functional status	63	621	24	180	1,709	87	90.8%	90.5%
	GERD	559	140	9	1,699	261	16	20.0%	13.3%
	Hypertension	524	172	12	1,615	313	48	24.7%	16.2%
	Dyslipidaemia	511	145	52	1,450	365	161	22.1%	20.1%
	Liver disease	213	414	81	661	995	320	66.0%	60.1%
	Sleep apnea	523	120	65	1,667	106	203	18.7%	6.0%

Primary surgery: Obesity-related disease rates



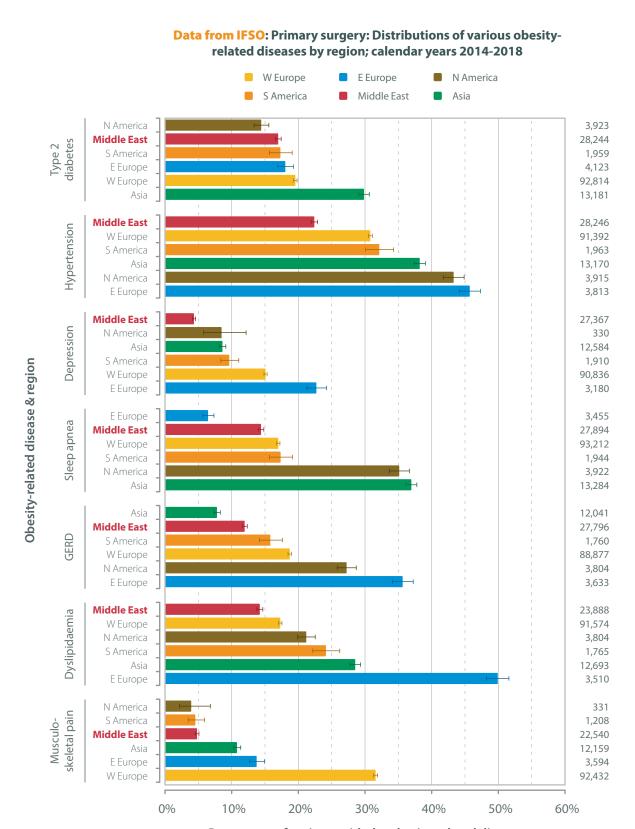
Obesity-related disease





Comparisons to data from across the world

The reported rates of obesity-related disease vary from region to region, and from country to country. The following chart puts the reported rates in the Middle East in a wider context, and allows us to compare the rates we see in Kuwait to other regions. Generally, rates of most associated obesity-related conditions in the chart below are low in the Middle East compared to other regions; in the Kuwaiti population some rates are relatively low compared to the average for the Middle East as a whole (hypertension, depression, sleep apnea).



Percentage of patients with the obesity-related disease



First Kuwait National Bariatric Surgery Database Report 2019

Obesity Surgery Mortality Risk Score

Data from the Kuwait National Bariatric Surgery Registry

The Obesity Surgery Mortality Risk Score (OSMRS) stratifies patients undergoing bariatric surgery into three categories depending on how many of the following risk factors they possess:

- Male gender.
- Age ≥45 years at the time of surgery.
- BMI >50 kg m².
- Hypertension.
- Risk factors for deep vein thrombosis / pulmonary embolism.

The patient is ascribed one point for each of the above risk factors and a cumulative score determined, giving a total score in the range zero to five; this score is normally grouped into one of three categories:

- **Group A:** score 0-1 (low risk)
- Group B: score 2-3 (moderate risk)
- Group C: score 4-5 (high risk)

Patients with higher OSMRS, are thought to be at a greater risk of post-operative complications and mortality.

It is important not to confuse low-risk with no risk; some of the patients in OSMRS group A **will** have complications after their surgery, but they are less likely to have any adverse outcomes according to this assessment of their risk profile.





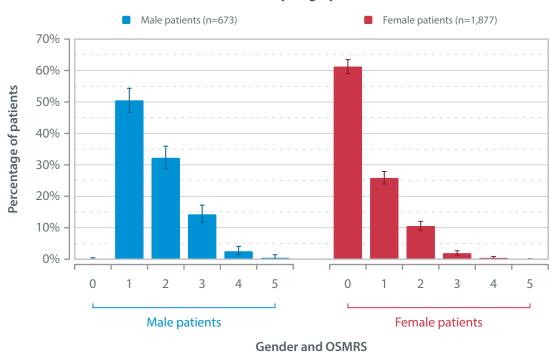
The following chart and table show the OSMRS profiles for male and female patients in Kuwait. The score is only calculated when all of the required data are available in the operation record.

The average OSMRS is obviously higher for the male patients (1.70 *versus* 0.54 for the female patients) as male gender is a component of the scoring system itself. Very few patients fall in group C (3.0% of male patients and 0.4% of female patients).

Primary surgery: OSMRS

			Ge	nder	
		Male	Female	Unspecified	All
	0	0	1,150	0	1,150
	1	340	485	0	825
	2	217	198	0	415
	3	96	36	0	132
Obesity	4	17	8	0	25
Surgery Mortality	5	3	0	0	3
lisk Score	Group A (0-1)	340	1,635	0	1,975
	Group B (2-3)	313	234	0	547
	Group C (4-5)	20	8	0	28
	Unspecified	35	99	20	154
	All	708	1,976	20	2,704

Primary surgery: OSMRS



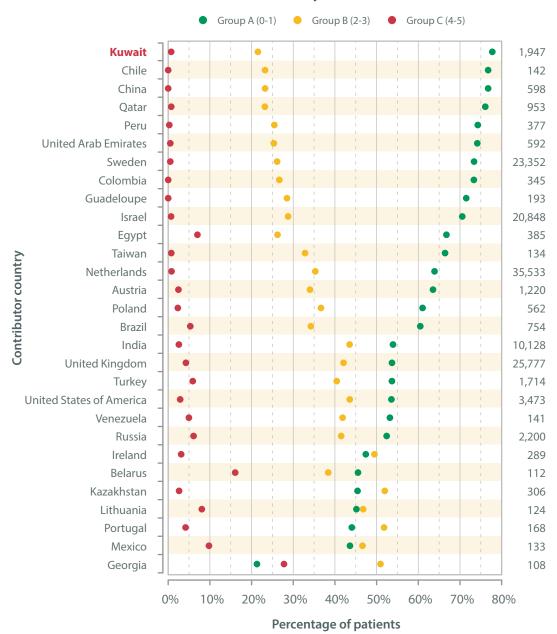


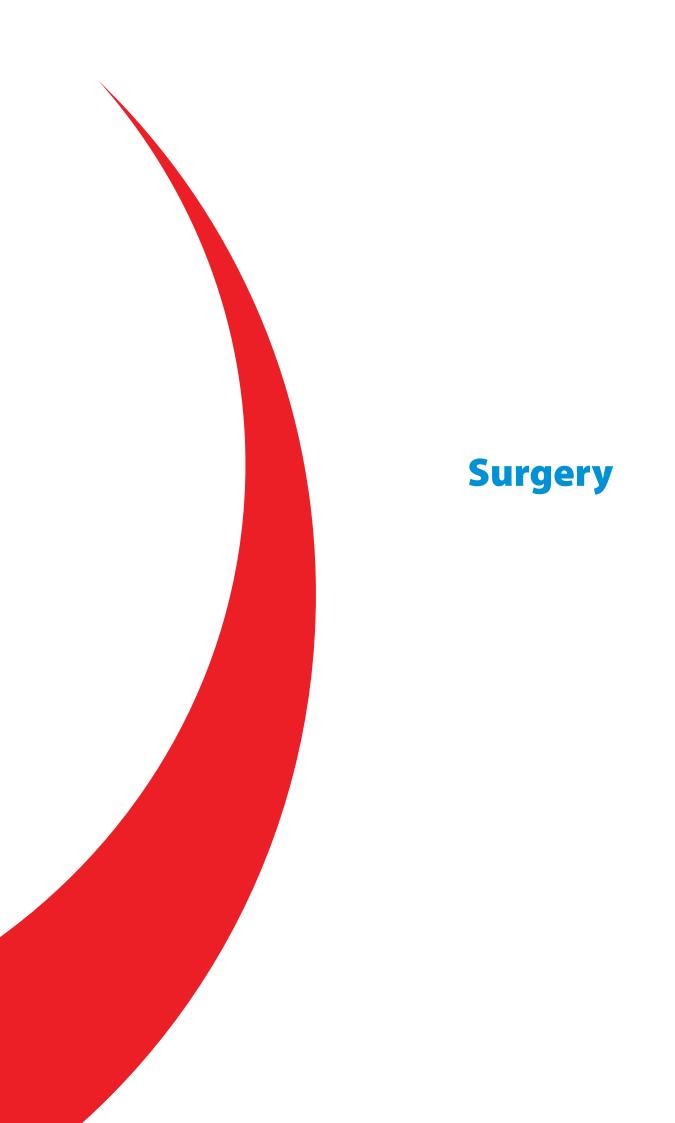
First Kuwait National Bariatric Surgery Database Report 2019

Comparison to data from across the world

The Kuwaiti bariatric surgery patient population falls at the low-risk end of the spectrum (according to OSMRS grouping) when compared to the other countries in the IFSO Global Registry.

Data from IFSO: Primary surgery: OSMRS group; calendar years 2014-2018







Surgery

Operation

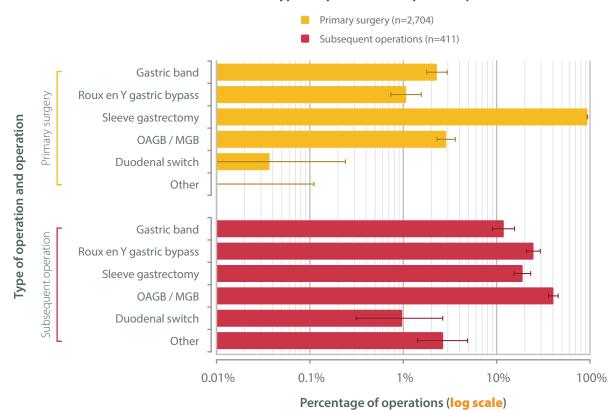
Data from the Kuwait National Bariatric Surgery Registry

The vast majority of procedures performed in Kuwait are sleeve gastrectomy, which reflects current global trends; single anastomosis gastric bypass (OAGB / MGB) is the second most common procedure. A single anastomosis gastric bypass has mainly been performed as a subsequent procedure, most commonly after a sleeve gastrectomy.

State of Kuwait National Bariatric Surgery Registry: operations performed

		1	ype of operation	on	
	Gastric balloon	Primary surgery	Subsequent operations	Unspecified	All
Gastric balloon	187			0	187
Gastric band		62	49	0	111
Roux en Y gastric bypass		29	102	0	131
Sleeve gastrectomy OAGB / MGB Duodenal switch		2,534	78	0	2,612
OAGB / MGB		78	167	0	245
Duodenal switch		1	4	0	5
Other		0	11	0	11
Unspecified		0	0	0	0
All	187	2,704	411	0	3,302

Type of operation and operation performed





State of Kuwait National Bariatric Surgery Registry: kinds of previous operations for revision surgery

Previous operation	Current (revision) operation	Count
	Gastric band	48
	Roux en Y gastric bypass	5
Gastric band	Sleeve gastrectomy	43
·	OAGB / MGB	8
	Other	1
Douv on V gostvie hymne	Roux en Y gastric bypass	8
Roux en 1 gastric bypass	Other	2
	Gastric band	1
	Roux en Y gastric bypass	79
Classes are at a second	Sleeve gastrectomy	30
Sieeve gastrectomy	OAGB / MGB	144
,	Duodenal switch	4
	Other	5
	Roux en Y gastric bypass	5
OAGB / MGB	Sleeve gastrectomy	1
	OAGB / MGB	5
Costuis ulisation	Roux en Y gastric bypass	2
Gastric plication	OAGB / MGB	4
	Roux en Y gastric bypass	1
Others	Sleeve gastrectomy	1
Others	OAGB / MGB	5
	Other	2
	Roux en Y gastric bypass	2
Hannaifad milas assertion	Sleeve gastrectomy	3
Unspecined prior operation	OAGB / MGB	1
	Other	1
All		411

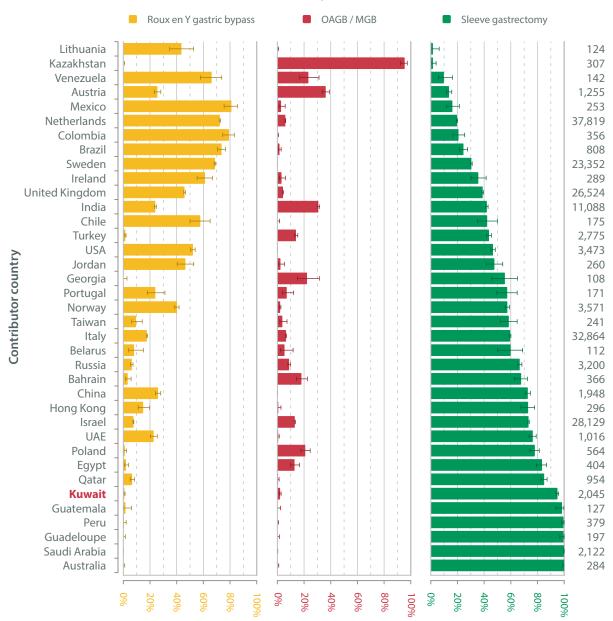


First Kuwait National Bariatric Surgery Database Report 2019

Comparison to data from across the world

Data from the IFSO Global Registry demonstrate that sleeve gastrectomy is the most commonly performed bariatric surgery operation in many countries. Where sleeve gastrectomy is less common, patients tend to have a Roux en Y gastric bypass operation instead. The data from Kuwait fall in the portion of the ordered distribution where rates of sleeve gastrectomy are very high.

Data from IFSO: Primary surgery: Type of operation; calendar years 2014-2018



Percentage of operations





Operative approach

The vast majority of major bariatric procedures in Kuwait are carried out laparoscopically.

Open procedures are very rare and this approach is generally only employed in a small minority of revisional procedures. This is all in line with current practice across the world.

Type of operation and operative approach

				Тур	e of opera	tion	
			Balloon	Primary	Revision	Unspecified	All
		Laparoscopic	19	2,687	402	0	3,108
	Carreta	Laparoscopic converted to open	0	1	2	0	3
£		Endoscopic	167	3	1	0	171
oac	Counts	Open	0	0	3	0	3
ıdd		Unspecified	1	13	3	0	17
Operative approach		All	187	2,704	411	0	3,302
perat		Laparoscopic	10.2%	99.9%	98.5%		94.6%
Ō	Dougoutous	Laparoscopic converted to open	0.0%	0.0%	0.5%		0.1%
	Percentages	Endoscopic	89.8%	0.1%	0.2%		5.2%
		Open	0.0%	0.0%	0.7%		0.1%



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Sleeve gastrectomy

Reinforcement

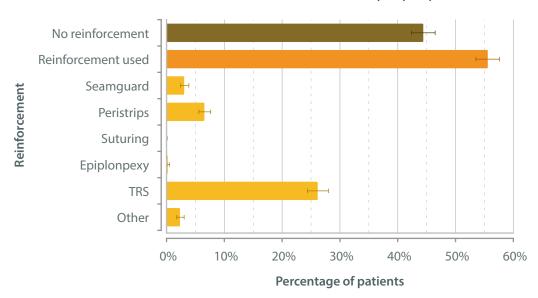
Staple line reinforcements were used in just over half of cases.

The value of staple line reinforcements in sleeve gastrectomy is still under debate.

Primary sleeve gastrectomy: sleeve reinforcement

		Count	Percentage
No reinforcement		1,031	44.4%
Reinforcement used		1,290	55.6%
	Seamguard	71	3.1%
	Peristrips	152	6.5%
	Suturing	0	0.0%
	Epiplonpexy	5	0.2%
	TRS	607	26.2%
	Other	54	2.3%
Unspecified		213	
Number of patients		2,534	

Primary sleeve gastrectomy: Sleeve reinforcement (n=2,321)





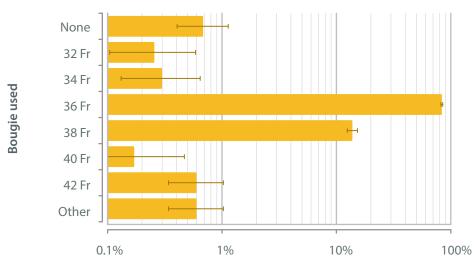
Bougie used

The majority of surgeons use a 36 Fr bougie.

Primary sleeve gastrectomy: bougie used

		Count	Percentage
	None	16	0.7%
	32 Fr	6	0.3%
	34 Fr	7	0.3%
	36 Fr	1,957	83.6%
Bougie	38 Fr	323	13.8%
used	40 Fr	4	0.2%
	42 Fr	14	0.6%
	Other	14	0.6%
	Unspecified	193	
	All	2,534	

Primary sleeve gastrectomy: Bougie used (n=2,157)



Percentage of patients (log scale)



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Additional procedures

Gall bladder and hernia repair are the most common additional procedures done at the time of bariatric procedures.

Primary surgery: additional procedures

		A	dditional	proced	ures	Detail	s of addit	ional pro	cedures
		O Z	Yes	Unspecified	All	Cholecystecomy	Hernia repair	Liver biopsy	Other
	Gastric band	59	1	2	62	0	0	0	1
	Roux en Y gastric bypass	25	4	0	29	0	4	0	0
Counts	Sleeve gastrectomy	2,324	160	50	2,534	73	70	3	23
Cou	OAGB / MGB	70	6	2	78	4	1	0	1
_	Duodenal switch	1	0	0	1	0	0	0	0
	All	2,479	171	54	2,704	77	75	3	25
	Gastric band		1.7%			0.0%	0.0%	0.0%	1.7%
es	Roux en Y gastric bypass		13.8%			0.0%	13.8%	0.0%	0.0%
ıtag	Sleeve gastrectomy		6.4%			2.9%	2.8%	0.1%	0.9%
Percentages	OAGB / MGB		7.9%			5.3%	1.3%	0.0%	1.3%
Pel	Duodenal switch		0.0%			0.0%	0.0%	0.0%	0.0%
	All		6.5%			2.9%	2.8%	0.1%	0.9%

Analysis

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Operative complications

The headline in-hospital complication rates after primary bariatric surgery are:

- bleeding 1.5%,
- staple line leak 0.1%
- other 0.5%.

Roux en Y gastric bypass has the highest recorded rate of post-operative bleeding at 3.6%.

Primary surgery: complications

	Complic	ations re	ecorded		Comp	lications	details	
	0 N	Yes	Unspecified	Leak	Bleed	Staple line leak	Other	Unspecified
Gastric band	60	2	1	0	0	0	1	0
Roux en Y gastric bypass	27	1	0	0	1	0	0	1
Sleeve gastrectomy	2,476	57	47	0	38	3	12	1
OAGB / MGB	76	1	1	0	1	0	0	1
Duodenal switch	1	0	0	0	0	0	0	0
All	2,640	61	49	0	40	3	13	3
	Gastric I	oand		0.0%	0.0%	0.0%	1.6%	0.0%
	Roux en	Y gastric	bypass	0.0%	3.6%	0.0%	0.0%	3.6%
	Sleeve g	astrecto	my	0.0%	1.5%	0.1%	0.5%	0.0%
	OAGB/	MGB		0.0%	1.3%	0.0%	0.0%	1.3%
	Duoden	al switch		0.0%	0.0%	0.0%	0.0%	0.0%
	All			0.0%	1.5%	0.1%	0.5%	0.1%



Outcomes

Post-operative stay

Data from the Kuwait National Bariatric Surgery Registry

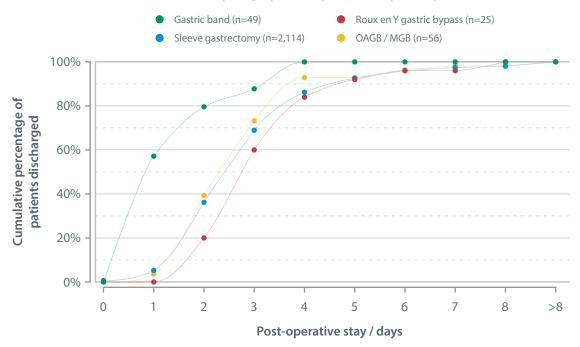
On average most patients are discharged home within 2-3 days after their bariatric procedure.

Patients tend to go home sooner after a gastric band procedure (over 50% discharged by post-operative day 1).

Primary surgery: post-operative stay and operation

				Oper	ation		
		Gastric band	Roux en Y gastric bypass	Sleeve gastrectomy	OAGB / MGB	Duodenal switch	All
	0	0	0	14	0	0	14
	1	28	0	97	2	0	127
ŊS	2	11	5	654	20	0	690
/ da	3	4	10	692	19	0	725
tay	4	6	6	366	11	0	389
/e s	5	0	2	135	0	0	137
ati	6	0	1	71	2	1	75
per	7	0	0	31	1	0	32
Post-operative stay / days	8	0	1	13	0	0	14
Po	>8	0	0	41	1	0	42
	Unspecified	13	4	420	22	0	459
	All	62	29	2,534	78	1	2,704

Primary surgery: Post-operative stay and operation





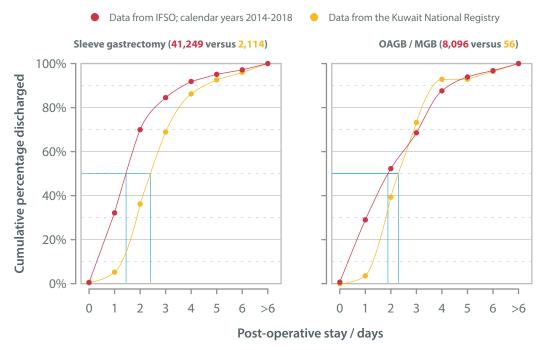


Comparison to data from across the world

The data presented here compare post-operative length-of-stay from the IFSO Global Registry and the current data from the Kuwait National Bariatric Surgery Registry. After sleeve gastrectomy, half of patients in the IFSO Registry are discharged by around one day after the operation, whereas half of bariatric surgery patients in Kuwait are discharged by about two days after surgery. Within five days of treatment, over 90% of patients have been discharged

The differences in the two patterns of post-operative stay for the patients who have had an OAGB / MGB are quite small, especially when one considers the fact that the number of Kuwaiti patients treated using this technique is quite low at the moment, which means that the observed distribution will almost certainly change as more data are accumulated for this group. Over 90% of patients are allowed to go home within four days of this operation.

Data from IFSO: Primary surgery: Post-operative stay





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Complications

The overall rate of operative complications of 2.6%. The highest rate of operative complications was after Roux en Y gastric bypass (10.3%; 29 patients) and the lowest after sleeve gastrectomy (2.5%; 2,487 patients).

Primary surgery: complications

			Comp	lication record	ed
		No	Yes	Unspecified	Complication rate
	Gastric band	59	2	1	3.3% (0.6-12.4%)
	Roux en Y gastric bypass	26	3	0	10.3% (2.7-28.5%)
Operative	Sleeve gastrectomy	2,426	61	47	2.5% (1.9-3.2%)
complications	OAGB / MGB	75	2	1	2.6% (0.5-9.9%)
	Duodenal switch	1	0	0	0.0% (0.0-95.0%)
	All	2,587	68	49	2.6% (2.0-3.3%)
	Gastric band	40	1	21	2.4% (0.1-14.4%)
	Roux en Y gastric bypass	18	3	8	14.3% (3.8-37.4%)
Cardio-vascular	Sleeve gastrectomy	1,857	97	580	5.0% (4.1-6.0%)
complications	OAGB / MGB	51	4	23	7.3% (2.4-18.4%)
	Duodenal switch	1	0	0	0.0% (0.0-95.0%)
	All	1,967	105	632	5.1% (4.2-6.1%)
	Gastric band	39	3	20	7.1% (1.9-20.6%)
	Roux en Y gastric bypass	19	3	7	13.6% (3.6-36.0%)
Other	Sleeve gastrectomy	1,815	141	578	7.2% (6.1-8.5%)
complications	OAGB / MGB	49	6	23	10.9% (4.5-22.9%)
	Duodenal switch	1	0	0	0.0% (0.0-95.0%)
	All	1,923	153	628	7.4% (6.3-8.6%)





Post-operative mortality

This report demonstrates that bariatric procedures in Kuwait are safe for patients with a 0.0% reported in-hospital operative mortality rate.

Long-term survival is currently not known and there is a desire to collect long-term follow-up data for all patients operated upon in Kuwait. In addition some patients are transferred from other hospitals for management of complications of surgery carried out elsewhere. The outcomes of these patients are not currently collected nor are they reported here in this Report, but it would be desirable to track the outcomes of these patients in the future. Nevertheless, it is very gratifying to see that there were no reported in-hospital deaths for any patients undergoing bariatric surgery at Government hospitals during the period of study of the Registry.

Primary surgery: in-hospital mortality

			In-ho	ospital mortality	y
		No	Yes	Unspecified	Crude mortality rate
	Gastric band	62	0	0	0.0% (0.0-4.7%)
-	Roux en Y	29	0	0	0.0% (0.0-9.8%)
	Sleeve gastrectomy	2,534	0	0	0.0% (0.0-0.1%)
n	OAGB / MGB	78	0	0	0.0% (0.0-3.8%)
	Duodenal switch	1	0	0	0.0% (0.0-95.0%)
	All	2,704	0	0	0.0% (0.0-0.1%)

Operation



Primary surgery: cardio-vascular complications detail

					Operation		
			Gastric band	Roux en Y gastric bypass	Sleeve gastrectomy	OAGB / MGB	Duodenal switch
		None	40	18	1,857	51	1
		MI	0	0	0	0	0
		PE	0	1	5	0	0
	Counts	Stroke	0	0	0	0	0
		DVT	0	0	0	0	0
io		Dysrhythmia	1	2	36	1	0
cati		Cardiac arrest	0	0	0	0	0
ğ		Other	0	1	69	4	0
ο.		Unspecified	21	8	580	23	0
ular		All	62	29	2,534	78	1
Cardio-vascular complications		None	97.6%	85.7%	95.0%	92.7%	100.0%
. <u>ė</u>		MI	0.0%	0.0%	0.0%	0.0%	0.0%
.arc		PE	0.0%	4.8%	0.3%	0.0%	0.0%
	Rates	Stroke	0.0%	0.0%	0.0%	0.0%	0.0%
	rates	DVT	0.0%	0.0%	0.0%	0.0%	0.0%
		Dysrhythmia	2.4%	9.5%	1.8%	1.8%	0.0%
		Cardiac arrest	0.0%	0.0%	0.0%	0.0%	0.0%
		Other	0.0%	4.8%	3.5%	7.3%	0.0%

Analysis

Primary surgery: other complications detail

Other complications

				Operatio	n				
		Gastric band	Roux en Y gastric bypass	Sleeve gastrectomy	OAGB / MGB	Duodenal switch			
	None	39	19	1,815	49	1			
	Fluid / electrolyte problem	1	0	14	0	0			
	Acute cholecystitis / biliary colic	0	0	2	0	0			
	CBD stones / cholangitis	0	0	0	0	0			
	Gastric distention	0	0	1	0	0			
	Other abscess / infection / fever	0	0	10	0	0			
	Acute renal failure	0	0	0	0	0			
	Pneumonia / atelectasis	0	0	6	0	0			
	Rhabdomyolysis	0	0	0	0	0			
C	Urinary tract infection	0	0	0	0	0			
Counts	Vomiting / poor intake	2	2	63	1	0			
	Wound infection / breakdown	0	0	15	1	0			
	Unanticipated transfer to ITU	0	0	20	2	0			
	Respiratory tract infection	0	1	4	0	0			
	Leak	0	0	5	0	0			
	Bleeding	0	0	16	2	0			
	Portal vein thrombosis	0	0	1	0	0			
	Port site infection	0	0	10	0	0			
	Unspecified	20	7	578	23	0			
	All	62	29	2,534	78	1			
	None	92.9%	86.4%	92.8%	89.1%	100.0%			
	Fluid / electrolyte problem	2.4%	0.0%	0.7%	0.0%	0.0%			
	Acute cholecystitis / biliary colic	0.0%	0.0%	0.1%	0.0%	0.0%			
	CBD stones / cholangitis	0.0%	0.0%	0.0%	0.0%	0.0%			
	Gastric distention	0.0%	0.0%	0.1%	0.0%	0.0%			
	Other abscess / infection / fever	0.0%	0.0%	0.5%	0.0%	0.0%			
	Acute renal failure	0.0%	0.0%	0.0%	0.0%	0.0%			
	Pneumonia / atelectasis	0.0%	0.0%	0.3%	0.0%	0.0%			
Datas	Rhabdomyolysis	0.0%	0.0%	0.0%	0.0%	0.0%			
Rates	Urinary tract infection	0.0%	0.0%	0.0%	0.0%	0.0%			
	Vomiting / poor intake	4.8%	9.1%	3.2%	1.8%	0.0%			
	Wound infection / breakdown	0.0%	0.0%	0.8%	1.8%	0.0%			
	Unanticipated transfer to ITU	0.0%	0.0%	1.0%	3.6%	0.0%			
	Respiratory tract infection	0.0%	4.5%	0.2%	0.0%	0.0%			
	Leak	0.0%	0.0%	0.3%	0.0%	0.0%			
	Bleeding	0.0%	0.0%	0.8%	3.6%	0.0%			
	Portal vein thrombosis	0.0%	0.0%	0.1%	0.0%	0.0%			
	Port site infection	0.0%	0.0%	0.5%	0.0%	0.0%			

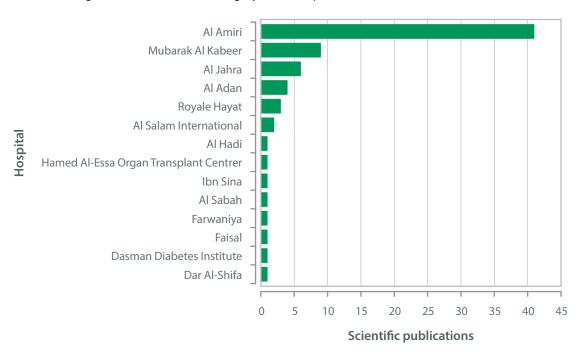


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Appendix

Publications

The following is a list of the bariatric surgery scientific publications from Kuwait.



Al Adan Hospital

- 1. Alasfar F, Chand B. Intraoperative endoscopy for laparoscopic Roux-en-Y gastric bypass: leak test and beyond. Surgical Laparoscopy Endoscopy & Percutaneous Techniques. 2010; 20(6): 424-427.
- 2. Alasfar F, Ben-Nakhi M, Khoursheed M, Kehinde EO, Alsaleh M. Selenium is significantly depleted among morbidly obese female patients seeking bariatric surgery. *Obesity Surgery*. 2011; **21(11)**: 1710-1703.
- 3. Al Shammari JO, Al-Shadidi N, Abdulsalam AJ, Al-Daihani AE. Gastric lipoma excision during a laproscopic sleeve gastrecomy: A case report. *International Journal of Surgery Case Reports*. 2016; 24: 128-130.
- **4.** Al Shammari NM, Alshammari AS, Alkandari MA, Abdulsalam AJ. Migration of an intragastric balloon: A case report. *International Journal of Surgery Case Reports.* 2016; **27**: 10-12.

Al Jahra Hospital

- 1. Saber AA, Shoar S, Khoursheed M. Intra-thoracic Sleeve Migration (ITSM): an Underreported Phenomenon After Laparoscopic Sleeve Gastrectomy. *Obesity Surgery*. 2017; **27(8)**: 1917-1923.
- Abd Ellatif ME, Abbas A, El Nakeeb A, Magdy A, Salama AF, Bashah MM, Dawoud I, Gamal MA, Sargsyan D.
 Management Options for Twisted Gastric Tube after Laparoscopic Sleeve Gastrectomy. *Obesity Surgery*. 2017; 27(9): 2404-2409.
- 3. Wahby M, Salama AF, Elezaby AF, Belgrami F, Abd Ellatif ME, El-Kaffas HF, Al-Katary M. Is routine postoperative gastrografin study needed after laparoscopic sleeve gastrectomy? Experience of 712 cases. *Obesity Surgery*. 2013; 23(11): 1711-1717.
- **4.** Abd Ellatif ME, Abdallah E, Askar W, Thabet W, Aboushady M, Abbas AE, El Hadidi A, Elezaby AF, Salama AF, Dawoud IE, Moatamed A, Wahby M. Long term predictors of success after laparoscopic sleeve gastrectomy. *International Journal of Surgery*. 2014; **12(5)**: 504-508.
- 5. Abd Ellatif ME, Alfalah H, Asker WA, El Nakeeb AE, Magdy A, Thabet W, Ghaith MA, Abdallah E, Shahin R, Shoma A, Dawoud IE, Abbas A, Salama AF, Ali Gamal M. Place of upper endoscopy before and after bariatric surgery: A multicenter experience with 3219 patients. *World Journal of Gastrointestinal Endoscopy.* 2016; 8(10): 409-417.
- **6.** Abdelhady MH, Salama AF, Karam M, Bashah M. Solid Organ Infections: Rare Complications After Laparoscopic Sleeve Gastrectomy: a Report of Four Cases. *Obesity Surgery*. 2017; **27(5)**: 1374-1380.

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Al Salam International and Al Hadi Hospitals

1. Al Jarallah M, Kassir R, El-Barbari M, Ali S, Debs T, Chouillard E. Three-Year Follow-Up of Laparoscopic Reduced Port Sleeve Gastrectomy in 808 Consecutive Patients. *Obesity Surgery*. 2017; **27(10)**: 2643-2648.

Al Salam International Hospital

1. Zikry AA, Desousa K, Alanezi KH. Carbon dioxide embolism during laparoscopic sleeve gastrectomy. *Journal of Anaesthesiology Clinical Pharmacology*. 2011; **27(2)**: 262-265.

Al Amiri Hospital

- 1. Al-Sabah S, Christou N. Intussusception after laparoscopic Roux-en-Y gastric bypass. *Surgery for Obesity and Related Diseases*. 2008; **4(2)**: 205–209.
- 2. Al-Sabah S, Ladouceur M, Christou N. Anastomotic leaks after bariatric surgery: it is the host response that matters. *Surgery for Obesity and Related Diseases*. 2008; **4(2)**: 152-157.
- **3.** Al-Sabah S, Christou N. Laparoscopic gastric bypass after cardiac transplantation. *Surgery for Obesity and Related Diseases.* 2008; **4(5)**: 668-670.
- **4.** Efthimiou E, Al-Sabah S, JS Sampalis JS, Christou N. Fibrin sealant associated with increased body temperature and leukocytosis after laparoscopic gastric bypass. *Surgery for Obesity and Related Diseases*. 2010; **6(1)**: 46-49.
- **5.** Almazeedi S, Al-Sabah S, Al-Mulla A, Al-Murad A, Al-Mossawi A, Al-Enezi K, Jumaa T, Bastaki W. Gastric histopathologies in patients undergoing laparoscopic sleeve gastrectomies. *Obesity Surgery*. 2013; **23(3)**: 314-319.
- **6.** Almazeedi S, Al-Sabah S, Al-Mulla A, Al-Murad A, Al-Mossawi A. The Efficacy of Laparoscopic Sleeve Gastrectomy in Adolescents. *Obesity Surgery*. 2013;
- 7. Al-Saeed O, Fahmy D, Kombar O, Hasan A. Sixty-four-slice multidetector computerized tomography in the evaluation of transmesenteric internal hernias following Roux-en-Y bariatric surgery. *Medical Principles and Practice*. 2013; 22: 2540-544.
- **8.** Alazmi W, Al-Sabah S, Ali DA, Almazeedi S. Treating sleeve gastrectomy leak with endoscopic stenting: the Kuwaiti experience and review of recent literature. *Surgical Endoscopy.* 2014; **28(12)**: 3425-3428.
- **9.** Almazeedi S, Al-Sabah S, Alshammari D. Routine trans-abdominal ultrasonography before laparoscopic sleeve gastrectomy: the findings. *Obesity Surgery*. 2014; **24(3)**: 397-399.
- 10. Al-Sabah S, Al-Mazeedi S, Alosaimi S, Al-Mulla A, Al-Mohammed D, Al-Elewah A, Algooneh A. Remission of Type 2 Diabetes Mellitus after Laparoscopic Sleeve Gastrectomy. World Journal of Laparoscopic Surgery. 2014; 7(3): 121-124.
- 11. Almazeedi S, Al-Sabah S, Alshammari D, Alqinai S, Al-Mulla A, Al-Murad A, Al-Enezi K, Jumaa T. The impact of Helicobacter pylori on the complications of laparoscopic sleeve gastrectomy. *Obesity Surgery*. 2014; 24(3): 412-415.
- **12.** Al Sharqawi N, Al Sabah S, Al Mulla A, Al Anezi K, Jumaa T. Conversional surgery: single-step conversion of laparoscopic adjustable gastric band to laparoscopic sleeve gastrectomy. *Obesity Surgery*. 2014; **24(10)**: 1808-1811.
- **13.** Al-Sabah SK, Almazeedi SM, Dashti SA, Al-Mulla AY, Ali DA, Jumaa TH. The efficacy of laparoscopic sleeve gastrectomy in treating adolescent obesity. *Obesity Surgery*. 2015; **25(1)**: 50-54.
- **14.** Algooneh A, Almazeedi S, Al-Sabah S, Ahmed M, Othman F. Non-alcoholic fatty liver disease resolution following sleeve gastrectomy. *Surgical Endoscopy*. 2016; **30(5)**: 1983-1987.
- **15.** AlSabah S, Alsharqawi N, Almulla A, Akrof S, Alenezi K, Buhaimed W, Al-Subaie S, Al Haddad M. Approach to Poor Weight Loss After Laparoscopic Sleeve Gastrectomy: Re-sleeve Vs. Gastric Bypass. *Obesity Surgery* . 2016; **26(10)**: 2302-2307.
- **16.** Chouillard E, Schoucair N, Alsabah S, Alkandari B, Montana L. Laparoscopic gastric plication (LGP) as an alternative to laparoscopic sleeve gastrectomy (LSG) in Patients with morbid obesity: A Preliminary, Short-Term, Case-Control Study. *Obesity Surgery*. 2016; **26(6)**:1167-1172.
- **17.** Al-Sabah S, Alsharqawi N, Al-Mulla A, Ekrouf S, Subaie S, et al. Laparoscopic Sleeve Gastrectomy in Patients Aged 55 and Older. *Advances in Obesity Weight Management & Control.* 2016; **4(1)**: 23-25.
- **18.** Chouillard E, Younan A, Alkandari M, Daher R, Dejonghe B, Alsabah S. Roux-en-Y fistulo-jejunostomy as a salvage procedure in patients with post-sleeve gastrectomy fistula: mid-term results. *Surgical Endoscopy*. 2016; **30(10)**: 4200-4204.
- **19.** Al Sabah S, Al Haddad E. Revisional bariatric surgery in a transplant patient. *International Journal of Surgery Case Reports*. 2017; **31**: 86-88.
- **20.** Almazeedi S, Alhaddad E, Al-Khithr T, Alhunaidi M. Incidental gastric accessory spleen during laparoscopic sleeve gastrectomy. *International Journal of Surgery Case Reports*. 2017; **36**:119-121.
- **21.** Al Sabah S, Al Haddad E, Siddique I. Endoscopic management of post-laparoscopic sleeve gastrectomy stenosis. *Surgical Endoscopy.* 2017; **31(9)**:3559-3563.
- **22.** Al-Sabah S, Akrouf S, Alhaddad M, Vaz JD. Management of gastroesophageal reflux disease and hiatal hernia post-sleeve gastrectomy: cardiopexy with ligamentum teres. *Surgery for Obesity and Related Diseases*. 2017; **13(12)**:2032-2036.



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- 23. Al-Subaie S, Al-Barjas H, Al-Sabah S, Al-Helal S, Alfakharani A, Termos S. Laparoscopic management of a small bowel obstruction secondary to Elipse intragastric balloon migration: A case report. *International Journal of Surgery Case Reports*. 2017; 41:287-291.
- **24.** Welbourn R, Hollyman M, Kinsman R, Dixon J, Liem R, Ottosson J, Ramos A, Våge V, Al-Sabah S, Brown W, Cohen R, Walton P, Himpens J. Bariatric Surgery Worldwide: Baseline Demographic Description and One-Year Outcomes from the Fourth IFSO Global Registry Report 2018. *Obesity Surgery*. 2018; **28(2)**: 313-322.
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Appendix

State of Kuwait Ministry of Health

First Kuwait National Bariatric Surgery Database Report 2019



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Kuwait national bariatric surgery guidelines

MINISTRY OF HEALTH

Minister Office





مكتب الوزير



قرار وزاري رقم ﴿ \ \) لسنة 2015

وزير السنة

- يحد الاطلاع على أحكام المرسومين بقانون وتطام القدمة المدنية وتحيلاتهما .
 - وعلى ثقانون رقم 1960/49 بشأن المؤسسات العلاجية .
- وعلى الدرسوم بقالون رقم 25 استة 1981 في شأن مزاولة مهنة الطب البشري والأستان والمهن المعاونة تهما .
 - وعلى القرار الوزاري رقم 387 اسلة 2004 بشان عشيات تعزيم المحة .
- وطني تقرير الثوثية الشكلة بموجب القرار الوزاري رقم 118 أسنة 2013 يتشكل تجنة قنية مؤقتة لدراسة جميع عمليات السمئة وتحديث المعايير والإشتراطات الواجب استيفاؤها لإجراء عبليات السمئة في القطاعين المكومي والأطني ووقف إجراء تلك العمليات لمدة ثلالة أشهر اعتبارا من تاريخ 2013/6/1 .
- وعلى تقرير التجنة المشكلة بموجب القرار الوزاري رقم 100 اسنة 2014 الصادر يتاريخ 3/4/10 يتشكل لجنة فنية مؤكلة لإعادة تقيم الأحكام الواردة بالقرار الوزاري رقم 210 اسنة 2013 بفسومي المعايير والاشتراطات الواجب استيفاؤها لإجراء عشيات السمئة في القطاعين الحكومي والأطني .
- وعلى القرار الوزاري رقم 210 استة 2013 يخصوص المعايير والاشتراطات الواجب استيفاؤها لإجراء عشيات السعلة في القطاعين المكومي والأطني .
- وطني القبار البوزاري رقم 226 استة 2014 الصنادر بشاريخ 2014/12/9 يشبأن تعديل المنادة الثانيسة من القبار البوزاري
 رقم 210 استة 2014 يفصوص المعايير والاشتراطات الواجب استيفاؤها لإجراء عنيات السنة في القطاعين المكومي والأطني .
 - ويناء على مقتضيات مصلحة الصل .

مادة أولى : يقمد بعمليات جراحة السمنة : العمليات المعتمدة عالمياً وفقاً لما يلي :

Table A:

Types of bariatric Surgical Procedures:

Primary:

- 1- Sleeve Gastrectomy.
- 2- Rou-enY Gastric Bypass.
- 3- Laparoscopic Adjustable Gastric Band (LAGB).
- 4- Mini Bypass.
- 5- Staged Restrictive and malabsorbative Procedure.
- 6- Banded Gastric Bypass

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Appendix



دولة الكويت

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وزارة الصحية

مكتب الوزير

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على أن تكون الحلقة المستخدمة في عملية تحويل المسار منتج معتمد من المنظمة العالمية الأوروبية FDA LE LE CE

Secondary:

- 1- Reversal of gastric Restriction.
- 2- Revision of Rou-enY Gastric Bypass.
- 3- Conversion of LAGB to other bariatric procedures.

ولا يجوز إجراء أنواع العمليات التي ما زالت تحت الدراسة مثل:

Table B:

Investigational:

- 1- Endoscopic (oral)- assisted techniques.
- 2- Gastric Pacer.
- 3- Vagus Nerve Pacing
- 4- Vagus Nerve Block.
- 5- Gastric Plication.

إلا بعد حصولها على اعتراف جهات عالمية مثل CE أو FDA ووفق شروط وزارة الصحة في الترخيص وأهلية الجراح المستخدم.

مادة ثانية :

تجرى العمليات الجرامية لعالم السمنة المرضية وفقا للشروط والخوابط التالية :

- 1- للمرضى اصحاب كتلة الجسم (BMI) من 30 35 في حالة وجود ظاهرة الايضية (ضغط - سكر - اضطراب دهونُ الدم) كما يمكن اجراء عمليات السمنة لنفس كتلة الجسم (30-35 كيلو جرام لكل متر مربع) لمرضي السكر أو ارتفاع ضغط الدم وذلك بعد استشارة
- 2- للمرضى أصحاب كتلة الجسم ١٠ وما فوق، فيمكن اجراء عملية السمنة بدون وجود مضاعفات
- 3- يجوز اجراء عملية حلقة المعدة (Gastric Band) للمرضى أصحاب كتلة الجسم من 30-35 اذا كان هذاك مضاعفات مصاحبة للسعنة أو كتلة جسم ٣٥ وما فوق اذا لم توجد مضاعفات مصاحبة للسعنة

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4- ويقصد بالمضاعفات المصاحبة للسمنة المشار إليها في هذا البند ما يلي :

Comorbidities Include:

- Coronary Artery Disease.
- Uncontrolld Type2 Diabetes Mellitus on medication. Uncontrolled
- Obstructive Sleep Apnea.
- Obesity-Hypoventilation Syndrome (OHS).
- Pickwickian Syndrome (A combination of OSA and OHS).
- Non- AlCoholic Fatty Liver Disease (NAFLD) / Nonalcoholic Steatohepatitis.
- Uncontrolld Hypertension on medication.
- Uncontrolld Dyslipidemia on medication.
- Pseudotumor Cerebri.
- Uncontrolld Gastroesophageal Reflux Disease (GERD) on medication.
- Uncontrolld Asthma on medication.
- Venous Stasis Disease.
- Severe Urinary Incontinence.
- Debilitating Arthritis.
- Infertility.

ويجوز إجراؤها لمن تتراوح أعمارهم بين ١٢ و ١٦ سنة مع كتلة الجسم ٣٥ وما فوق ، في حالة وجود مضاعفات شديدة مصاحبة للسمنة مثل :

- Moderate to severe Sleep Apnea.
- Type 2 Diabetes.
- Pesudotumor Cerebri.
- Severe NASH.

أو لمن مؤشر كتلتهم ١٠ فما فوق، مع وجود مضاعفات أقل شدة مثل:

- Hypertension.
- Insulin Resistance.
- Glucose Intolerance.
- Dyslipidemia.

وفي كلنا الحالتين يجب أخذ رأي طبيب أخصائي أطفال وأخصائي طب النفس للأطفال وأخصائي أمراض الغدد و أخصائي التغذية على أن يكون من أطباء وزارة الصحة وذلك قبل اجراء العملية .

Appendix



دولة الكويت

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هزارة الصحية

مكتب الوزير

6- بالنسبة للفقرة (Secondary) في المادة الأولى وهي :

- 1- Reversal of gastric Restriction
- 2- Revision of Rou-enY Gastric Bypass.
- 3- Conversion of LAGB to other bariatric procedures.

يكون بالإمكان اجراؤها دون الحاجة للرجوع الى مؤشر كتلة الجسم. 7- بالنسبة للبالون المعدي يجوز وضعه اذا كان مؤشر كتلة الجسم 27.5 وما فوق.

مادة ثالثة :

يشترط في الترغيص للأطباء لإجراء عمليات جراحة السمنة بعد العمل بعذا القرار ما يلي :

- 1- أن لا يقل المستوى الفني للطبيب عن اختصاصي أول جراحة عامة.
- الحصول على خبرة عملية موثقة في سجل كتابي ومعمد من أحد الاستشاريين بقسم الجراحة ذوى الخبرة في جراحة السمنة ورئيس القسم ومعتمدة من مجلس أقسام الجراحة .
- 3- وفي حالة أن يكون المستوى الفني لطبيب الجراحة العامة اختصاصي فإنه يجب أن يتم إجراء العملية تحت الاشراف الكامل من طبيب جراحة عامة بمستوى اختصاصي أول على الأقل.
- 4- مع عدم الاخلال فيما ورد بالبنود ١-2-3 وبالنسبة للأطباء في القطاع الطبي الأهلي سواء دوام كامل او فنة أطباء الدوام الجزني (Part Time) فإنه لا يحق للطبيب اجراء عمليات السعنة إلا بعد الحصول على كتاب معمد من رئيس قسم الجراحة بالمستشفى الذي يعمل به والاستشاري المسنول عنه
- 5- بالنسبة للأطباء غير الكويتيين فإنه يشترط أن يكون المستوى الفني للطبيب غير الكويتي لا يقل عن استشاري جراحة عامة مع وجود خبرة عملية لديه مصدقة ومعمدة من مجلس اقسام
- 6- بالنسبة للأطباء الزوار في القطاعين الحكومي والأهلي فإنه يجب قبل التصريح لهم بإجراء جراحات السمنة اعتماد مو هلاتهم وشهادات الخبرة لديهم من ادارة التراخيص الصحية .
- 7- يتم التخدير لعمليات السمنة بمعرفة فريق اطباء التخدير برئاسة طبيب تخدير لا يقل مستواه الفني عن طبيب اختصاصي أول ولديه الخبرة اللازمة للتعامل مع حالات عمليات المسفة والمضاعفات المصاحبة لها مع الالتزام بالضوابط والإرشادات الفنية والبروتوكولات الموضوعة من جانب مجلس اقسام التخدير لضمان سلامة المرضى.

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مكتب الوزير

مادة رابعة :

يشترط في جموع الأحوال قيام طبيب الجراحة العامة المصرح له بإجراء تلك العمليات بإعلام المريض أو (وليه القانوني) بمبررات إجراء العملية والقوائد المتوقعة والمضاعفات والمخاطر المترتبة بالعملية والتخدير وأن يثبت ذلك بالملف الطبي للمريض مع الحصول على الموافقة الكتابية المستنبرة من المريض أو (وليه القانوني) Written Informed Consent .

مادة خامسة :

لا يجوز إجراء عمليات السمنة إلا في المستشفيات الحكومية والأهلية المصرح لها ياجراء تلك العمليات وققا العمليات وققا العمليات وققا للعمليات وققا للعمليات وققا للعمليات وققا للقرار ويتم تحديث تلك القائمة دوريا كل سنة من جانب رئيس القسم وتعتمد من مدير المستشفى وترسل القائمة المجلس أقسام الجراحة وإدارة التراخيص الصحية.

مادة سادسة :

قيما يخص بالون المعدة ، لا يسمح بإجراء تلك العطيات إلا في المستشفيات الحكومية والأهلية والمراكز الطبية المرخص لها بإجراء عمليات اليوم الواحد ولا يسمح إجراؤها في العيادات الخاصة.

مادة سابعة :

يكون إدراج عمليات السمئة وتركيب بالون المعدة ضمن قائمة العمليات العادية غير العاجلة . Elective

مادة ثامنة :

بالإمكان إزالة بالون المعدة في أي وقت يراه الجراح مناسبا في حالة وجود المضاعفات.

مادة تاسعة :

تلتزم مستشفيات القطاع الطبي الأهلي المرخص لها بإجراء تلك العمليات بتوفير جهاز تصوير مقطعي مزود بمواصفات خاصة لتحمل أوزان المرضى بالسمنة المفرطة بالإضافة الى الأجهزة والإمكانيات الملازمة لتقديم الرعاية وإجراء القحوصات للمرضى المصابين بالسمنة المفرطة مثل: عربات النقل، طاولة العمليات الخاصة، الكراسي المتحركة، وتعطى تلك المستشفيات مهلة لا تزيد عن ثلاثة سنوات من تاريخ هذا القرار لاستكمال توفير المتطلبات.



دولة الكويت



وزارة الصحــة

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مادة عاشرة :

تلتزم المستشفيات الأهلية يارسال تلك الإحصائيات والبيقات عن عمليات جراحة السمنة التي اجريت الي إدارة التراخيص الصحية بصورة شهرية ، وتلتزم أقسام الجراحة العامة بالمستشفيات الحكومية والأهلية المرخص لها بإجراء تلك العمليات بأعداد السجلات اللازمة للمرضى ويدون بها تقييم الحالة المرضية وكتلة الجمم ومبررات اجراء تلك العمليات وخطوات وإجراءات القيام بها والأطباء القائمين على إجراء تلك العمليات مع تدوين تطور حالة المريض طوال فترة علاجه ومدى حدوث مضاعفات أو وفيات ذات صلة بتلك العمليات والرأي الفني لرئيس القسم ومدير المستشفى التي وقعت بها تلك المضاعفات أو الوفيات في حال حدوثها .

مادة هادي عشر أحكام عامة :

- الديجوز إجراء تلك العمليات في القطاع الأهلي قبل الساعة السابعة صباحاً، ولا بعد الساعة التاسعة مساءا.
- 2- عند حصول مضاعفات بسبب نتك العملية الجراحية للسمنة للمرضى في القطاع الطبي الأهلي قد تتطلب التحويل الى مستشفى حكومي ، فإنه يجب تزويد إدارة التراخيص الصحية والمستشفى الحكومي الذي يستقبل تلك الحالات بتقرير مفصل عن الحالة مرفق به تقرير كامل للعملية وتصوير للعملية عن طريق اسطوانة ممقنطة CD ويجوز استدعاء الطبيب المعالج الذي قام بإجراء تلك العملية لمنافشته في المستشفى الحكومي .
- 3- عد حدوث مضاعات تعدليات مرضى السعنة ، يلتزم الجراح من فئة الدوام الجزئي PART معالجة العريض في نفس المستشفى الذي أجريت فيه العملية الجراحية ، وفي حالة طلب العريض بنفسه معالجته في مستشفى حكومي فيتم تحويله الى نفس المستشفى الذي يعمل فيها هذا الطبيب في الفترة الصباحية لضمان متابعته الشخصية لحالته بغض النظر عن عنوان سكن العريض في البطاقة العدنية ما لم يطلب العريض بنفسه علاجه في المستشفى التابع لسكنه الخاص .
- 4- لضمان مستوى جودة الخدمة والجراحة الأمنة لمرضى السمنة ، تلتزم أقسام الجراحة العامة في المستشفيات الحكومية بتزويد مجلس أقسام الجراحة بأسماء الأطباء الجراحين المتمتعين بالخبرة في جراحة السمنة حاليا وتزويد إدارة التراخيص الصحية بنسخة منها ، كما تلتزم المستشفيات الأهلية بتزويد إدارة التراخيص بأسماء الأطباء الجراحين المتمتعين بالخبرة في جراحة السمنة حاليا والذين يعملون بنظام الدوام الكامل من داخل أو خارج المستشفى .
- والتزم الأطباء المرخص لهم باجراء جراحات المنمئة باتباع السياسات والتوصيات والبروتوكولات المعتمدة عالميا ويما لا يتعارض مع هذا القرار.



دولة الكويت

MINISTRY OF HEALTH

Minister Office



وزارة الصحـــة

مكتب الوزير

مادة ثانية عشر أحكام عامة :

يئتزم الأطباء المخاطبين بأحكام هذا القرار والمستشفيات الحكومية والأهلية التي تجرى فيها عمليات جراحة السمنة وتركيب بالون المعدة بتطبيق أحكام هذا القرار ويتحمل المسؤولية القانونية كل من يخالف أحكامه ، وعلى مجلس أفسام الجراحة وإدارة التراخيص الصحية متابعة تنفيذ ما جاء بهذا القرار .

مادة ثالثة عشر:

تشكل لجنة بمعرفة مجلس اقسام الجراحة من اطباء استشاريين في جراحة السمنة تكون مهمتها النظر فيما يحال اليها من حالات استثنائية تعتبر خارج نطاق هذا القرار وتقرير ما تراه مناسبا بعد بحث كل حالة على حده .

مادة رابعة عشر :

يبلغ هذا القرار لمن يلزم لتنفيذه ويعمل به من تاريخه وينشر بالجريدة الرسمية .

د . على سعد العبيدي

AL-

First Kuwait National Bariatric Surgery Database Report 2019



Appendi

IFSO Kuwait Chapter Members

- Mohammed Abdelhady
- Emad Abdelsayed
- Samir **Abdulaziz**
- Mustafa Ahmad
- Mohammad Al-Aimi
- Husain Al-Dokhi
- Khaled Al-Enizi
- Ibrahim Al-Gabalawi
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- Salman Al-Sabah
- Ali Al-Sayed
- Khalid Al-Sharaf
- Saud Al-Subaie
- Mohammad Al-Sulaimy
- Aliaa Al-Thubaib

- Amr Al-Zeki
- Ashraf Ali
- Sami Aman
- Waleed Bastaki
- Waleed Bu Haimed
- Farida Dashti
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- Mohammad Elian
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- Essam Lashie
- Waleed Mandani
- Fouad Mohamad
- Ehab Mohammad
- Mohammed Riyad
- Ehab Saad
- Fareed Abdul Salam
- Wafik Shehata
- Basil Sumait
- Abdulaziz Thalaab
- Ahmad Zayed



State of Kuwait Ministry of HealthFirst Kuwait National Bariatric Surgery Database Report 2019

Database form

	Basi	c demograpl	hic data		
		aseline data refe		the pa	atient when they were originally
Unique patient identifier					
Date of birth			dd/mm/yyyy		
Gender	0	Male		0	Female
	Regi	istry data			
	Initia	al information	1		
Hospital			select from the list		
Height			cm		
Initial weight			kg		
Date of initial weight			dd/mm/yyyy		
Funding category	0	Government Self-pay		0	Equipment paid by patient Other
Other funding category					
Source of referral	0 0 0	GP Bariatric clinic Orthopedist Gynecologist		0 0	Endocrinologist
Other source of referral					
Home phone number					
Mobile phone number					





		onal Bariatr on; Page 2; V)			
Unique patient identifier									
Date of operation			dd/	mm/yy	уу				
	Base	eline comorbio	dity						
Endoscopy	0	No		0	Yes				
Esophagitis	0 0	No 1 - A		0	2 - B 3 - C		0	4 - D Non-ero	sive
Stomach		Bleeding			Gastritis			Ulcer	
Duodenum		Bleeding			Ulcer			Duoden	itis
H pylori infection	0	No		0	Yes				
H pylori infection treated	0	No		0	Yes				
Abdominal ultrasound	0	No		0	Yes				
Abdominal ultrasound result	0 🗆 🗆	Normal Mild steatosis Moderate steat	osis		Severe steato Cirrhosis Cholecystitis	sis		Other	
CT scans	0	No		0	Yes				
Details of CT scans									
Liver disease	0 0 0	No indication of Severe steatosis Mild steatosis		disease	0	Cirrhosis Fatty liver	=		
Back or leg pain	0	No	0	Yes					
ASA grade	0	ASA I	0	ASA II	0	ASA III		O F	ASA IV
Type 2 diabetes	00000000	No diabetes No indication of Impaired glyca Oral hypoglyca Insulin treatme OAD+insulin tr Not investigate Unknown	emia (emics nt eatme	or impai		lerance			
HbA1c	0 0	No Yes			0	Not inves	tiga	ted	
HbA1c value									
Duration of type 2 diabetes	0 0 0	<1 year 1 year 2 years	0 0	3 years 4 years 5 years	0	6 years 7 years 8 years		O 1	years 10 years >10 year:
Hypertension	0	No hypertension Treated hypert		1	0	Untreated Not inves			n



Unique patient identifier				
Date of operation		dd/mm/yyyy		
	Base	eline comorbidity continued		
Lipids	0	No indication of dyslipidaemia Dyslipidaemia	0	Other
Other lipids		Бузприменты		Other
Functional status	0 0 0 0	Can climb 3 flights of stairs without re Can climb 1 flight of stairs without res Can climb half a flight of stairs withou Requires wheelchair/housebound Walking	ting	
Diagnosed sleep apnea	0	No O Yes	0	Not investigated
Sleep apnea treatment	0	None CPAP		BiPAP
Known risk factors for pulmonary embolus	0	No known risk factor History or risk factor for DVT/PE Obesity/hypoventilation syndrome Not assist		Venous oedema with ulceration Vena cava filter
GERD	0 0	No symptoms Intermittent symptoms; no medicatio Daily medication (H2RA/PPI)	o n O	Intermittent medication Previous anti-reflux operation
Type of previous anti-reflux operation				
Poly-cystic ovarian syndrome	0 0	No indication / diagnosis; no medication Diagnosis of PCOS; no medication PCOS on medication	on O	Infertility
Menstrual	0 0	Regular menstrual cycle Irregular / infrequent periods Menorrhagia	0 0	Amenorrhea Previous hysterectomy Post-menopausal
Depression	0	No indication of depression	0	Depression on medication
Smoking	0 0 0	Never smoked Ex-smoker Occasionally Up to 20 cigarettes per day	0 0	More than 20 cigarettes per day Hookahs Other
Other smoking				
Weight loss drugs or devices used before surgery	0	None Liraglutide Orlistat Sibutramine		Balloon
Other weight loss drugs or devices used before surgery				

Appendix







Unique patient identifier		
Date of operation	dd/mm/yyyy	
	Operation record	
Weight just before operation	kg	
ate of most weight just before operation	dd/mm/yyyy	
Operating surgeon	select from the list	
Assistant surgeon	select from the list	
Surgical assistant	NoneGeneral surgeonResidentOR nurse	OR technician Bariatric surgeon Other
Type of operation	PrimaryPlanned second stage	RevisionBalloon
Operative approach	Laparoscopic Laparoscopic converted to open	Open Endoscopic
Reason for laparoscopic converted to open		
Reason for open		
Reason for endoscopic		
Operation	Roux en Y gastric bypassBilio-pancreatic diversionDuodenal switchSleeve gastrectomy	O Gastric band O Gastric balloon O Mini-gastric bypass O Other
Details of other operations		
Prior operation type	 Gastric balloon placement or removal Roux en Y gastric bypass Gastric band Bilio-pancreatic diversion Duodenal switch Sleeve gastrectomy Vertical banded gastroplasty Duodenal switch with sleeve Revisional gastric band surgery 	 Gastric plication Sleeve plus loop Transit bipartition Mini-gastric bypass Ileal transposition Jejunoileal bypass Other
Details of other prior operations		



Unique patient identifier	section; Page 5; Version 1.0 (1	
Date of operation	dd/mm/yy	уу
	Gastric band	
Gastric band	 Allergan AP small Allergan AP large SAGB (Quickclose) SAGB (Velocity) AMI MID Heliogast 	O Bioring (Cousin) O Minimizer Extra O BioEnterics O Inamed Large O Inamed Small O Fobi band O Other
Dissection	O Pars flaccida	O Peri-gastric
Gastro-gastric tunneling sutures	O No	O Yes
Additional procedures	○ None□ Cholecystectomy□ Hernia repair	☐ Liver biopsy☐ Other
Other additional procedure		
Hernia repair	☐ Umbilical ☐ Ventral	☐ Incisional☐ Hiatus hernia
Any complications	O No	O Yes
Drain placement	O No	O Yes







Unique patient identifier		on ; Page 6; Version 1.0 (1 Nov 2	•	
Date of operation		dd/mm/yyyy		
	Com	aplications for gastric band		
Date of complication		dd/mm/yyyy		
Complication		Bleeding Slippage Infection		Perforation Other
Details of other complication				
Probable source of bleeding		Gl tract Intra-abdominal		Other
Treatment of bleeding	0	None Blood transfusion	0	Surgical Endoscopic
Details of other source of bleeding				
Any re-operation		No Band slippage; re-positioned	0	Yes
Re-operation performed		Band removed		Attention to port/tubing
Approach for re-operation	0	Laparoscopic Laparoscopic converted to open	0	Open Endoscopic
Endoscopic approach		Stent placement Dilation/septotomy		Parenteral nutrition



dd/mm/yyyy c band g or technical band problem nce Bleeding Pouch or oesophageal dilatatio Weight regain Migration Other Other
g or technical band problem nce Bleeding Pouch or oesophageal dilatatio Weight regain Migration Other Other
nce Bleeding Pouch or oesophageal dilatatio Weight regain Migration Other Other
d O Band removed + RYGB O Band removed + LSG
O Yes
al in Kuwait
mall O Bioring (Cousin) arge Minimizer Extra close) BioEnterics y) Inamed Large Inamed Small Fobi band Other
O Peri-gastric
O Yes
omy Liver biopsy Other
☐ Incisional ☐ Hiatus hernia
Yes
O Yes
mare lo







Unique patient identifier						
Date of operation			dd/	mm/yyyy		
	Rou	x-en-Y bypass				
Gastric pouch	0	Vertical lesser of Horizontal pou				
Banded gastric bypass	0	No			0	Yes
Energy source system	0	LigaSure Harmonic	0	UltaCision Thunderbeat	0	EnSeal Other
Details of other energy source system						
Clips size of energy system	0	2 mm	0	5 mm	0	7 mm 0 10 mm
Stapler brand	0	All Medtronic			0	Johnson & Johnson
Linear stapler for gastric pouch		Green (2.0 mm Gold (1.8 mm) Blue (1.5 mm) Tan (Tri Stapler Black TRS (Tri St Purple TRS (Tri White Stapler) tapler)			GST Black GST Green GST White GST Blue GST Gold Purple (Tri Stapler) Black (Tri Stapler)
Number of green (2.0 mm) staplers						
Number of gold (1.8 mm) staplers						
Number of blue (1.5 mm) staplers						
Number of tan (Tri) staplers						
Number of black TRS (Tri) staplers						
Number of purple TRS (Tri) staplers						
Number of white staplers						
Number of GST black staplers						
Number of GST green staplers						
Number of GST white staplers						
Number of GST blue staplers						
Number of GST gold staplers						
Number of purple (Tri) staplers						



Unique patient identifier							
Date of operation	dd/mm/yyyy						
	Rou	x-en-Y bypass contin	ued .				
Roux-en-Y reinforcement	0	None Seamguard Peristrips		Biodesign SLR Tisseel fibrin g			
Details of other reinforcement							
Type of suturing	0	Prolene	0	Caprofyl	С	Other	
Other type of suturing							
Gastric pouch jejunostomy	0	Circular stapler	0	Linear stapler	C		
Bilio-pancreatic limb length	0	< 50 cm 51 - 100 cm	0			> 200 cm	
Alimentary-pancreatic limb length	0	< 50 cm 51 - 100 cm	0	101 - 150 cm 151 - 200 cm	С	> 200 cm	
Jejuno-jejunostomy	0	Triple linear stapler Double linear stapler		0	Single linear Hand sewn	r stapler	
Stapler used (jejuno-jejunostomy)	0	Blue (1.5 mm)		0	White (1.0 n	nm)	
Route of Roux limb	0	Ante-colic/ante-gastri Retro-colic/ante-gastr		0	Retro-colic/ Other	retro-gastric	
Closure of hernia defects	0	None Petersen's space			Jejuno-jejur Mesocolon	nostomy	
Additional procedures	0	None Cholecystectomy Hernia repair			Liver biopsy Other	,	
Other additional procedure							
Hernia repair		Umbilical Ventral			Incisional Hiatus herni	ia	
Any complications	0	No		0	Yes		
Drain placement	0	No		0	Yes		







Unique patient identifier				
Date of operation		dd/mm/yyyy		
	Complic	ations for Roux-en-Y gastric by	pass	
Date of complication		dd/mm/yyyy		
Complication	☐ Le	ak 🔲 Bleeding		Obstruction
Details of other complication				
Leak location	O Jej	strojejunostomy unojenostomy stric remnant	0	His angle Other
Details of other leak location				
Probable source of bleeding	☐ GI tract☐ Intra-abdominal			Other
Treatment of bleeding		one ood transfusion	0	Surgical Endoscopic
Details of other source of bleeding			0	
Any re-operation	O No			Yes
Re-operation performed	Re-fashioning anastomosis Gastrostomy Attention to bleeding area Enteral feeding			Hernia repair Laparoscopy Drain replacement Other
Details of other re-operation				
Approach for re-operation				Open Endoscopic
Endoscopic approach		ent placement ation/septotomy		Parenteral nutrition



Unique patient identifier					
Date of operation		dd/mm/yyyy			
	Sleeve gastrect	comy			
Energy source system	LigaSureHarmonic	UltaCisionThunderbeat	0	EnSeal Other	
Details of other energy source system					
Clips size of energy system	O 2 mm	O 5 mm	0	7 mm O	10 mm
Stapler brand	O All O Medtronic		0	Johnson & Johnson	
Linear stapler for sleeve	Green (2.0 r Gold (1.8 m Blue (1.5 mr Tan (Tri Star Black TRS (T Purple TRS (White Stapl	m) m) pler) fri Stapler) (Tri Stapler)		GST Green GST White GST Blue GST Gold Purple (Tri Stapler)	
Number of green (2.0 mm) staplers					
Number of gold (1.8 mm) staplers					
Number of blue (1.5 mm) staplers					
Number of tan (Tri) staplers					
Number of black TRS (Tri) staplers					
Number of purple TRS (Tri) staplers					
Number of white staplers					
Number of GST black staplers					
Number of GST green staplers					
Number of GST white staplers					
Number of GST blue staplers					
Number of GST gold staplers					
Number of purple (Tri) staplers					
Type of stapler	O 45 mm		0	60 mm	







Unique patient identifier								
Date of operation		do	l/n	mm/yyyy				
	Sleeve	e gastrectomy c	on	tinued				
Sleeve reinforcement	☐ Se	None Seamguard Peristrips Suturing				Epiplonpexy Clips Other		
Details of other reinforcement								
Type of suturing	O Pr	Prolene ()	Caprofyl	0	Other		
Other type of suturing								
Bougie used	_			34 Fr 36 Fr	0	38 Fr 40 Fr	0	42 Fr Other
Details of other bougie size		Fr						
Additional procedures		lone Cholecystectomy Hernia repair				Liver biopsy Other		
Other additional procedure								
Hernia repair		Jmbilical /entral				Incisional Hiatus hernia		
Any complications		10			0	Yes		
Drain placement	O N	10			0	Yes		



Unique patient identifier		
Date of operation	dd/mm/yyyy	
	Complications for sleeve gastrectomy	
Date of complication	dd/mm/yyyy	
Complication	☐ Bleeding ☐ Staple line leak	Other
Details of other complication		
Probable source of bleeding	☐ Gl tract☐ Intra-abdominal	☐ Other
Treatment of bleeding	None Blood transfusion	SurgicalEndoscopic
Details of other source of bleeding		
Any re-operation	O No	O Yes
Re-operation performed	GastrostomyAttention to bleeding areaHernia repairLaparoscopy	Drain replacementRepair gastric line stapleOther
Details of other re-operation		
Approach for re-operation	Laparoscopic Laparoscopic converted to open	Open Endoscopic
Endoscopic approach	☐ Stent placement ☐ Dilation/septotomy	☐ Parenteral nutrition

State of Kuwait Ministry of Health





Unique patient identifier							
Date of operation			dd/	mm/yyyy			
	Duc	odenal switch	l				
	0	LigaSure	0	UltaCision	0	EnSeal	
Energy source system	0	Harmonic	0	Thunderbeat	0	Other	
Details of other energy source system							
Clips size of energy system	0	2 mm	0	5 mm	0	7 mm O	10 mm
Stapler brand	0	All Medtronic			0	Johnson & Johnson	
Linear stapler for sleeve		Blue (1.5 mm) Tan (Tri Staplei Black TRS (Tri S Purple TRS (Tri) tapler			GST Black GST Green GST White GST Blue GST Gold Purple (Tri Stapler) Black (Tri Stapler)	
Number of green (2.0 mm) staplers							
Number of gold (1.8 mm) staplers							
Number of blue (1.5 mm) staplers							
Number of tan (Tri) staplers							
Number of black TRS (Tri) staplers							
Number of purple TRS (Tri) staplers							
Number of white staplers							
Number of GST black staplers Number of GST green staplers							
Number of GST white staplers							
Number of GST blue staplers							
Number of GST gold staplers							
Number of purple (Tri) staplers							
Reinforcement	0	None Seamguard Peristrips Biodesign SLR				Duet TRS Tisseel fibrin glue Suturing Other	
Details of other reinforcement							



	ectio	on; Page 15; Version 1.0 (1 No	ov 2018)	
Unique patient identifier					
Date of operation		dd/mm/yyyy			
	Duo	denal switch continued			
	0	None 32 Fr	0		
Bougie used	0	34 Fr 36 Fr	0	42 Fr Other	
Details of other bougie size		Fr			
Duodeno-ileal anastomosis	0	Circular stapler			
Duodeno-near anastomosis	0	Linear stapler	0	Hand sewn	
lleo-ileal anastomosis	0	Triple linear stapler Double linear stapler	0	Single linear stapler Hand sewn	
BPD/DS common channel limb length	0	75 cm O 100 cm	0	125 cm	
BPD / DS alimentary channel limb length	0	100 cm 0 150 cm	0	200 cm O 250 c	m
Closure of hernia defects	0	Not done Duodeno-ileostomy defect		lleo-ileostomy defect	
Additional procedures	0	None Cholecystectomy		Liver biopsy	
Additional procedures		Hernia repair			
Other additional procedure					
Hernia repair		Umbilical Ventral		Incisional Hiatus hernia	
Any complications	0	No	0	Yes	





Unique patient identifier		
Date of operation	dd/mm/yyyy	
	Complications for duodenal switch ope	erations
Date of complication	dd/mm/yyyy	
Complication	☐ Leak ☐ Bleeding	Obstruction Other
Details of other complication Leak location	O Gastrojejunostomy O Jejunojenostomy	O His angle
	O Gastric remnant	Other
Details of other leak location		
Probable source of bleeding	☐ Gl tract ☐ Intra-abdominal	Other
Treatment of bleeding	None Blood transfusion	O Surgical O Endoscopic
Details of other source of bleeding		
Any re-operation	O No	O Yes
Re-operation performed	Attention to port/tubing Re-fashioning anastomosis Enteral feeding Hernia repair	☐ Laparoscopy ☐ Drain replacement ☐ Other
Details of other re-operation		
Approach for re-operation	Laparoscopic Laparoscopic converted to open	Open Endoscopic
Endoscopic approach	☐ Stent placement ☐ Dilation/septotomy	☐ Parenteral nutrition



Unique patient identifier							
Date of operation			dd/	mm/yyyy			
·	BPD			,,,,			
Energy source system	0	LigaSure Harmonic	0		0	EnSeal Other	
Details of other energy source system							
Clips size of energy system	0	2 mm	0	5 mm	0	7 mm) 10 mm
Stapler brand	0	All Medtronic			0	Johnson & Johnsor	n .
Gastric transection stapler		Green (2.0 mm Gold (1.8 mm) Blue (1.5 mm) Tan (Tri Stapler Black TRS (Tri S Purple TRS (Tri White Stapler) tapler			GST Black GST Green GST White GST Blue GST Gold Purple (Tri Stapler) Black (Tri Stapler)	
Number of green (2.0 mm) staplers							
Number of gold (1.8 mm) staplers							
Number of blue (1.5 mm) staplers							
Number of tan (Tri) staplers							
Number of black TRS (Tri) staplers							
Number of purple TRS (Tri) staplers							
Number of white staplers							
Number of GST black staplers							
Number of GST green staplers							
Number of GST white staplers							
Number of GST blue staplers							
Number of GST gold staplers							
Number of purple (Tri) staplers							
Reinforcement	0	None Seamguard Peristrips Biodesign SLR				Duet TRS Tisseel fibrin glue Suturing Other	
Details of other reinforcement							







Unique patient identifier				
Date of operation		dd/mm/yyyy		
	BPD	continued		
Gastric resection done?	0	No	0	Yes
Gastro-ileal anastomosis	0	Circular stapler Linear stapler	0	Hand sewn
lleo-ileostomy	0	Triple linear stapler Double linear stapler	0	Single linear stapler Hand sewn
Stapler used		Green (2.0 mm) Gold (1.8 mm) Blue (1.5 mm) Tan (Tri Stapler) Black TRS (Tri Stapler) Purple TRS (Tri Stapler) White Stapler	0	GST Black GST Green GST White GST Blue GST Gold Purple (Tri Stapler) Black (Tri Stapler)
BPD common channel limb length	0	75 cm O 100 cm	0	125 cm O Other
BPD alimentary channel limb length	0	100 cm O 150 cm	0	200 cm O 250 cm
BPD route of alimentary limb	0	Ante-colic	0	Retro-colic
How mesenteric defects closed	0	Not closed Gastro-ileostomy defect	0	lleo-ileostomy defect
Additional procedures	0	None Cholecystectomy Hernia repair		Liver biopsy Other
Other additional procedure				
Hernia repair		Umbilical Ventral		Incisional Hiatus hernia
Any complications	0	No	0	Yes



Unique patient identifier					
Date of operation			dd/mm/yyyy		
	Com	plications for E	BPD .		
Date of complication			dd/mm/yyyy		
Complication		Leak	Bleeding		Obstruction
Details of other complication					
Leak location	0 0 0	Gastrojejunosto Jejunojenosto Gastric remnar	my		His angle Other
Details of other leak location					
Probable source of bleeding		Gl tract Intra-abdomin	al		Other
Treatment of bleeding	0	None Blood transfus	on	0	Surgical Endoscopic
Details of other source of bleeding					
Any re-operation	0	No		0	Yes
Re-operation performed		Re-fashioning Attention to bl Enteral feeding Hernia repair	eeding area		Laparoscopy Drain replacement Other
Details of other re-operation					
Approach for re-operation	0	Laparoscopic Laparoscopic o	converted to open	0	Open Endoscopic
Endoscopic approach		Stent placeme Dilation/septo			Parenteral nutrition





Unique patient identifier							
Date of operation			dd/	mm/yyyy			
	Mini	i-gastric bypa	S				
Energy source system	0	LigaSure Harmonic	0	UltaCision Thunderbeat	0	EnSeal Other	
Details of other energy source system							
Clips size of energy system	0	2 mm	0	5 mm	0	7 mm O	10 mm
Stapler brand	0	All Medtronic			0	Johnson & Johnson	
Gastric pouch	0	Transection at	ncisu	ra	0	Transection beyond	incisura
Linear stapler for gastric pouch		Green (2.0 mm Gold (1.8 mm) Blue (1.5 mm) Tan (Tri Stapler Black TRS (Tri St Purple TRS (Tri White Stapler	apler)			GST Black GST Green GST White GST Blue GST Gold Purple (Tri Stapler) Black (Tri Stapler)	
Number of green (2.0 mm) staplers							
Number of gold (1.8 mm) staplers							
Number of blue (1.5 mm) staplers							
Number of tan (Tri) staplers							
Number of black TRS (Tri) staplers							
Number of purple TRS (Tri) staplers							
Number of white staplers							
Number of GST black staplers							
Number of GST green staplers							
Number of GST white staplers							
Number of GST blue staplers							
Number of GST gold staplers Number of purple (Tri) staplers							
Number of purple (III) staplets							



Unique patient identifier		
Date of operation	dd/mm/yyyy	
	Mini-gastric bypass continued	
Reinforcement	O None □ Seamguard □ Peristrips □ Biodesign SLR	□ Duet TRS□ Tisseel fibrin glue□ Suturing□ Other
Details of other reinforcement		
Gastric pouch jejunostomy	Circular staplerLinear stapler	O Hand sewn
Gastric pouch jejunostomy loop length	cm	
Stapler used for gastric pouch jejunostomy	Green (2.0 mm) Gold (1.8 mm) Blue (1.5 mm) Tan (Tri Stapler) Black TRS (Tri Stapler) Purple TRS (Tri Stapler) White Stapler	GST Black GST Green GST White GST Blue GST Gold Purple (Tri Stapler) Black (Tri Stapler)
Route of loop GJ	Ante-colic/ante-gastricAnte-colic/retrogastric	Retro-colic/ante-gastricRetro-colic/retrogastric
Additional procedures	○ None□ Cholecystectomy□ Hernia repair	☐ Liver biopsy☐ Other
Other additional procedure		
Hernia repair	Umbilical Ventral	☐ Incisional ☐ Hiatus hernia
Leak test	O Not done O Methylene blue	Under water air sealEndoscopic air seal
Leak result	O No leak	O Leak
Drains	O No drain O Tube drain	Penrose drainSuction drain
Blood loss	O Minimal O Up to 50 cc	50 to 100 ccMore than 100 cc
Histopathology	O None O Stomach	Liver biopsyOther
Any complications	O No	O Yes

State of Kuwait Ministry of Health





Unique patient identifier				
Date of operation		dd/mm/yyyy		
Date Constitution	Complications for n			
Date of complication Complication	Leak	dd/mm/yyyy Bleeding		Obstruction
Details of other complication	LCuk			Obstruction
Leak location	Gastrojejunosto Jejunojenostor Gastric remnar	my	0	His angle Other
Details of other leak location				
Probable source of bleeding	☐ Gl tract☐ Intra-abdomin.	al		Other
Treatment of bleeding	O None O Blood transfusi	on	0	Surgical Endoscopic
Details of other source of bleeding				
Any re-operation	O No		0	Yes
Re-operation performed	Band slippage; Band removed Attention to po Re-fashioning; Gastrostomy Attention to bl	ort/tubing anastomosis		Enteral feeding Hernia repair Laparoscopy Drain replacement Repair gastric line staple Other
Details of other re-operation				
Approach for re-operation	O Laparoscopic O Laparoscopic c	onverted to open	0	Open Endoscopic
Endoscopic approach	☐ Stent placeme☐ Dilation/septc			Parenteral nutrition
Powered by				



Unique patient identifier					
Date of operation			dd/mm/yyyy		
	Gas	tric halloon nl	acement or remo	val	
Time of anosthesia	0	None	uccine di Temo	0	
Type of anesthesia	0	Conscious sed	ation	0	General anaesthesia
Location of gastric balloon operation	0	Hospital		0	Outpatient clinic
Gastric balloon	0	Obalon ReShape dual l	balloon	0	ORBERA intragastric balloon
Number of balloons	0	1	O 2	0	3
Date first balloon was placed			dd/mm/yyyy		
Date second balloon was placed			dd/mm/yyyy		
Date third balloon was placed			dd/mm/yyyy		
Fill volume	0 0 0	250 cc 500 ml 550 ml 600 ml		0 0	650 ml 700 ml Other
Other fill volume			ml		
Methylene blue	0	No		0	
Has this balloon been removed yet? Date of removal	0	No	dd/mm/yyyy	0	Yes
Any complications	0	No	uu/IIIII/yyyy	0	Yes







Unique patient identifier				
Date of operation		dd/mm/yyyy		
	Complications for o	gastric balloons		
Date of complication		dd/mm/yyyy		
Complication	☐ Leak	☐ Bleeding		Obstruction
Details of other complication	O Controlling			
Leak location	O Gastrojejunost O Jejunojenosto O Gastric remnar	my	0	9
Details of other leak location				
Probable source of bleeding	☐ GI tract☐ Intra-abdomin	al		Other
Treatment of bleeding	O None O Blood transfus	ion	0	Surgical Endoscopic
Details of other source of bleeding				
Any re-operation	O No		0	Yes
Re-operation performed	Re-fashioning Attention to b Enteral feeding Hernia repair	leeding area		Laparoscopy Drain replacement Other
Details of other re-operation				
Approach for re-operation	LaparoscopicLaparoscopic	converted to open	0	Open Endoscopic
Endoscopic approach	☐ Stent placeme☐ Dilation/septo			Parenteral nutrition
Powered by				



Date of operation	dd/mm/yyyy	
	Post-operative complications and d	lischarge
Cardio-vascular complications	O None MI PE Ctrole	□ DVT □ Dysrhythmia □ Cardiac arrest □ Other
Other cardiovascular	Stroke	U Otner
Other Cardiovascular	O None	UTI/uninary tract infection
Other complications	Fluid/electrolyte problems Acute cholecystitis/biliary colic CBD stones/cholangitis Gastric distention Other abscess/infection/fever Acute renal failure Pneumonia/atelectasis	 □ Vomiting / poor intake □ Wound infection / breakdow □ Unanticipated transfer to ITU □ Respiratory tract infection □ Leak □ Bleeding □ Portal vein thrombosis
District the second	Rhabdomyolysis	Port site infection
Bleeding surgery	Required surgery	O Not required surgery
Leak treatment procedure	□ Laparoscopic drainage□ Percutaneous drainage□ Stent	☐ Used pigtail☐ Surgery
Leak surgery	Total gastrectomyFistulated jejunostomy	Other
Other leak surgery		
Patient status at discharge	O Alive	O Dead
Date of discharge (or in-hospital death)	dd/mm/yyyy	
Discharged to	O Home O Another hospital	Other
Reason to transfer to another hospital		
Details of other discharge destination		
Cause of death	Cardiac Leak Bleed	O Pneumonia O Other







Unique patient identifier		
Date of follow up	dd/m	m/yyyy
	Follow up data	
	Follow up visit	
Patient status today	O Alive	O Dead
Cause of death		
Patient hospitalization in 30 days following discharge	O No O Yes	
Reason for hospitalization		
Weight at follow up	kg	
How was the patient followed up	O Hospital clinic O Other clinic O Other in person; phone Did not attend follow u	
Who did follow up	O Bariatric surgeon O Bariatric physician O Specialist nurse/dietic	O Endocrinologist O Other
Details of the other person who did the follow up		
CT scans in follow up	O No	O Yes
CT scans details in follow up		
Vitamins/minerals supplement	O No O Yes	 No recommendation made
Follow-up endoscopy	O No	O Yes
Esophagitis	O No O 1 - A	O 2-B O 4-D O Non-erosive
Stomach	☐ Bleeding	☐ Gastritis ☐ Ulcer
Duodenum	☐ Bleeding	☐ Ulcer
Abdominal ultrasound	O No	O Yes
Abdominal ultrasound result	○ Normal □ Mild steatosis □ Moderate steatosis	Severe steatosis Cholecystitis Cirrhosis Other
Other abdominal ultrasound		



	section, rage 27,	Version 1.0 (1 Nov 2018	, ,
Unique patient identifier]	
Date of follow up		dd/mm/yyyy	
	Follow up visit co		
New complications	O None Leak		Gastric stricture
	☐ Bowel obstruc	tion	Other
Other new complication			
Treatment of new complication	☐ Conservative ☐ Endoscopic		Surgical







Unique patient identifier Date of follow up		dd/mm/yyyy		
		v up comorbidity		
Clinical evidence of malnutrition Type 2 diabetes	0 1	No diabetes mpaired glycaemia or impaired gluco: Dral hypoglycaemics nsulin treatment DAD+insulin treatment	o o se to o	Yes No indication of type 2 diabetes lerance Not investigated Unknown
HbA1c	_	No Yes	0	Not investigated
HbA1c value Duration of type 2 diabetes	0 1	<1 year	000	6 years
Hypertension		No hypertension Freated hypertension	0	Untreated hypertension Not investigated
Lipids		No indication of dyslipidaemia Dyslipidaemia	0	Other
Other lipids				
Diagnosed sleep apnea		No Yes	0	Not investigated
Sleep apnea treatment	0 1	None CPAP		BiPAP
Functional status	0 0	Can climb 3 flights of stairs without res Can climb 1 flight of stairs without rest Can climb half a flight of stairs without Requires wheelchair / housebound	ing	ng
GERD	0 I	No symptoms ntermittent symptoms; no medicatior ntermittent medication Daily medication (H2RA/PPI)	0	Previous anti-reflux operation
Type of previous anti-reflux operation				
Back or leg pain	0 1	No	0	Yes
	0 1	No	0	Yes



State of Kuwait Ministry of HealthFirst Kuwait National Bariatric Surgery Database Report 2019

Unique patient identifier			
Date of follow up	dd/mm/yyyy		
	Follow up comorbidity continued		
Poly-cystic ovarian syndrome	No indication/diagnosis; no medicationDiagnosis of PCOS; no medicationPCOS on medication	ion O	Infertility
Menstrual	Regular menstrual cycleIrregular / infrequent periodsMenorrhagia	0	Previous hysterectomy
Depression	O No indication of depression	0	Depression on medication

First National Bariatric Surgery Database Report 2019

I congratulate the State of Kuwait for their foresight in developing a National Bariatric Surgery Registry and for publishing this First Report. I believe that this is an essential step in evaluating bariatric surgery locally and will assist in our understanding globally

John Dixon

Head Clinical Obesity Research, Baker Heart and Diabetes Institute Melbourne, Australia

To registry means to exist, to prove that you are real. In the case of IFSO it will reveal our real soul, our differences. Just with this real-world data we will be able to convince our peers about the benefit of what we really believe: we can transform lives, to the better.

Almino Ramos

IFSO President 2018-2019

Achieving a milestone not to be celebrated, Kuwait finds herself as having one of the highest prevalence of obesity in the world. In addition, Kuwait ranks first for the number of bariatric/metabolic procedures performed as a percentage of her population. In essence, the disease and the treatment could overwhelm the ability and resources to control it. Therefore, to maintain control of the situation, a wide range of data must be collected, stored in a national database, and analyzed. The just released Kuwaiti First National Bariatric Surgery Database Report was prepared to provide a full accounting of the practice of bariatric/metabolic surgery throughout Kuwait. As with many other Dendrite national Registries, this report captures a wide range of data from all of the government hospitals where bariatric and metabolic surgery is being performed. The collected and configured data should be invaluable for understanding the current status and trends and enable the leaders to prepare best for the future.

Scott Shikora

Professor of Surgery Harvard Medical School Director, Center for Metabolic and Bariatric Surgery, Brigham and Women's Hospital Boston, Massachusetts, USA

I would like to congratulate the Ministry of Health in Kuwait for sponsoring a national registry for bariatric surgery for all their public hospitals. If we look at the United States, United Kingdom, German and Scandinavian models, a national registry was one of the reasons for improving quality of care in Bariatric surgery. A national registry allows for identification of areas that need improvement and over time can make bariatric & metabolic surgery safer. This step from the Ministry of Health shows their commitment to patient safety and quality of care delivered.

Abdelrahman Nimeri

President IFSO - Middle East North Africa Chapter
Chairman IFSO Communication Committee 2016-2019



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