

State of Kuwait Ministry of Health



First Kuwait National Bariatric Surgery Database Report

2019

Prepared by

Salman Al Sabah MD MBA FRCSC FACS

on behalf of the State of Kuwait
Ministry of Health

Peter Walton MBA FRCP
Robin Kinsman BSc PhD

Dendrite Clinical Systems

State of Kuwait Ministry of Health



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Ministry of Health

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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State of Kuwait Ministry of Health
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

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-oesophageal 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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President of the Kuwait Association of Surgeons

President of the Gulf Obesity Surgery Society

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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



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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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 worldwide¹. 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% group². 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 oil³.

One of the greatest mitigating factors in recent times that sky-rocketed the spread of obesity was the Iraqi invasion of Kuwait³. After which, there was a significant increased trend in the establishment and multiplicity of fast food restaurants in Kuwait³. 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 Kuwait³. 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 diabetes³.

There are many contributing factors to this fast-evolving challenge of obesity¹. Perhaps the single most important one is that lifestyles everywhere are changing and are doing so rapidly¹. Life in general is becoming more sedentary, and even the work environment is requiring people to be less physically active and less mobile¹. 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 home¹. This comes at a time when the market is flooded with a wide range of industrially processed foods that are not always appropriate or balanced¹. 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 expenditure¹.

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 conditions¹. In the last decade, home delivery of foods has been revolutionized in Kuwait⁴. Through the development of smartphone applications, ordering a high caloric meal with none to minimal movement has become possible through the click of a button⁴! 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 diabetes³. 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 care¹.

Chronic metabolic disorders are complex diseases that need ongoing care and management⁵. 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 diseases⁶.

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 mortalities⁷. Some of the complications of uncontrolled diabetes include diabetic retinopathy, diabetic neuropathy, diabetic nephropathy, microvascular events like cardiovascular diseases and diabetic foot ulcers and amputations⁸. 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 years⁹. 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^{10,11}. 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 Gastrectomy¹⁹. 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 accurately²⁵.

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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Contributors to the Kuwait National Bariatric Surgery Registry

Al Adan Hospital

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| • Haitham Al-Khayyat | • Ala Groof | |

Al Amiri Hospital

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| • Bader Al-Bader | • Ahmed Al-Mulla | • Ali Dashti |
| • Waleed Al-Bastaki | • Ahmad Al-Murad | • Abdelghany Eissa |
| • Ashraf Al-Fakhrani | • Asmaa Al-Rashed | • Shehab Groof |
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| • Ahmad Al-Mousawi | • Maurice Maher | |

Al Sabah Hospital

- | |
|-----------------------------|
| • Mubarak Al-Kandari |
|-----------------------------|

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
Age / years				
<16	4	20	0	24
16-20	106	286	3	395
21-25	111	334	2	447
26-30	99	283	2	384
31-35	123	316	4	443
36-40	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

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.



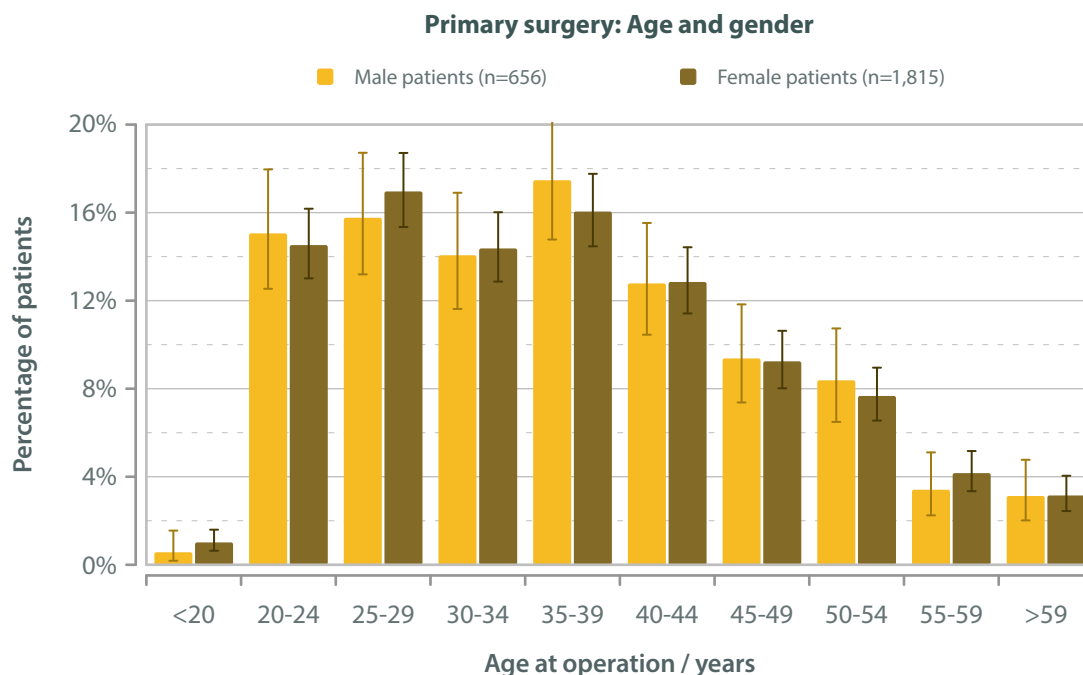
Conventions used in graphs

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*¹. 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 intervals². 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 sub-groups 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.





Data analysis

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

Hospital	Count	
	Al Adan Hospital	290
	Al Amiri Hospital	1,056
	Al Jahra Hospital	410
	Al Sabah Hospital	566
	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

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

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

Analysis

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

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 Sabah 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.

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.

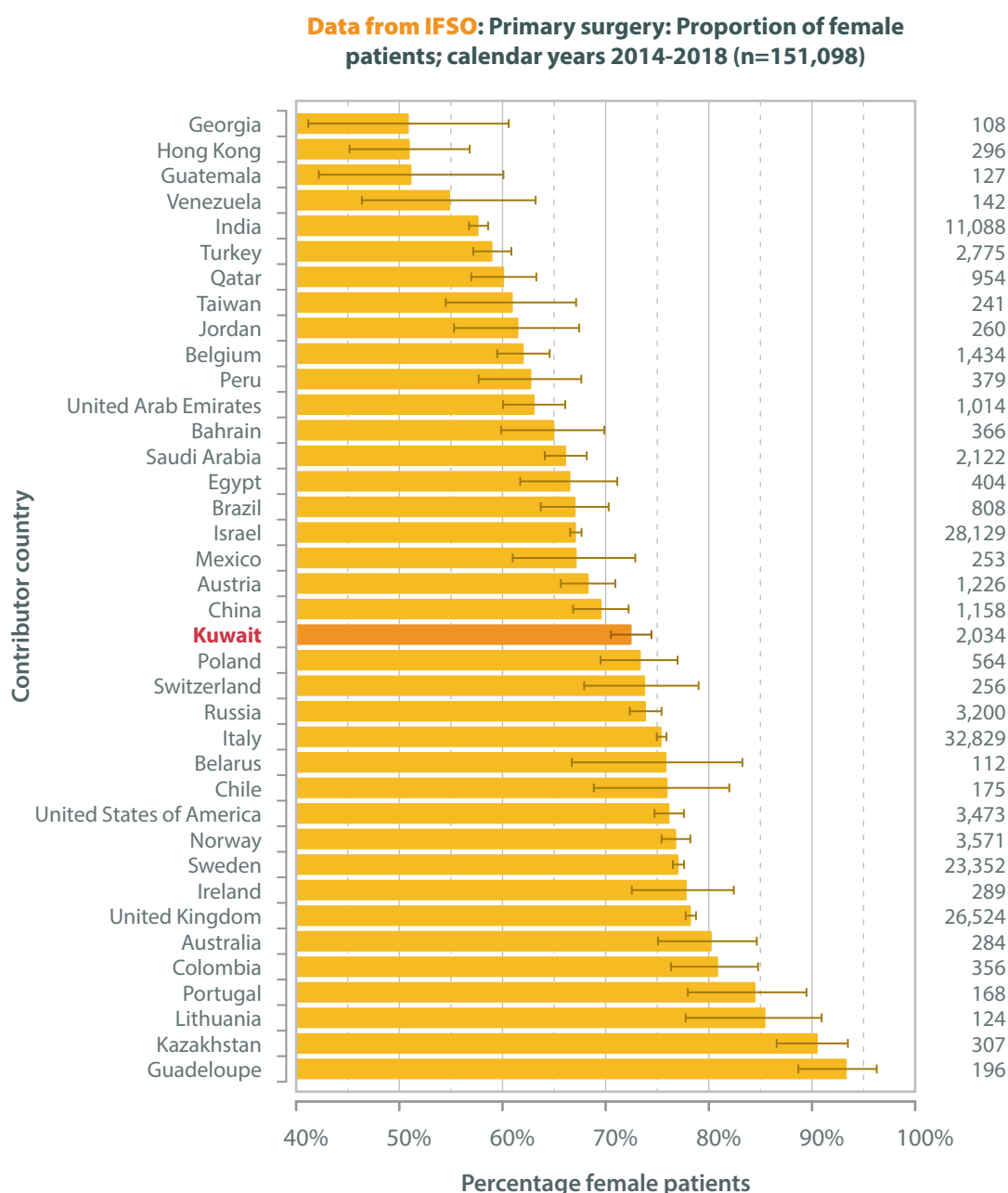
Primary surgery: patient's gender

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



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:



Age

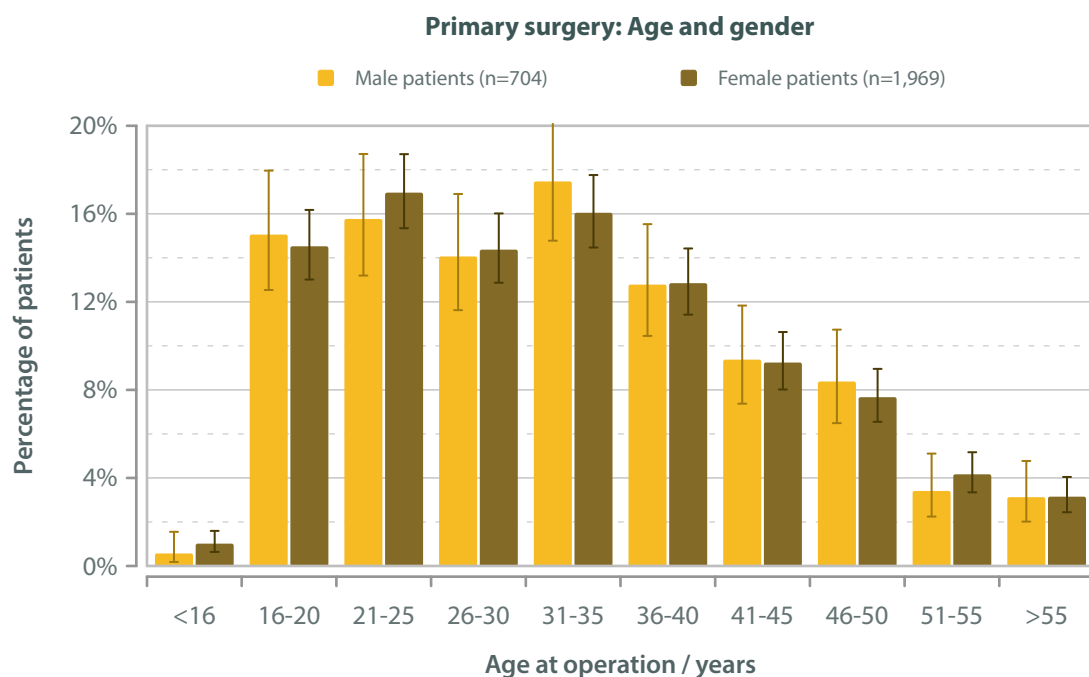
Data from the Kuwait National Bariatric Surgery Registry

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

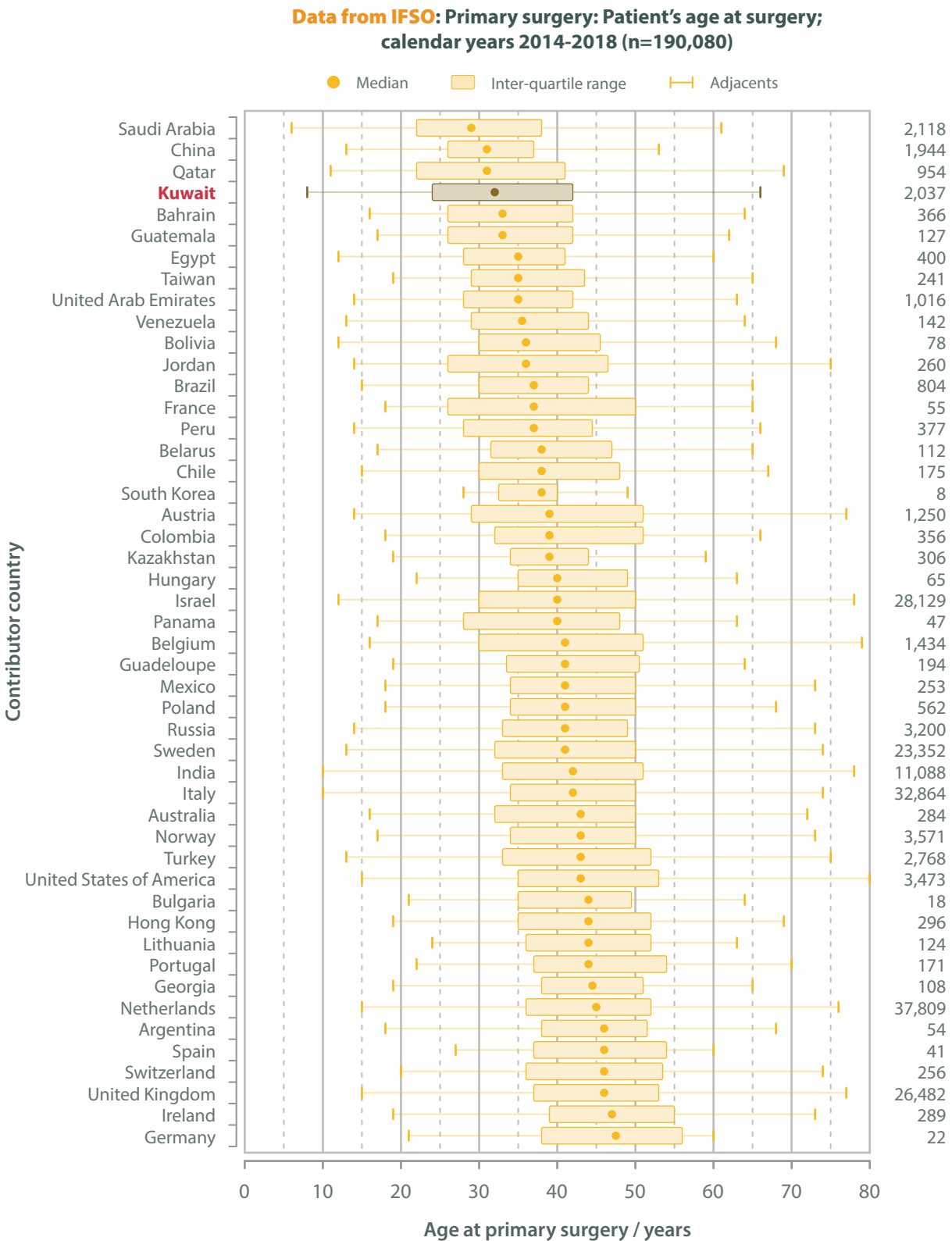
	Gender			
	Male	Female	Unspecified	All
<16	4	20	0	24
16-20	106	286	3	395
21-25	111	334	2	447
26-30	99	283	2	384
31-35	123	316	4	443
36-40	90	253	3	346
41-45	66	182	2	250
46-50	59	151	2	212
51-55	24	82	1	107
>55	22	62	1	85
Unspecified	4	7	0	11
All	708	1,976	20	2,704





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.



Initial weight

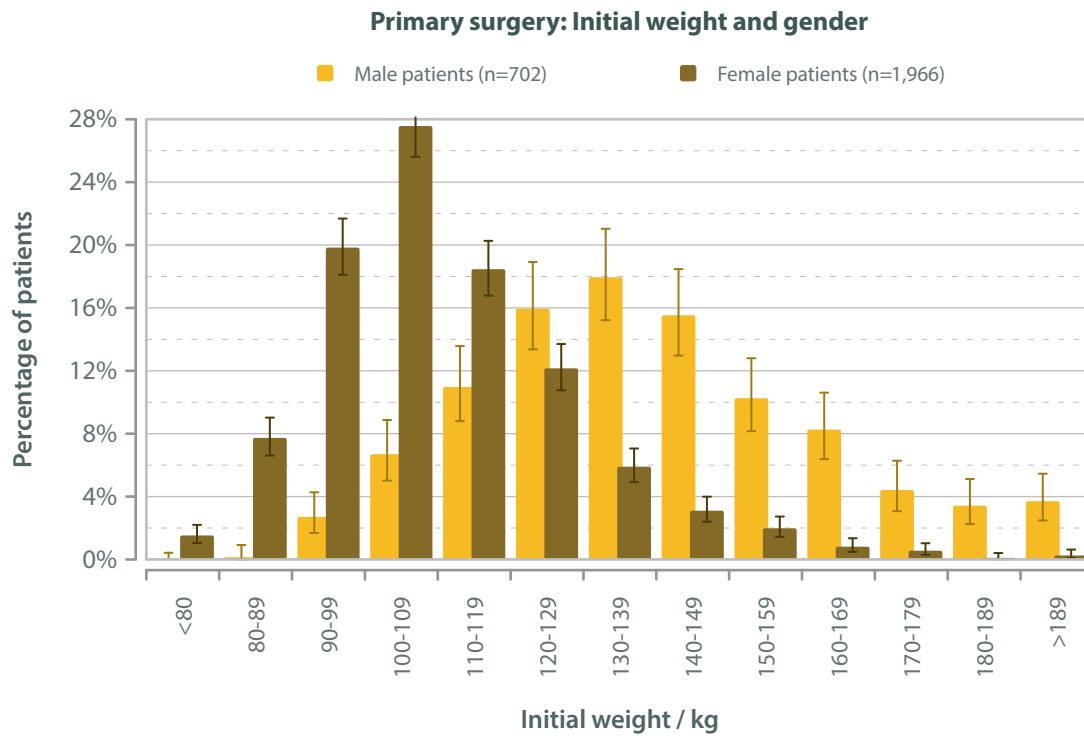
The table below and the graph on the opposite page show the distribution of patients' weight in 10 kg bands, split according to the patient's gender. As might be expected, the average presenting weight for men is much higher than that reported for women (average for male patients = 139.3 kg; average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

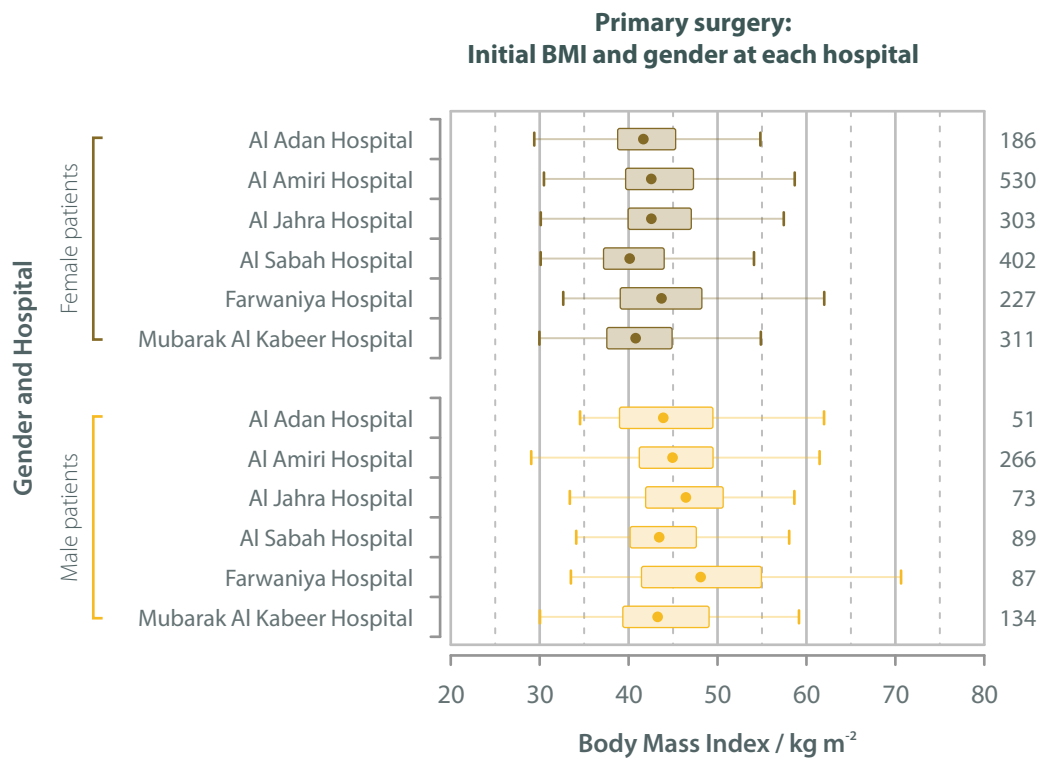
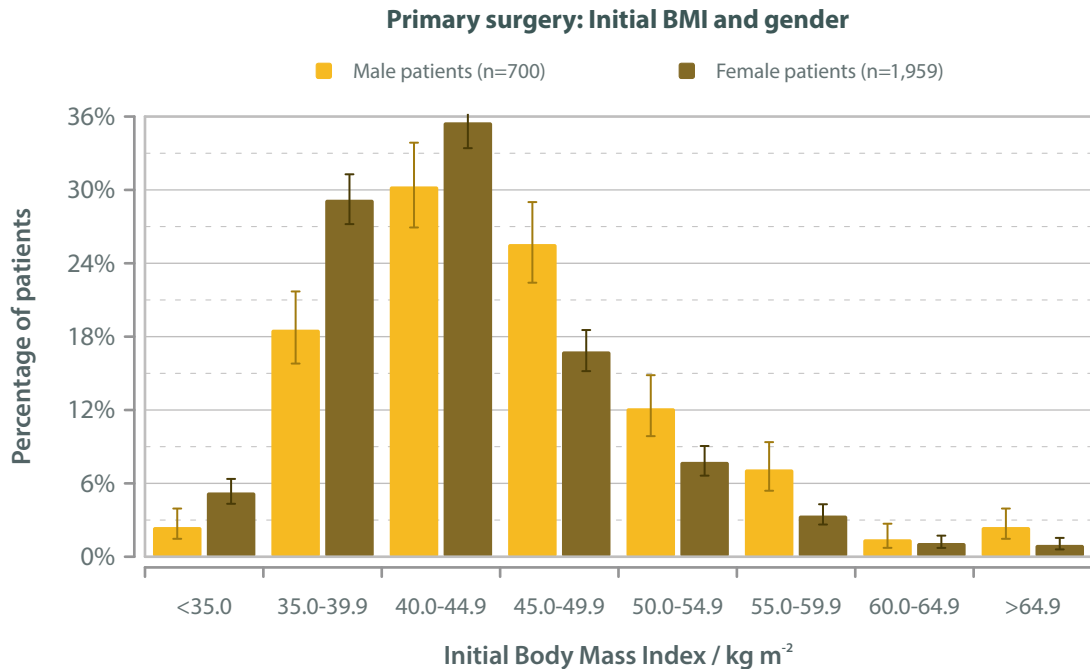


Body mass index

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.

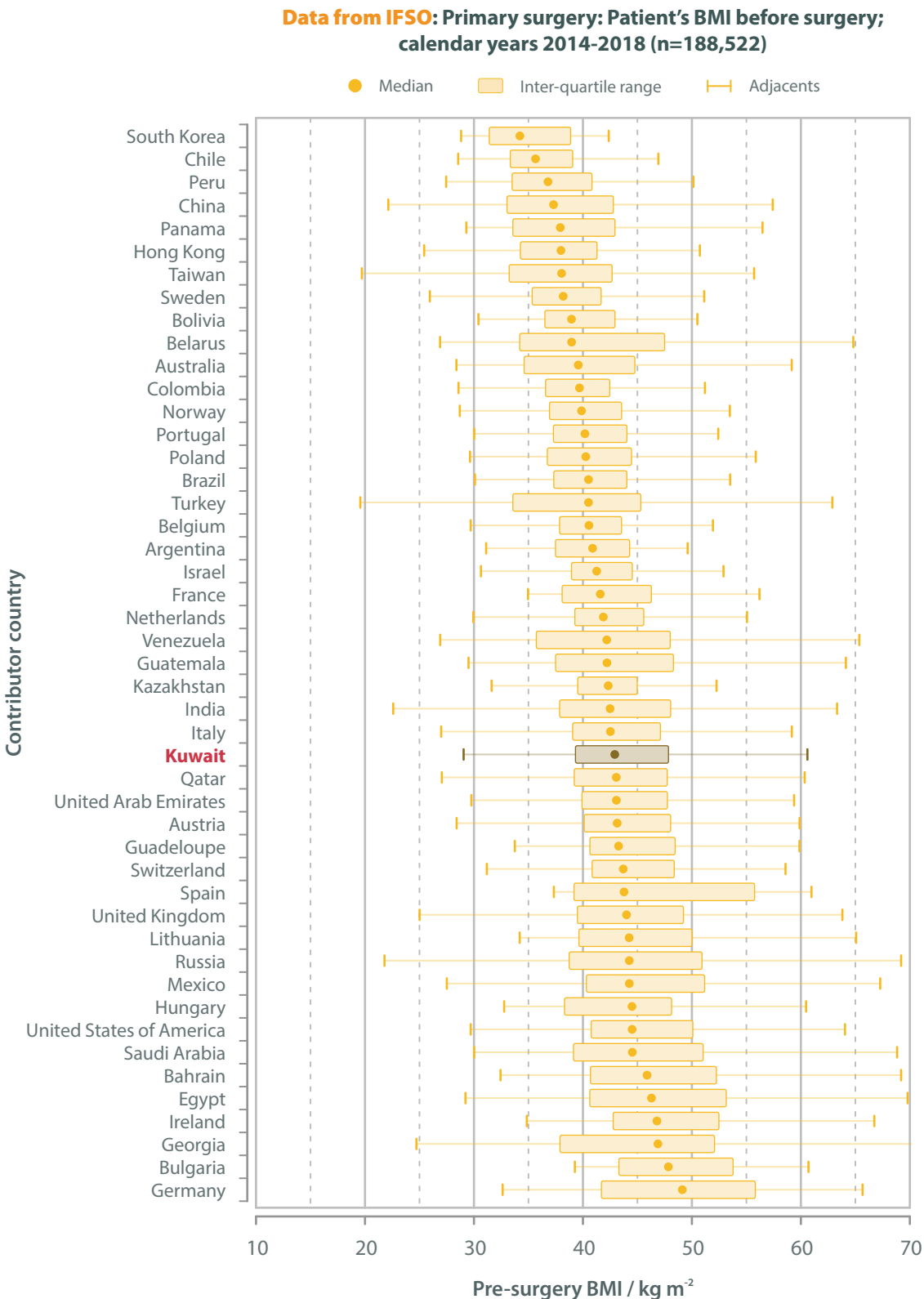
Analysis





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.



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 DVT or PE.
 - ii. Venous oedema with ulceration.
 - iii. Vena cava filter.
 - iv. Obesity| hypoventilation syndrome.

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.

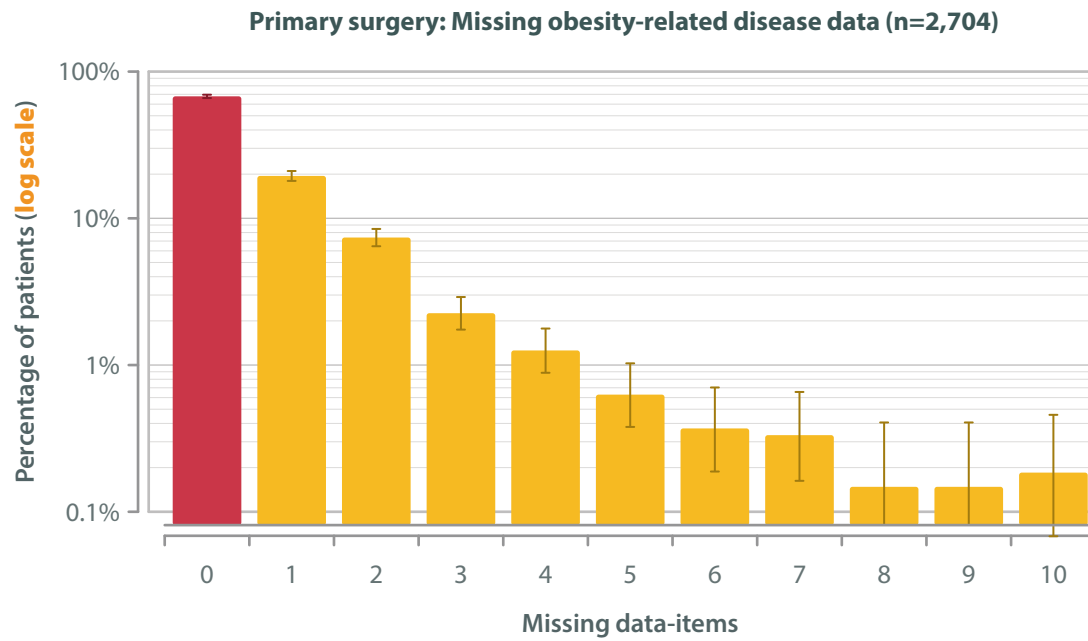
In the future data from private sector hospitals will be included in this project, as a large volume of bariatric surgery procedures are known to be performed in the private sector.

Primary surgery: missing data on obesity-related disease

		Male	Female	Unspecified	All
Number of missing obesity-related disease data-items	Counts				
	0	491	1,341	2	1,834
	1	143	381	2	526
	2	40	159	1	200
	3	19	42	0	61
	4	5	25	4	34
	5	3	11	3	17
	6	3	7	0	10
	7	1	6	2	9
	8	2	2	0	4
	9	0	2	2	4
	10	1	0	4	5
	All	708	1,976	20	2,704
Percentages	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%
	3	2.7%	2.1%	0.0%	2.3%
	4	0.7%	1.3%	20.0%	1.3%
	5	0.4%	0.6%	15.0%	0.6%
	6	0.4%	0.4%	0.0%	0.4%
	7	0.1%	0.3%	10.0%	0.3%
	8	0.3%	0.1%	0.0%	0.1%
	9	0.0%	0.1%	10.0%	0.1%
	10	0.1%	0.0%	20.0%	0.2%



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

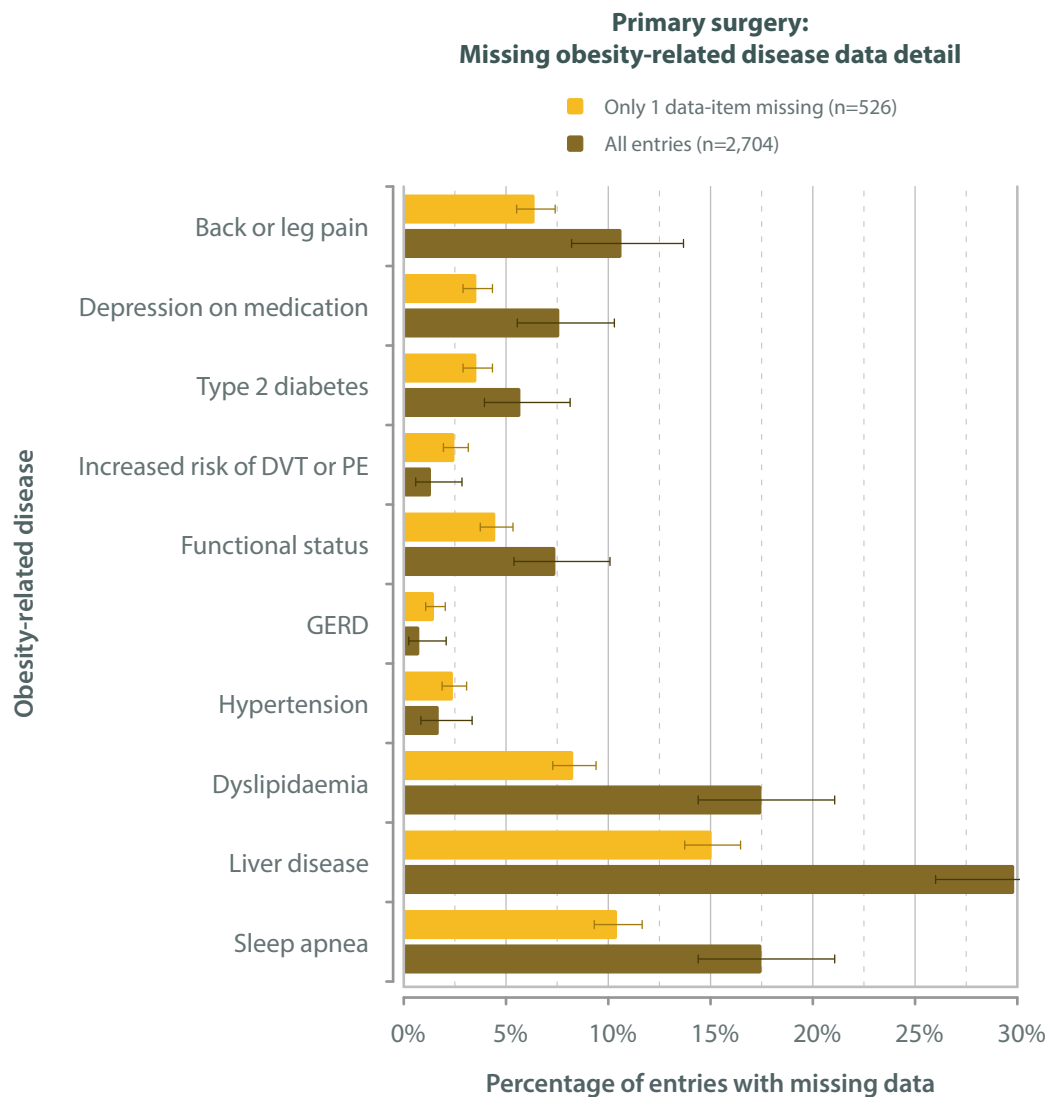


Analysis

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.





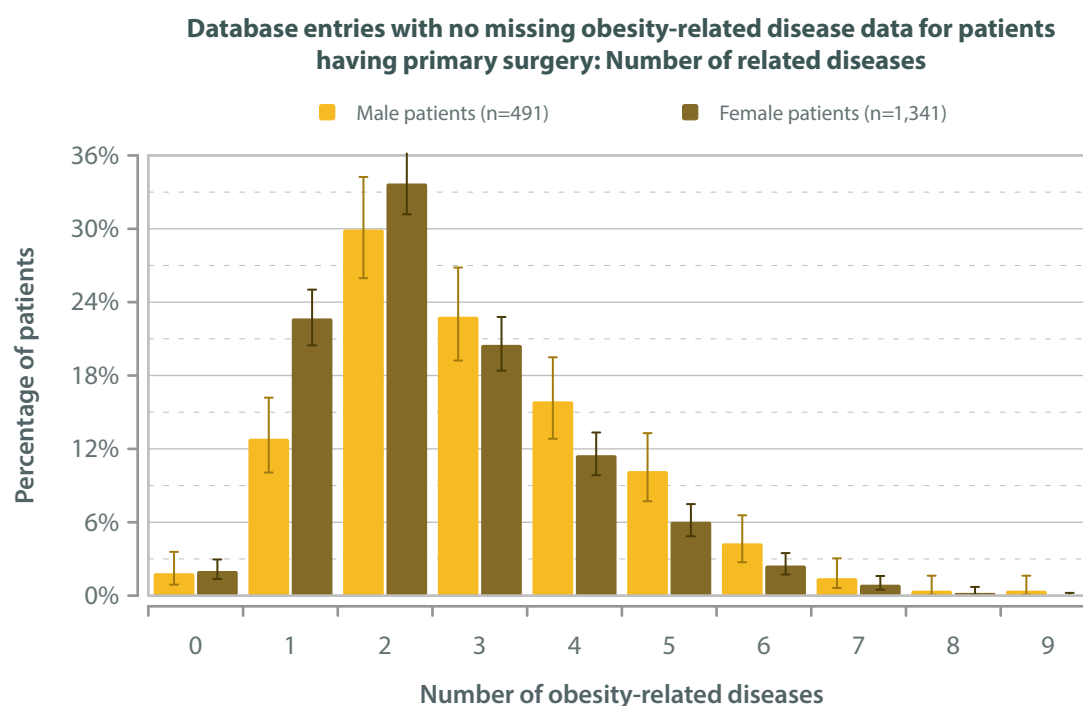
Number of obesity-related diseases

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
2	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



Obesity related disease overview

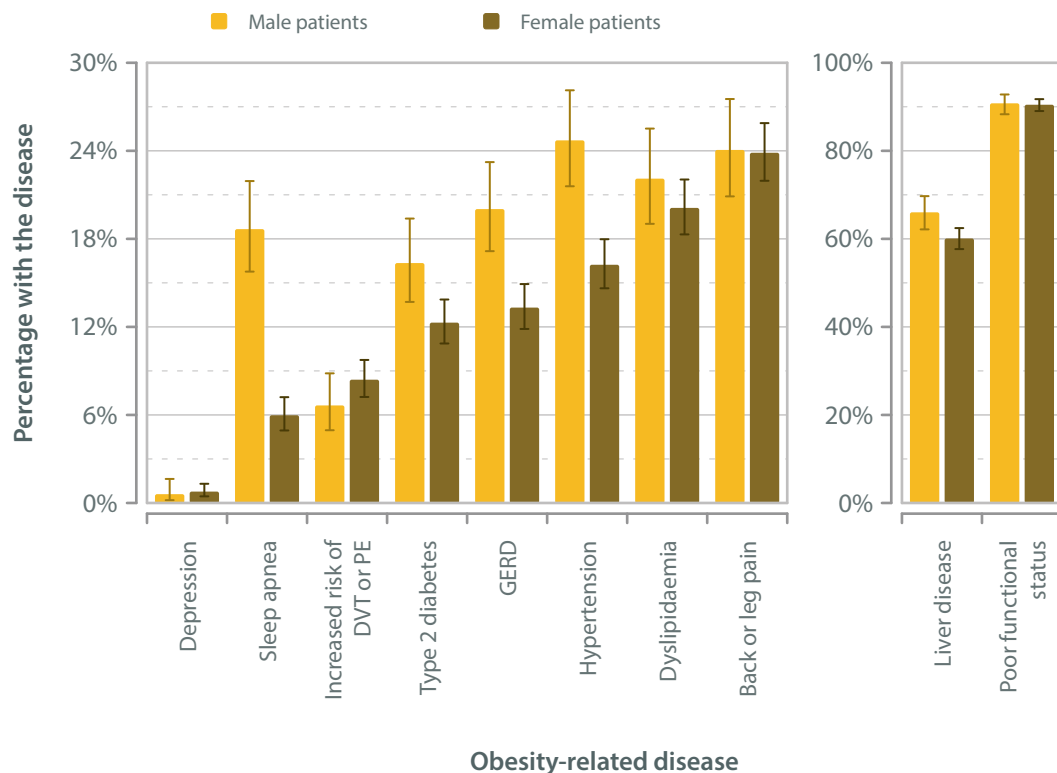
Data from the Kuwait National Bariatric Surgery Registry

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

Obesity-related disease	Male			Female			Rates	
	No	Yes	Unspecified	No	Yes	Unspecified	Male	Female
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



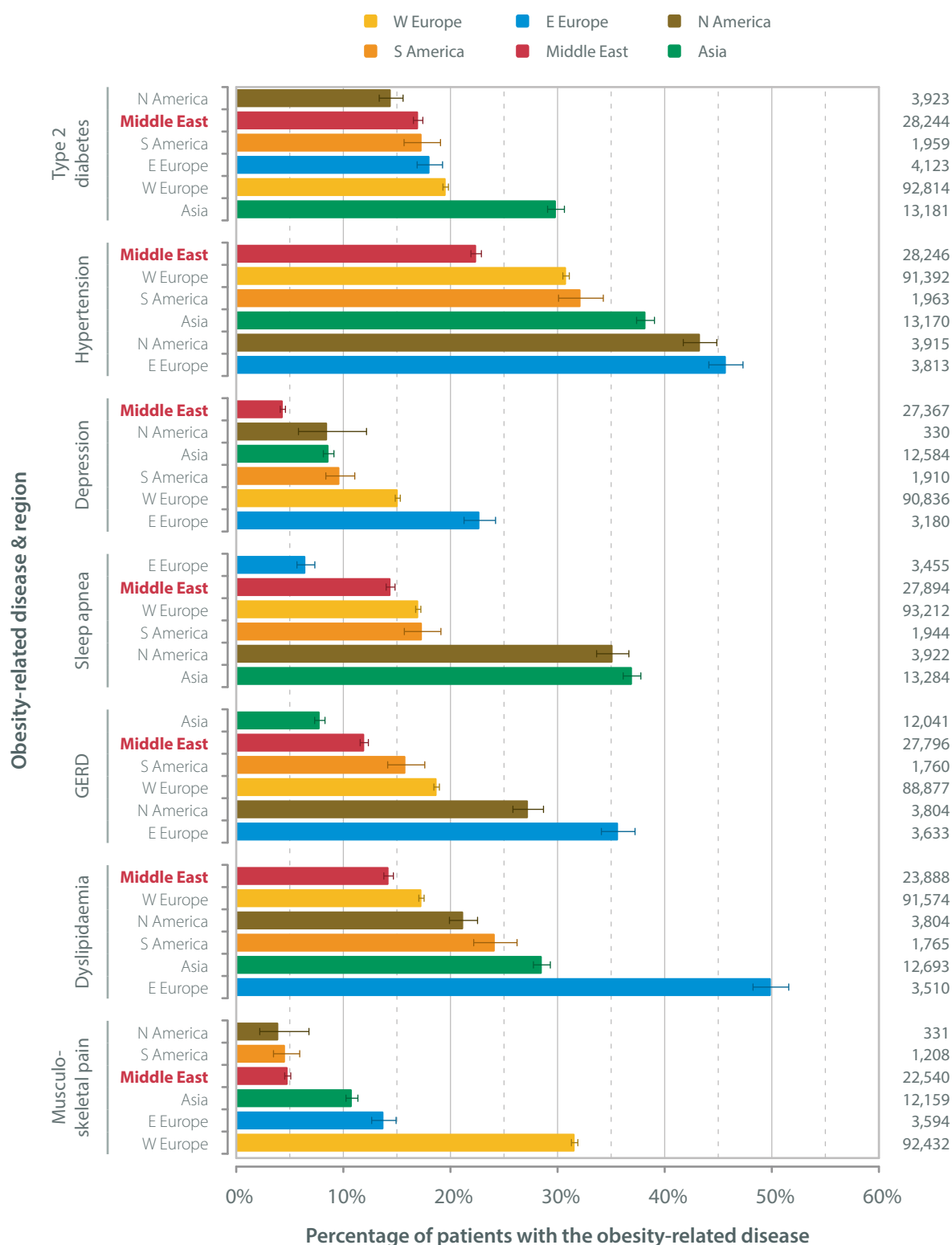


Comparisons to data from across the world

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).

Analysis

Data from IFSO: Primary surgery: Distributions of various obesity-related diseases by region; calendar years 2014-2018



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 $> 50 \text{ kg m}^2$.
- 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.

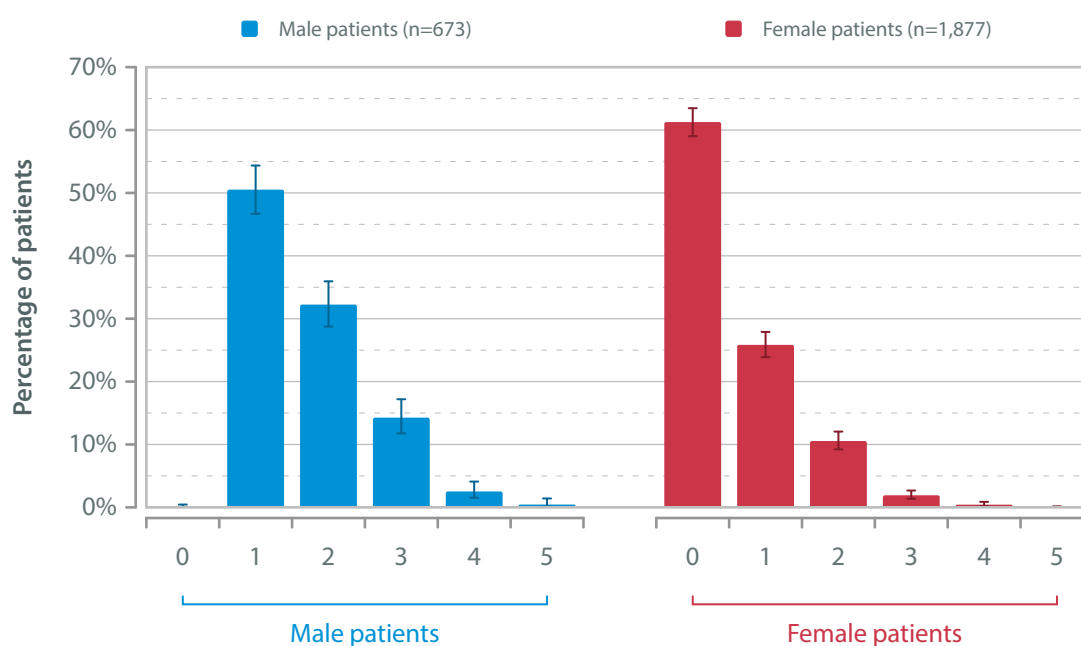
The average OSMRS is obviously higher for the male patients (1.70 *versus* 0.54 for the female patients) as male gender is a component of the scoring system itself. Very few patients fall in group C (3.0% of male patients and 0.4% of female patients).

Primary surgery: OSMRS

	Gender			
	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
4	17	8	0	25
5	3	0	0	3
Obesity Surgery Mortality Risk 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

Analysis

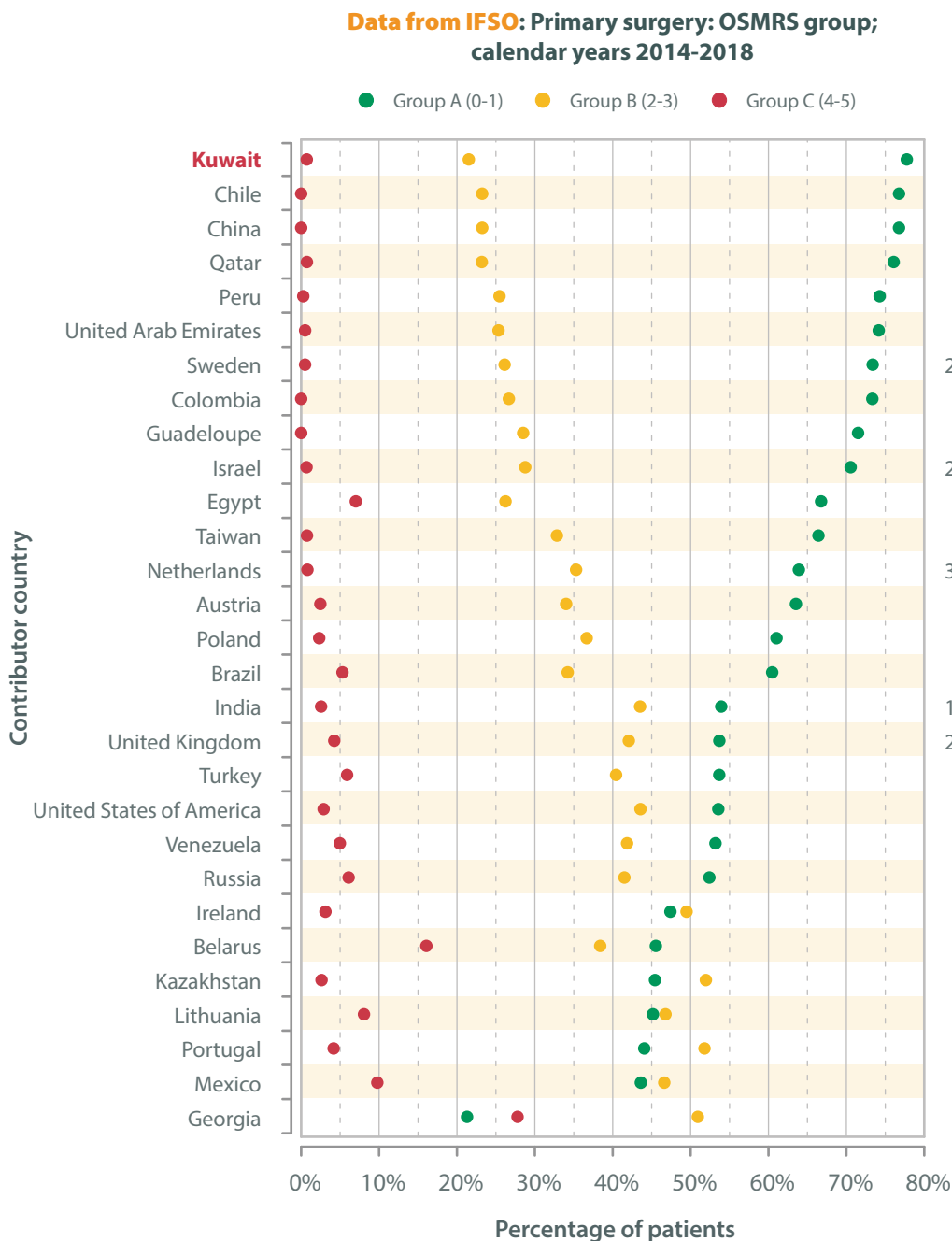
Primary surgery: OSMRS



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.

Analysis





Surgery

Surgery

Operation

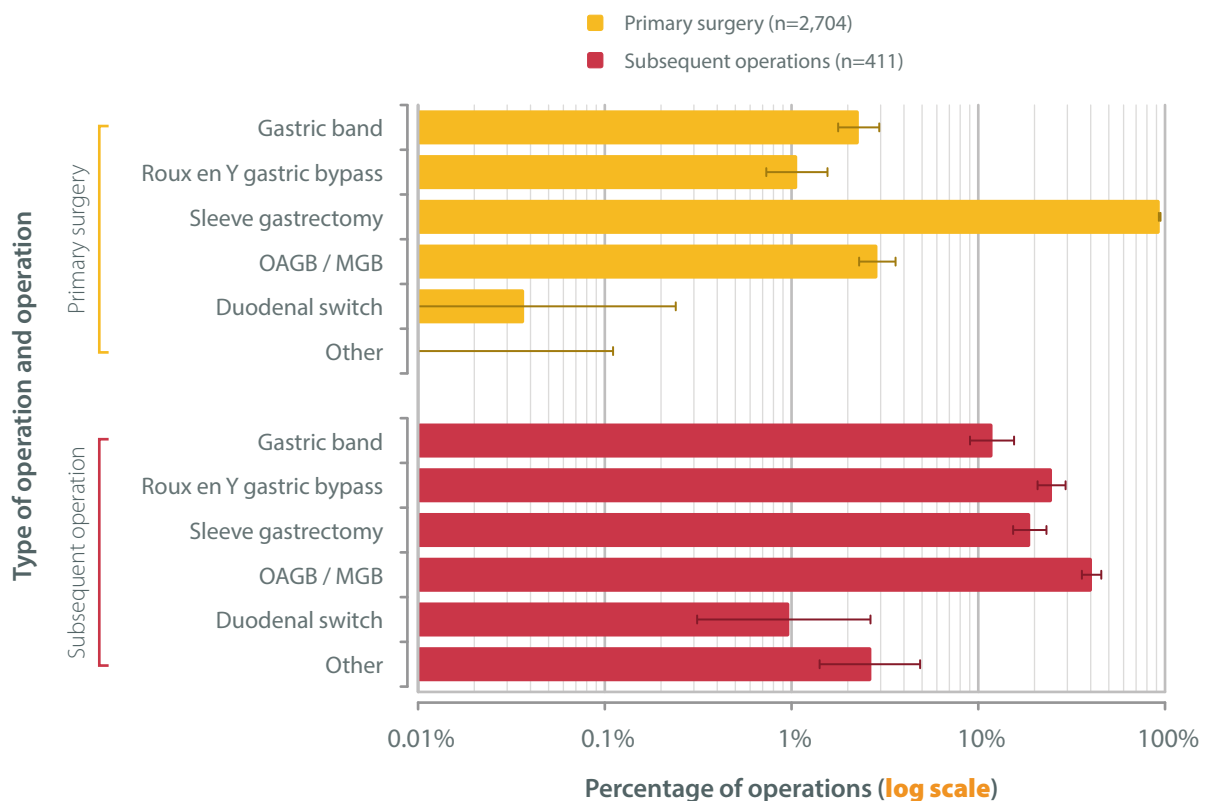
Data from the Kuwait National Bariatric Surgery Registry

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

	Type of operation				All
	Gastric balloon	Primary surgery	Subsequent operations	Unspecified	
Gastric balloon	187			0	187
Gastric band		62	49	0	111
Roux en Y gastric bypass		29	102	0	131
Sleeve gastrectomy		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





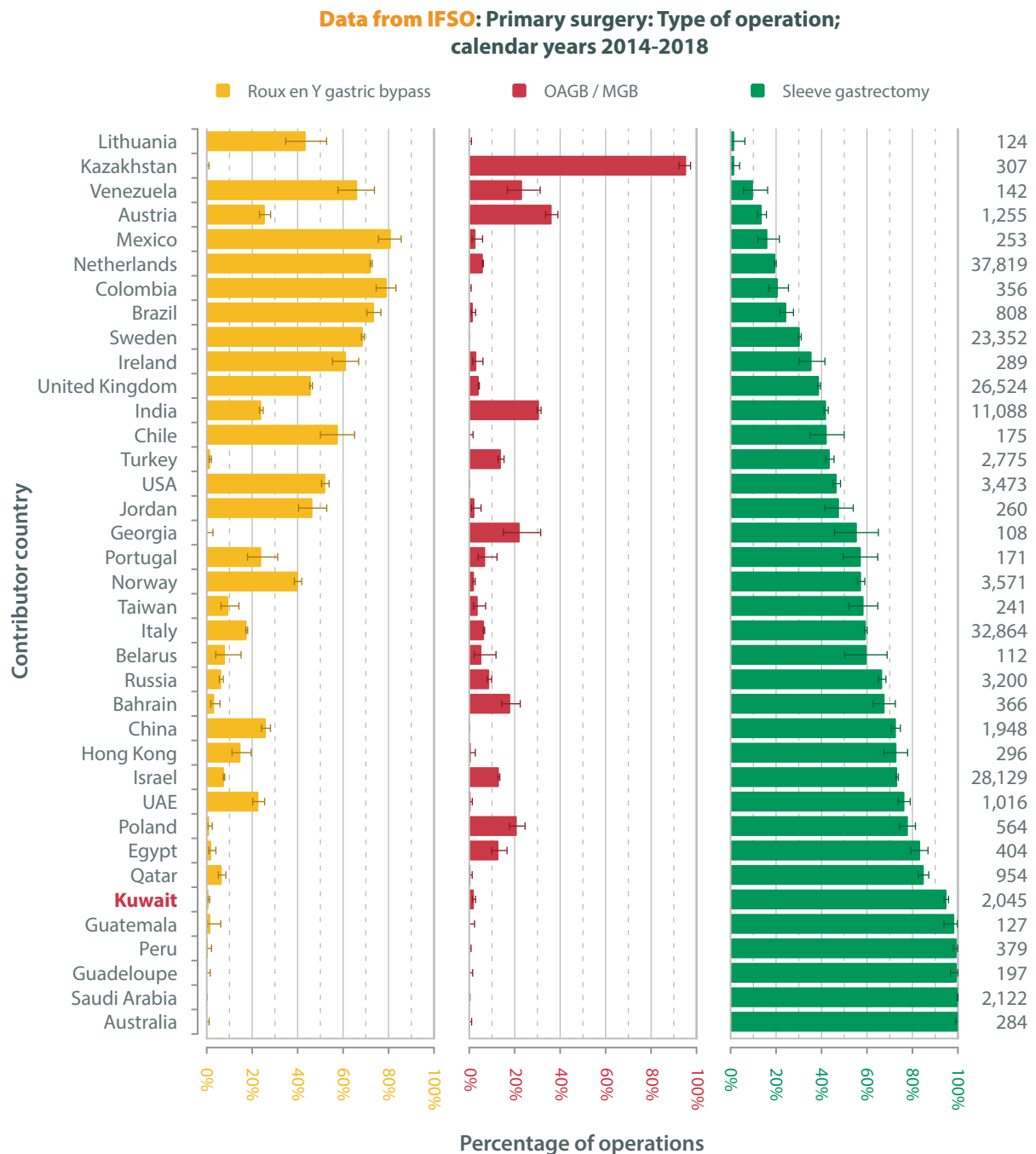
State of Kuwait National Bariatric Surgery Registry: kinds of previous operations for revision surgery

Previous operation	Current (revision) operation	Count
Gastric band	Gastric band	48
	Roux en Y gastric bypass	5
	Sleeve gastrectomy	43
	OAGB / MGB	8
	Other	1
Roux en Y gastric bypass	Roux en Y gastric bypass	8
	Other	2
Sleeve gastrectomy	Gastric band	1
	Roux en Y gastric bypass	79
	Sleeve gastrectomy	30
	OAGB / MGB	144
	Duodenal switch	4
	Other	5
OAGB / MGB	Roux en Y gastric bypass	5
	Sleeve gastrectomy	1
	OAGB / MGB	5
Gastric plication	Roux en Y gastric bypass	2
	OAGB / MGB	4
Others	Roux en Y gastric bypass	1
	Sleeve gastrectomy	1
	OAGB / MGB	5
	Other	2
Unspecified prior operation	Roux en Y gastric bypass	2
	Sleeve gastrectomy	3
	OAGB / MGB	1
	Other	1
All		411

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.

Analysis





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

		Type of operation					
		Balloon	Primary	Revision	Unspecified	All	
Operative approach	Counts	Laparoscopic	19	2,687	402	0	3,108
		Laparoscopic converted to open	0	1	2	0	3
		Endoscopic	167	3	1	0	171
		Open	0	0	3	0	3
		Unspecified	1	13	3	0	17
		All	187	2,704	411	0	3,302
	Percentages	Laparoscopic	10.2%	99.9%	98.5%		94.6%
		Laparoscopic converted to open	0.0%	0.0%	0.5%		0.1%
		Endoscopic	89.8%	0.1%	0.2%		5.2%
		Open	0.0%	0.0%	0.7%		0.1%

Sleeve gastrectomy

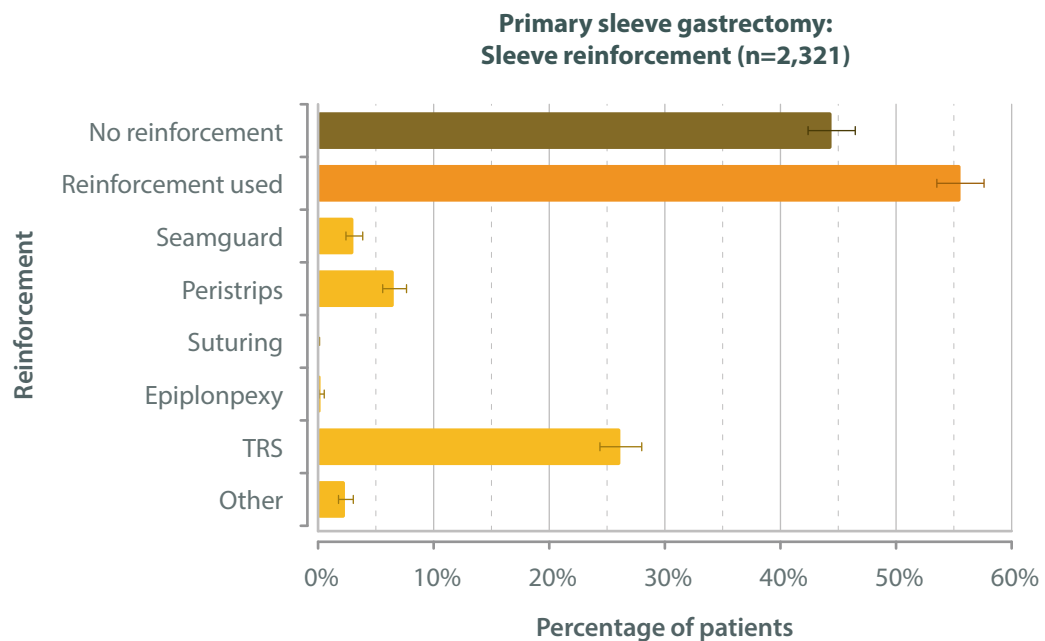
Reinforcement

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
Reinforcement used	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	





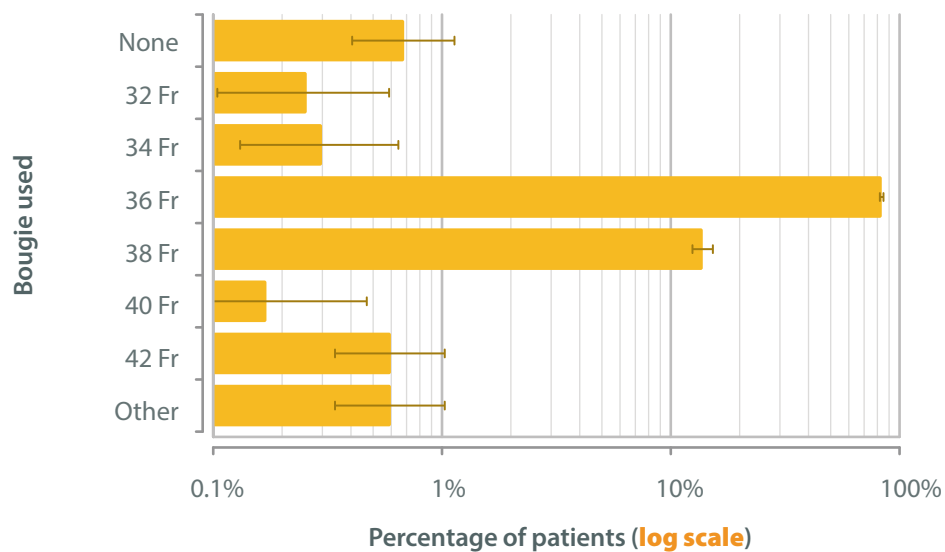
Bougie used

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%
38 Fr	323	13.8%
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)



Additional procedures

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

Primary surgery: additional procedures

Analysis

		Additional procedures				Details of additional procedures			
Counts		No	Yes	Unspecified	All	Cholecystectomy	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
	Sleeve gastrectomy	2,324	160	50	2,534	73	70	3	23
	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
Percentages	Gastric band	1.7%				0.0%	0.0%	0.0%	1.7%
	Roux en Y gastric bypass	13.8%				0.0%	13.8%	0.0%	0.0%
	Sleeve gastrectomy	6.4%				2.9%	2.8%	0.1%	0.9%
	OAGB / MGB	7.9%				5.3%	1.3%	0.0%	1.3%
	Duodenal switch	0.0%				0.0%	0.0%	0.0%	0.0%
	All	6.5%				2.9%	2.8%	0.1%	0.9%



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%.

Analysis

Primary surgery: complications

	Complications recorded			Complications details				
	No	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 band				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 gastrectomy				0.0%	1.5%	0.1%	0.5%	0.0%
OAGB / MGB				0.0%	1.3%	0.0%	0.0%	1.3%
Duodenal 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

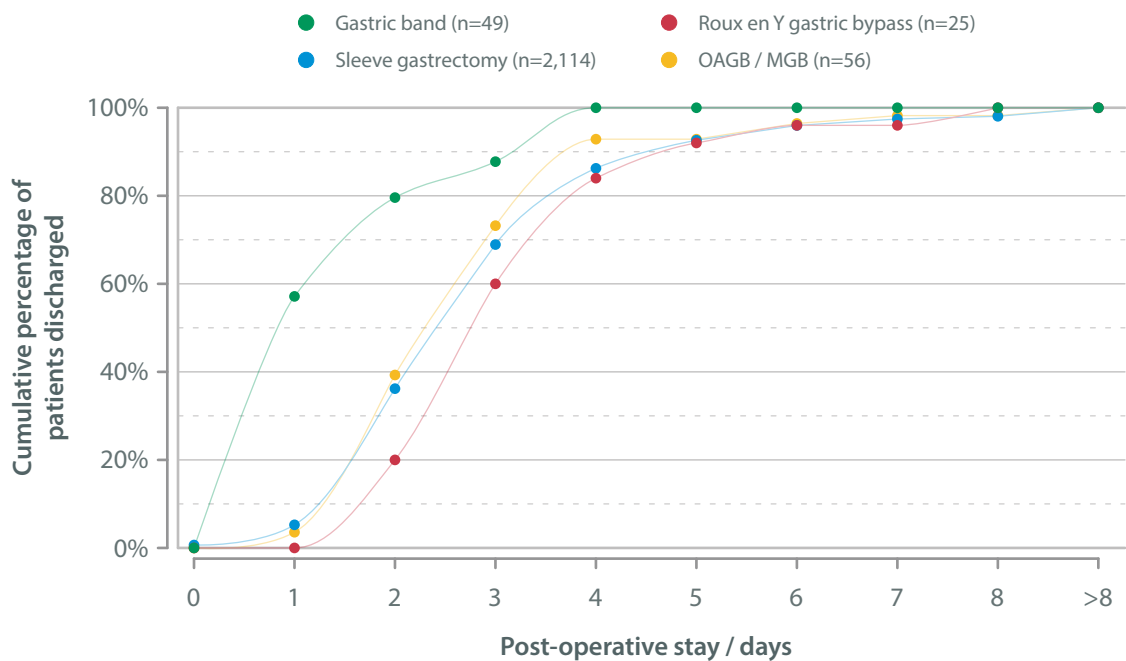
On average most patients are discharged home within 2-3 days after their bariatric procedure.

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

	Operation					All
	Gastric band	Roux en Y gastric bypass	Sleeve gastrectomy	OAGB / MGB	Duodenal switch	
0	0	0	14	0	0	14
1	28	0	97	2	0	127
2	11	5	654	20	0	690
3	4	10	692	19	0	725
4	6	6	366	11	0	389
5	0	2	135	0	0	137
6	0	1	71	2	1	75
7	0	0	31	1	0	32
8	0	1	13	0	0	14
>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





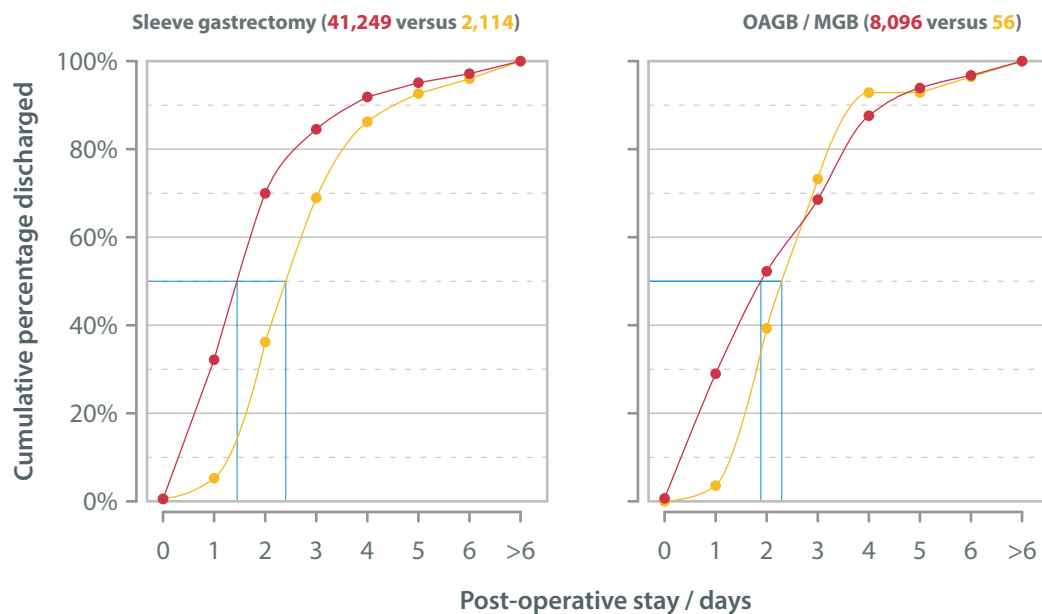
Comparison to data from across the world

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

● Data from IFSO; calendar years 2014-2018 ● Data from the Kuwait National Registry



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

Analysis

		Complication recorded			Complication rate
		No	Yes	Unspecified	
Operative complications	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%)
	Sleeve gastrectomy	2,426	61	47	2.5% (1.9-3.2%)
	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%)
Cardio-vascular complications	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%)
	Sleeve gastrectomy	1,857	97	580	5.0% (4.1-6.0%)
	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%)
Other complications	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%)
	Sleeve gastrectomy	1,815	141	578	7.2% (6.1-8.5%)
	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.

Analysis

Primary surgery: in-hospital mortality

		In-hospital mortality			
		No	Yes	Unspecified	Crude mortality rate
Operation	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%)
	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%)

Primary surgery: cardio-vascular complications detail

Analysis

		Operation				
		Gastric band	Roux en Y gastric bypass	Sleeve gastrectomy	OAGB / MGB	Duodenal switch
Counts	None	40	18	1,857	51	1
	MI	0	0	0	0	0
	PE	0	1	5	0	0
	Stroke	0	0	0	0	0
	DVT	0	0	0	0	0
	Dysrhythmia	1	2	36	1	0
	Cardiac arrest	0	0	0	0	0
	Other	0	1	69	4	0
	Unspecified	21	8	580	23	0
	All	62	29	2,534	78	1
Rates	None	97.6%	85.7%	95.0%	92.7%	100.0%
	MI	0.0%	0.0%	0.0%	0.0%	0.0%
	PE	0.0%	4.8%	0.3%	0.0%	0.0%
	Stroke	0.0%	0.0%	0.0%	0.0%	0.0%
	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%



Primary surgery: other complications detail

Analysis

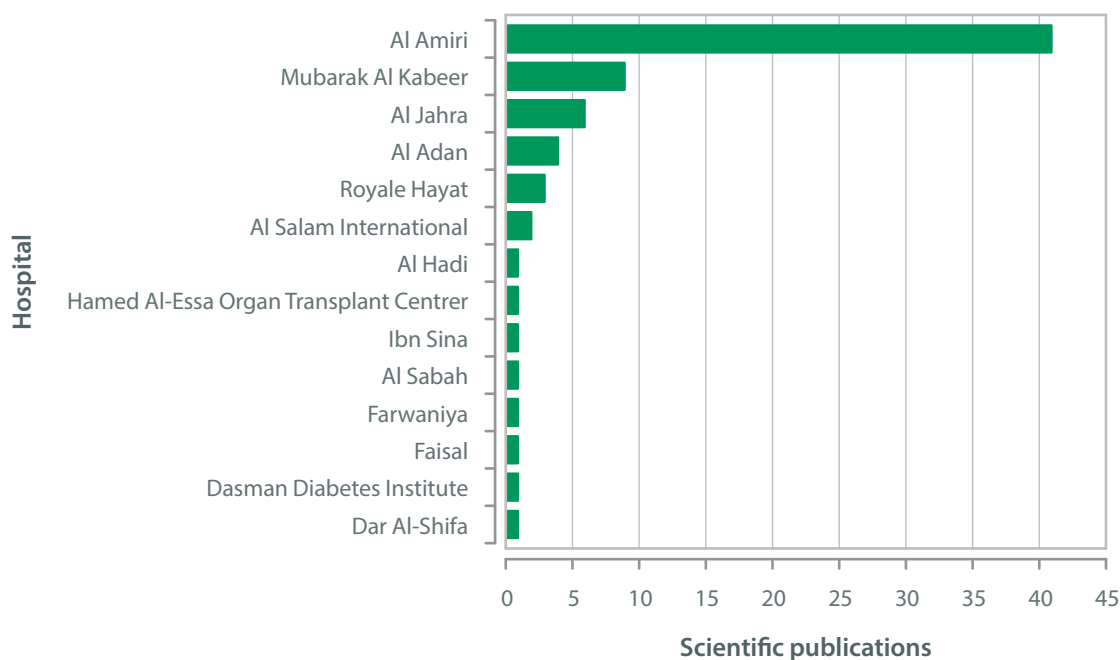
Other complications

		Operation				
		Gastric band	Roux en Y gastric bypass	Sleeve gastrectomy	OAGB / MGB	Duodenal switch
Counts	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
	Urinary tract infection	0	0	0	0	0
	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
Rates	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%
	Rhabdomyolysis	0.0%	0.0%	0.0%	0.0%	0.0%
	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%

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 gastrectomy: 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.
2. 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 gastrografen study needed after laparoscopic sleeve gastrectomy? Experience of 712 cases. *Obesity Surgery*. 2013; **23**(11): 1711-1717.
4. Abd Ellatif ME, Abdallah E, Asker 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.



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.
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10. Al-Sabah S, Al-Mazeedi S, Alosaimi S, Al-Mulla A, Al-Mohammed D, Al-Elewhah 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, Almula 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.
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26. Al-Mutawa A, Anderson AK, Alsabah S, Al-Mutawa M. Nutritional Status of Bariatric Surgery Candidates. *Nutrients*. 2018; **10**(1): 67.
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31. AlSabah S, Al Haddad E. The pedigree of bariatric surgery: A case series of revisional surgery post laparoscopic sleeve gastrectomy in 3 sisters. *International Journal of Surgery Case Reports*. 2018; **51**: 302-305.
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Kuwait national bariatric surgery guidelines

Appendix



Ref : ٢٠١٤ / ١٠ / ١١

قرار وزاري رقم (١١) لسنة 2015

وزير الصحة

- بعد الاطلاع على أحكام المرسومين بقانون ونظام الخدمة المدنية وتعديلاتهما .
- وعلى القانون رقم 1960/49 بشأن المؤسسات العلاجية .
- وعلى المرسوم بقانون رقم 25 لسنة 1981 في شأن مزاوله مهنة الطب البشري والأسنان والمهن المعاونة لهما .
- وعلى القرار الوزاري رقم 387 لسنة 2004 بشأن عمليات تحريم المعدة .
- وعلى تقرير اللجنة المشكلة بموجب القرار الوزاري رقم 118 لسنة 2013 بتشكيل لجنة فنية مؤقتة لدراسة جميع عمليات السمنة وتحديث المعايير والاشتراطات الواجب استيفاؤها لإجراء عمليات السمنة في القطاعين الحكومي والأهلي ووقف إجراء تلك العمليات لمدة ثلاثة أشهر اعتباراً من تاريخ 2013/6/1 .
- وعلى تقرير اللجنة المشكلة بموجب القرار الوزاري رقم 100 لسنة 2014 الصادر بتاريخ 2014/6/3 بتشكيل لجنة فنية مؤقتة لإعادة تقييم الأحكام الواردة بالقرار الوزاري رقم 210 لسنة 2013 بخصوص المعايير والاشتراطات الواجب استيفاؤها لإجراء عمليات السمنة في القطاعين الحكومي والأهلي .
- وعلى القرار الوزاري رقم 210 لسنة 2013 بخصوص المعايير والاشتراطات الواجب استيفاؤها لإجراء عمليات السمنة في القطاعين الحكومي والأهلي .
- وعلى القرار الوزاري رقم 226 لسنة 2014 الصادر بتاريخ 2014/12/9 بشأن تعديل المادة الثانية من القرار الوزاري رقم 210 لسنة 2014 بخصوص المعايير والاشتراطات الواجب استيفاؤها لإجراء عمليات السمنة في القطاعين الحكومي والأهلي .
- وبناء على مقتضيات مصلحة العمل .

- قرار -

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

Table A:

Types of bariatric Surgical Procedures:

Primary:

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



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

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 :

تجربى العمليات الجراحية لعلاج السمنة المرضية وفقا للشروط والضوابط التالية :

- 1- للمرضى أصحاب كتلة الجسم (BMI) من 30 – 35 في حالة وجود ظاهرة الايضية (ضغط – سكر – اضطراب دهون الدم) كما يمكن إجراء عمليات السمنة لنفس كتلة الجسم (30-35 كيلو جرام لكل متر مربع) لمرضى السكر أو ارتفاع ضغط الدم وذلك بعد استشارة طبيب اختصاصي الباطنية .
- 2- للمرضى أصحاب كتلة الجسم ٤٠ وما فوق، فيمكن إجراء عملية السمنة بدون وجود مضاعفات مصاحبة للسمنة .
- 3- يجوز إجراء عملية حلقة المعدة (Gastric Band) للمرضى أصحاب كتلة الجسم من 30-35 إذا كان هناك مضاعفات مصاحبة للسمنة أو كتلة جسم ٣٥ وما فوق إذا لم توجد مضاعفات مصاحبة للسمنة .

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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.

5- 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 ٤٠ فما فوق، مع وجود مضاعفات أقل شدة مثل:

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

وفي كلتا 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 إجراء العملية .



- 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 إجراؤها 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 الترخيص للأطباء لإجراء عمليات جراحة السمنة بعد العمل بهذا القرار ما يلي :

- 1- أن لا يقل المستوى الفني للطبيب عن اختصاصي أول جراحة عامة .
- 2- الحصول على خبرة عملية موثقة في سجل كتابي ومعتمد من أحد الاستشاريين بقسم الجراحة ذوي 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 1-2-3 وبالنسبة للأطباء في القطاع الطبي الأهلي سواء دوام كامل او فئة أطباء الدوام الجزئي (Part Time) فإنه لا يحق للطبيب إجراء عمليات السمنة إلا بعد الحصول على كتاب معتمد 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 ومعتمدة من مجلس أقسام الجراحة .
- 6- بالنسبة للأطباء الزوار في القطاعين الحكومي والأهلي فإنه يجب قبل التصريح لهم بإجراء جراحات السمنة اعتماد مؤهلاتهم 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 السمنة والمضاعفات المصاحبة لها مع الالتزام بالضوابط والإرشادات الفنية والبروتوكولات الموضوعه من جانب مجلس أقسام التخدير لضمان سلامة المرضى .

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مادة رابعة :

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

مادة خامسة :

لا يجوز إجراء عمليات السمنة إلا في المستشفيات الحكومية والأهلية المصرح لها بإجراء تلك العمليات و يحتفظ كل قسم جراحة بقائمة بأسماء الأطباء المرخص لهم بإجراء تلك العمليات وفقاً للشروط الواردة ذا القرار ويتم تحديث تلك القائمة دورياً كل سنة من جانب رئيس القسم وتعتمد من مدير المستشفى وترسل القائمة المجلس أقسام الجراحة وإدارة التراخيص الصحية.

مادة سادسة :

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

مادة سابعة :

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

مادة ثامنة :

بالإمكان إزالة بالون المعدة في أي وقت يراه الجراح مناسباً 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 إلى الأجهزة والإمكانات اللازمة لتقديم الرعاية وإجراء الفحوصات 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.



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Appendix

مادة عاشر :

تلتزم المستشفيات الأهلية بإرسال تلك الإحصائيات والبيانات عن عمليات جراحة السمنة التي أجريت إلى 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 الجسم ومبررات إجراء 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 :

1- لا يجوز إجراء تلك العمليات في القطاع الأهلي قبل الساعة السابعة صباحاً ، ولا بعد الساعة التاسعة مساءً .

2- عند حصول مضاعفات بسبب تلك العملية الجراحية للسمنة للمرضى في القطاع الطبي الأهلي قد تتطلب التحويل إلى 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 ممغنطة CD ويجوز استدعاء الطبيب المعالج الذي قام بإجراء تلك العملية لمناقشته في المستشفى الحكومي .

3- عند حدوث مضاعفات لعمليات مرضى السمنة ، يلتزم الجراح من فئة الدوام الجزئي PART TIME معالجة المريض في نفس المستشفى الذي أجريت فيه العملية الجراحية ، وفي حالة طلب المريض بنفسه معالجته في مستشفى حكومي فيتم تحويله إلى نفس المستشفى الذي يعمل فيها هذا الطبيب في الفترة الصباحية لضمان متابعته الشخصية لحالته بغض النظر عن عنوان سكن المريض في البطاقة المدنية ما لم يطلب المريض بنفسه علاجه في المستشفى التابع لسكنه الخاص .

4- لضمان مستوى جودة الخدمة والجراحة الآمنة لمرضى السمنة ، تلتزم أقسام الجراحة العامة في المستشفيات الحكومية بتزويد مجلس أقسام الجراحة بأسماء الأطباء الجراحين المتمتعين بالخبرة في جراحة السمنة حالياً وتزويد إدارة التراخيص الصحية بنسخة منها ، كما تلتزم المستشفيات الأهلية بتزويد إدارة التراخيص بأسماء الأطباء الجراحين المتمتعين بالخبرة في جراحة السمنة حالياً والذين يعملون بنظام الدوام الكامل من داخل أو خارج المستشفى .

5- يلتزم الأطباء المرخص لهم بإجراء جراحات السمنة بإتباع السياسات والتوصيات والبروتوكولات المعتمدة عالمياً وبما لا يتعارض مع هذا القرار .

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مكتب الوزير

مادة ثانية عشر أحكام عامة :

يلتزم 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 أقسام الجراحة وإدارة التراخيص الصحية متابعة تنفيذ ما جاء بهذا القرار .

مادة ثالثة عشر :

تشكل لجنة بمعرفة مجلس أقسام 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 . علي سعد العبيدي



وزير الصحة
د. علي سعد العبيدي
وزير الصحة



IFSO Kuwait Chapter Members

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| • Saud Al-Subaie | • Basil Sumait |
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| • Aliaa Al-Thubaib | • Ahmad Zayed |

Database form

Appendix

Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 1; Version 1.0 (1 Nov 2018)

Basic demographic data

All baseline data refer to the condition of the patient when they were originally assessed

Unique patient identifier		
Date of birth		dd/mm/yyyy
Gender	☐ Male ☐ Female	

Registry data

Initial information

Hospital		select from the list
Height		cm
Initial weight		kg
Date of initial weight		dd/mm/yyyy
Funding category	☐ Government ☐ Equipment paid by patient ☐ Self-pay ☐ Other	
Other funding category		
Source of referral	☐ GP ☐ Bariatric clinic ☐ Urologist ☐ Orthopedist ☐ Endocrinologist ☐ Gynecologist ☐ Other	
Other source of referral		
Home phone number		
Mobile phone number		



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Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 2; Version 1.0 (1 Nov 2018)

Unique patient identifier
Date of operation dd/mm/yyyy

Baseline comorbidity

Endoscopy	☐ No	☐ Yes	
Esophagitis	☐ No ☐ 1 - A	☐ 2 - B ☐ 3 - C	☐ 4 - D ☐ Non-erosive
Stomach	☐ Bleeding	☐ Gastritis	☐ Ulcer
Duodenum	☐ Bleeding	☐ Ulcer	☐ Duodenitis
H pylori infection	☐ No	☐ Yes	
H pylori infection treated	☐ No	☐ Yes	
Abdominal ultrasound	☐ No	☐ Yes	
Abdominal ultrasound result	☐ Normal ☐ Mild steatosis ☐ Moderate steatosis	☐ Severe steatosis ☐ Cirrhosis ☐ Cholecystitis	☐ Other
CT scans	☐ No	☐ Yes	
Details of CT scans			
Liver disease	☐ No indication of liver disease ☐ Severe steatosis ☐ Mild steatosis	☐ Cirrhosis ☐ Fatty liver	
Back or leg pain	☐ No	☐ Yes	
ASA grade	☐ ASA I	☐ ASA II	☐ ASA III ☐ ASA IV
Type 2 diabetes	☐ No diabetes ☐ No indication of type 2 diabetes ☐ Impaired glycaemia or impaired glucose tolerance ☐ Oral hypoglycaemics ☐ Insulin treatment ☐ OAD+insulin treatment ☐ Not investigated ☐ Unknown		
HbA1c	☐ No ☐ Yes	☐ Not investigated	
HbA1c value			
Duration of type 2 diabetes	☐ <1 year ☐ 1 year ☐ 2 years	☐ 3 years ☐ 4 years ☐ 5 years	☐ 6 years ☐ 7 years ☐ 8 years ☐ 9 years ☐ 10 years ☐ >10 years
Hypertension	☐ No hypertension ☐ Treated hypertension		☐ Untreated hypertension ☐ Not investigated



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Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 3; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

Baseline comorbidity continued ...

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



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Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 4; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

Operation record

Weight just before operation kg

Date of most weight just before operation dd/mm/yyyy

Operating surgeon select from the list

Assistant surgeon select from the list

Surgical assistant

☐ None	☐ OR technician
☐ General surgeon	☐ Bariatric surgeon
☐ Resident	☐ Other
☐ OR nurse	

Type of operation

☐ Primary	☐ Revision
☐ Planned second stage	☐ Balloon

Operative approach

☐ Laparoscopic	☐ Open
☐ Laparoscopic converted to open	☐ Endoscopic

Reason for laparoscopic converted to open

Reason for open

Reason for endoscopic

Operation

☐ Roux en Y gastric bypass	☐ Gastric band
☐ Bilio-pancreatic diversion	☐ Gastric balloon
☐ Duodenal switch	☐ Mini-gastric bypass
☐ Sleeve gastrectomy	☐ Other

Details of other operations

Prior operation type

☐ Gastric balloon placement or removal	☐ Gastric plication
☐ Roux en Y gastric bypass	☐ Sleeve plus loop
☐ Gastric band	☐ Transit bipartition
☐ Bilio-pancreatic diversion	☐ Mini-gastric bypass
☐ Duodenal switch	☐ Ileal transposition
☐ Sleeve gastrectomy	☐ Jejunioileal bypass
☐ Vertical banded gastroplasty	☐ Other
☐ Duodenal switch with sleeve	
☐ Revisional gastric band surgery	

Details of other prior operations



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Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 5; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

Gastric band

- | | | |
|---------------------|---|--|
| Gastric band | ☐ Allergan AP small | ☐ Bioring (Cousin) |
| | ☐ Allergan AP large | ☐ Minimizer Extra |
| | ☐ SAGB (Quickclose) | ☐ BioEnterics |
| | ☐ SAGB (Velocity) | ☐ Inamed Large |
| | ☐ AMI | ☐ Inamed Small |
| | ☐ MID | ☐ Fobi band |
| | ☐ Heliogast | ☐ Other |

Dissection ☐ Pars flaccida ☐ Peri-gastric

Gastro-gastric tunneling sutures ☐ No ☐ Yes

Additional procedures

☐ None	☐ Liver biopsy
☐ Cholecystectomy	☐ Other
☐ Hernia repair	

Other additional procedure

Hernia repair

☐ Umbilical	☐ Incisional
☐ Ventral	☐ Hiatus hernia

Any complications ☐ No ☐ Yes

Drain placement ☐ No ☐ Yes



Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 6; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

Complications for gastric band

Date of complication dd/mm/yyyy

Complication

- ☐ Bleeding
☐ Slippage
☐ Infection

- ☐ Perforation
☐ Other

Details of other complication

Probable source of bleeding

- ☐ GI tract
☐ Intra-abdominal

- ☐ Other

Treatment of bleeding

- ☐ None
☐ Blood transfusion

- ☐ Surgical
☐ Endoscopic

Details of other source of bleeding

Any re-operation

- ☐ No

- ☐ Yes

Re-operation performed

- ☐ Band slippage; re-positioned
☐ Band removed

- ☐ Attention to port/tubing

Approach for re-operation

- ☐ Laparoscopic
☐ Laparoscopic converted to open

- ☐ Open
☐ Endoscopic

Endoscopic approach

- ☐ Stent placement
☐ Dilation/septotomy

- ☐ Parenteral nutrition



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Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 7; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

Revisional gastric band

Reason for revisional gastric band operation	☐ Port or tubing or technical band problem	☐ Bleeding
	☐ Band intolerance	☐ Pouch or oesophageal dilatation
	☐ Slippage	☐ Weight regain
	☐ Infection	☐ Migration
	☐ Erosion	☐ Other
	☐ Perforation	

Details of other reason for revisional gastric band operation

Revisional gastric band operation performed	☐ Band repositioned	☐ Attention to port or tubing
	☐ Band replaced	☐ Band removed + RYGB
	☐ Band removed	☐ Band removed + LSG

Endoscopic band removal	☐ No	☐ Yes
--------------------------------	--------------------------	---------------------------

Where was the previous operation done	☐ Public hospital in Kuwait	☐ Public hospital abroad
	☐ Private hospital in Kuwait	☐ Private hospital abroad

Gastric band	☐ Allergan AP small	☐ Bioring (Cousin)
	☐ Allergan AP large	☐ Minimizer Extra
	☐ SAGB (Quickclose)	☐ BioEnterics
	☐ SAGB (Velocity)	☐ Inamed Large
	☐ AMI	☐ Inamed Small
	☐ MID	☐ Fobi band
	☐ Heliogast	☐ Other

Dissection	☐ Pars flaccida	☐ Peri-gastric
-------------------	-------------------------------------	------------------------------------

Gastro-gastric tunneling sutures	☐ No	☐ Yes
---	--------------------------	---------------------------

Additional procedures	☐ None	
	☐ Cholecystectomy	☐ Liver biopsy
	☐ Hernia repair	☐ Other

Other additional procedure

Hernia repair	☐ Umbilical	☐ Incisional
	☐ Ventral	☐ Hiatus hernia

Any complications	☐ No	☐ Yes
--------------------------	--------------------------	---------------------------

Drain placement	☐ No	☐ Yes
------------------------	--------------------------	---------------------------



Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 8; Version 1.0 (1 Nov 2018)

Unique patient identifier
Date of operation dd/mm/yyyy

Roux-en-Y bypass

Gastric pouch
☐ Vertical lesser curve pouch
☐ Horizontal pouch including fundus

Banded gastric bypass ☐ No ☐ Yes

Energy source system
☐ LigaSure ☐ UltraCision ☐ EnSeal
☐ Harmonic ☐ Thunderbeat ☐ Other

Details of other energy source system

Clips size of energy system ☐ 2 mm ☐ 5 mm ☐ 7 mm ☐ 10 mm

Stapler brand
☐ All ☐ Medtronic ☐ Johnson & Johnson

Linear stapler for gastric pouch
☐ Green (2.0 mm) ☐ GST Black
☐ Gold (1.8 mm) ☐ GST Green
☐ Blue (1.5 mm) ☐ GST White
☐ Tan (Tri Stapler) ☐ GST Blue
☐ Black TRS (Tri Stapler) ☐ GST Gold
☐ Purple TRS (Tri Stapler) ☐ Purple (Tri Stapler)
☐ White 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



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Kuwait National Bariatric Surgery Registry
Baseline section; Page 9; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

Roux-en-Y bypass continued ...

Roux-en-Y reinforcement	☐ None ☐ Seamguard ☐ Peristrips	☐ Biodesign SLR ☐ Tisseel fibrin glue	☐ Suturing ☐ Other
Details of other reinforcement			
Type of suturing	☐ Prolene ☐ Caprofil ☐ Other		
Other type of suturing			
Gastric pouch jejunostomy	☐ Circular stapler ☐ Linear stapler ☐ Hand sewn		
Bilio-pancreatic limb length	☐ < 50 cm ☐ 101 - 150 cm ☐ > 200 cm ☐ 51 - 100 cm ☐ 151 - 200 cm		
Alimentary-pancreatic limb length	☐ < 50 cm ☐ 101 - 150 cm ☐ > 200 cm ☐ 51 - 100 cm ☐ 151 - 200 cm		
Jejuno-jejunostomy	☐ Triple linear stapler ☐ Single linear stapler ☐ Double linear stapler ☐ Hand sewn		
Stapler used (jejuno-jejunostomy)	☐ Blue (1.5 mm) ☐ White (1.0 mm)		
Route of Roux limb	☐ Ante-colic / ante-gastric ☐ Retro-colic / retro-gastric ☐ Retro-colic / ante-gastric ☐ Other		
Closure of hernia defects	☐ None ☐ Jejuno-jejunostomy ☐ Petersen's space ☐ Mesocolon		
Additional procedures	☐ None ☐ Cholecystectomy ☐ Liver biopsy ☐ Hernia repair ☐ Other		
Other additional procedure			
Hernia repair	☐ Umbilical ☐ Incisional ☐ Ventral ☐ Hiatus hernia		
Any complications	☐ No ☐ Yes		
Drain placement	☐ No ☐ Yes		





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Kuwait National Bariatric Surgery Registry
Baseline section; Page 10; Version 1.0 (1 Nov 2018)

Unique patient identifier	
Date of operation	dd/mm/yyyy
Complications for Roux-en-Y gastric bypass	
Date of complication	dd/mm/yyyy
Complication	☐ Leak ☐ Bleeding ☐ Obstruction ☐ Other
Details of other complication	
Leak location	☐ Gastrojejunostomy ☐ Jejunojejunostomy ☐ Gastric remnant ☐ His angle ☐ Other
Details of other leak location	
Probable source of bleeding	☐ GI tract ☐ Intra-abdominal ☐ Other
Treatment of bleeding	☐ None ☐ Blood transfusion ☐ Surgical ☐ Endoscopic
Details of other source of bleeding	
Any re-operation	☐ 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	☐ Laparoscopic ☐ Laparoscopic converted to open ☐ Open ☐ Endoscopic
Endoscopic approach	☐ Stent placement ☐ Dilation/septotomy ☐ Parenteral nutrition



Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 11; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

Sleeve gastrectomy

Energy source system

- | | | |
|--------------------------------|-----------------------------------|------------------------------|
| ☐ LigaSure | ☐ UltraCision | ☐ EnSeal |
| ☐ Harmonic | ☐ Thunderbeat | ☐ Other |

Details of other energy source system

Clips size of energy system

- | | | | |
|----------------------------|----------------------------|----------------------------|-----------------------------|
| ☐ 2 mm | ☐ 5 mm | ☐ 7 mm | ☐ 10 mm |
|----------------------------|----------------------------|----------------------------|-----------------------------|

Stapler brand

- | | |
|---------------------------------|---|
| ☐ All | ☐ Johnson & Johnson |
| ☐ Medtronic | |

Linear stapler for sleeve

- | | |
|---|---|
| ☐ Green (2.0 mm) | ☐ GST Black |
| ☐ Gold (1.8 mm) | ☐ GST Green |
| ☐ Blue (1.5 mm) | ☐ GST White |
| ☐ Tan (Tri Stapler) | ☐ GST Blue |
| ☐ Black TRS (Tri Stapler) | ☐ GST Gold |
| ☐ Purple TRS (Tri Stapler) | ☐ Purple (Tri Stapler) |
| ☐ White 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

Type of stapler ☐ 45 mm ☐ 60 mm



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Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 12; Version 1.0 (1 Nov 2018)

Unique patient identifier
Date of operation dd/mm/yyyy

Sleeve gastrectomy continued ...

Sleeve reinforcement

- | | |
|-------------------------------------|---------------------------------------|
| ☐ None | ☐ Epiploonpexy |
| ☐ Seamguard | ☐ Clips |
| ☐ Peristrips | ☐ Other |
| ☐ Suturing | |

Details of other reinforcement

Type of suturing

- ☐ Prolene ☐ Caprofyl ☐ Other

Other type of suturing

Bougie used

- | | | | |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| ☐ None | ☐ 34 Fr | ☐ 38 Fr | ☐ 42 Fr |
| ☐ 32 Fr | ☐ 36 Fr | ☐ 40 Fr | ☐ Other |

Details of other bougie size

Fr

Additional procedures

- | | |
|--|---------------------------------------|
| ☐ None | ☐ Liver biopsy |
| ☐ Cholecystectomy | ☐ Other |
| ☐ Hernia repair | |

Other additional procedure

Hernia repair

- | | |
|------------------------------------|--|
| ☐ Umbilical | ☐ Incisional |
| ☐ Ventral | ☐ Hiatus hernia |

Any complications

- ☐ No ☐ Yes

Drain placement

- ☐ No ☐ Yes



Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 13; Version 1.0 (1 Nov 2018)

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	☐ GI tract ☐ Intra-abdominal ☐ Other		
Treatment of bleeding	☐ None ☐ Surgical ☐ Blood transfusion ☐ Endoscopic		
Details of other source of bleeding			
Any re-operation	☐ No ☐ Yes		
Re-operation performed	☐ Gastrectomy ☐ Attention to bleeding area ☐ Drain replacement ☐ Hernia repair ☐ Repair gastric line staple ☐ Laparoscopy ☐ Other		
Details of other re-operation			
Approach for re-operation	☐ Laparoscopic ☐ Open ☐ Laparoscopic converted to open ☐ Endoscopic		
Endoscopic approach	☐ Stent placement ☐ Dilation/septotomy ☐ Parenteral nutrition		





Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 14; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

Duodenal switch

Energy source system ☐ LigaSure ☐ UltraCision ☐ EnSeal
☐ Harmonic ☐ Thunderbeat ☐ Other

Details of other energy source system

Clips size of energy system ☐ 2 mm ☐ 5 mm ☐ 7 mm ☐ 10 mm

Stapler brand ☐ All ☐ Medtronic ☐ Johnson & Johnson

Linear stapler for sleeve ☐ Green (2.0 mm) ☐ GST Black
☐ Gold (1.8 mm) ☐ GST Green
☐ Blue (1.5 mm) ☐ GST White
☐ Tan (Tri Stapler) ☐ GST Blue
☐ Black TRS (Tri Stapler) ☐ GST Gold
☐ Purple TRS (Tri Stapler) ☐ Purple (Tri Stapler)
☐ White 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 ☐ None ☐ Duet TRS
☐ Seamguard ☐ Tisseel fibrin glue
☐ Peristrips ☐ Suturing
☐ Biodesign SLR ☐ Other

Details of other reinforcement



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Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 15; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

Duodenal switch continued ...

Bougie used

- | | |
|-----------------------------|-----------------------------|
| ☐ None | ☐ 38 Fr |
| ☐ 32 Fr | ☐ 40 Fr |
| ☐ 34 Fr | ☐ 42 Fr |
| ☐ 36 Fr | ☐ Other |

Details of other bougie size Fr

Duodeno-ileal anastomosis

- | | |
|--|---------------------------------|
| ☐ Circular stapler | ☐ Hand sewn |
| ☐ Linear stapler | |

Ileo-ileal anastomosis

- | | |
|---|---|
| ☐ Triple linear stapler | ☐ Single linear stapler |
| ☐ Double linear stapler | ☐ Hand sewn |

BPD / DS common channel limb length

- | | | |
|-----------------------------|------------------------------|------------------------------|
| ☐ 75 cm | ☐ 100 cm | ☐ 125 cm |
|-----------------------------|------------------------------|------------------------------|

BPD / DS alimentary channel limb length

- | | | | |
|------------------------------|------------------------------|------------------------------|------------------------------|
| ☐ 100 cm | ☐ 150 cm | ☐ 200 cm | ☐ 250 cm |
|------------------------------|------------------------------|------------------------------|------------------------------|

Closure of hernia defects

- | | |
|---|--|
| ☐ Not done | |
| ☐ Duodeno-ileostomy defect | ☐ Ileo-ileostomy defect |

Additional procedures

- | | |
|--|---------------------------------------|
| ☐ None | |
| ☐ Cholecystectomy | ☐ Liver biopsy |
| ☐ Hernia repair | ☐ Other |

Other additional procedure

Hernia repair

- | | |
|------------------------------------|--|
| ☐ Umbilical | ☐ Incisional |
| ☐ Ventral | ☐ Hiatus hernia |

Any complications

- | | |
|--------------------------|---------------------------|
| ☐ No | ☐ Yes |
|--------------------------|---------------------------|



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Kuwait Ministry of Health
Kuwait National Bariatric Surgery Registry
Baseline section; Page 16; Version 1.0 (1 Nov 2018)

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



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Baseline section; Page 17; Version 1.0 (1 Nov 2018)

Unique patient identifier

Date of operation dd/mm/yyyy

BPD

Energy source system

- | | | |
|--------------------------------|-----------------------------------|------------------------------|
| ☐ LigaSure | ☐ UltraCision | ☐ EnSeal |
| ☐ Harmonic | ☐ Thunderbeat | ☐ Other |

Details of other energy source system

Clips size of energy system

- | | | | |
|----------------------------|----------------------------|----------------------------|-----------------------------|
| ☐ 2 mm | ☐ 5 mm | ☐ 7 mm | ☐ 10 mm |
|----------------------------|----------------------------|----------------------------|-----------------------------|

Stapler brand

- | | |
|---------------------------------|---|
| ☐ All | ☐ Johnson & Johnson |
| ☐ Medtronic | |

Gastric transection stapler

- | | |
|---|---|
| ☐ Green (2.0 mm) | ☐ GST Black |
| ☐ Gold (1.8 mm) | ☐ GST Green |
| ☐ Blue (1.5 mm) | ☐ GST White |
| ☐ Tan (Tri Stapler) | ☐ GST Blue |
| ☐ Black TRS (Tri Stapler) | ☐ GST Gold |
| ☐ Purple TRS (Tri Stapler) | ☐ Purple (Tri Stapler) |
| ☐ White 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

- | | |
|--|--|
| ☐ None | ☐ Duet TRS |
| ☐ Seamguard | ☐ Tisseel fibrin glue |
| ☐ Peristrips | ☐ Suturing |
| ☐ Biodesign SLR | ☐ Other |

Details of other reinforcement



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Date of operation dd/mm/yyyy

BPD continued ...

Gastric resection done? ☐ No ☐ Yes

Gastro-ileal anastomosis ☐ Circular stapler ☐ Linear stapler ☐ Hand sewn

Ileo-ileostomy ☐ Triple linear stapler ☐ Single linear stapler
☐ Double linear stapler ☐ Hand sewn

Stapler used

☐ Green (2.0 mm)	☐ GST Black
☐ Gold (1.8 mm)	☐ GST Green
☐ Blue (1.5 mm)	☐ GST White
☐ Tan (Tri Stapler)	☐ GST Blue
☐ Black TRS (Tri Stapler)	☐ GST Gold
☐ Purple TRS (Tri Stapler)	☐ Purple (Tri Stapler)
☐ White Stapler	☐ Black (Tri Stapler)

BPD common channel limb length ☐ 75 cm ☐ 100 cm ☐ 125 cm ☐ Other

BPD alimentary channel limb length ☐ 100 cm ☐ 150 cm ☐ 200 cm ☐ 250 cm

BPD route of alimentary limb ☐ Ante-colic ☐ Retro-colic

How mesenteric defects closed ☐ Not closed ☐ Gastro-ileostomy defect ☐ Ileo-ileostomy defect

Additional procedures ☐ None ☐ Cholecystectomy ☐ Liver biopsy
☐ Hernia repair ☐ Other

Other additional procedure

Hernia repair ☐ Umbilical ☐ Incisional
☐ Ventral ☐ Hiatus hernia

Any complications ☐ No ☐ Yes

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





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Unique patient identifier
Date of operation dd/mm/yyyy

Mini-gastric bypass

Energy source system ☐ LigaSure ☐ UltraCision ☐ EnSeal
☐ Harmonic ☐ Thunderbeat ☐ Other

Details of other energy source system

Clips size of energy system ☐ 2 mm ☐ 5 mm ☐ 7 mm ☐ 10 mm

Stapler brand ☐ All ☐ Medtronic ☐ Johnson & Johnson

Gastric pouch ☐ Transection at incisura ☐ Transection beyond incisura

Linear stapler for gastric pouch

☐ Green (2.0 mm)	☐ GST Black
☐ Gold (1.8 mm)	☐ GST Green
☐ Blue (1.5 mm)	☐ GST White
☐ Tan (Tri Stapler)	☐ GST Blue
☐ Black TRS (Tri Stapler)	☐ GST Gold
☐ Purple TRS (Tri Stapler)	☐ Purple (Tri Stapler)
☐ White 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



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Unique patient identifier

Date of operation dd/mm/yyyy

Mini-gastric bypass continued ...

Reinforcement

- | | |
|--|--|
| ☐ None | ☐ Duet TRS |
| ☐ Seamguard | ☐ Tisseel fibrin glue |
| ☐ Peristrips | ☐ Suturing |
| ☐ Biodesign SLR | ☐ Other |

Details of other reinforcement

Gastric pouch jejunostomy

- | | |
|--|---------------------------------|
| ☐ Circular stapler | ☐ Hand sewn |
| ☐ Linear stapler | |

Gastric pouch jejunostomy loop length

cm

Stapler used for gastric pouch jejunostomy

- | | |
|---|---|
| ☐ Green (2.0 mm) | ☐ GST Black |
| ☐ Gold (1.8 mm) | ☐ GST Green |
| ☐ Blue (1.5 mm) | ☐ GST White |
| ☐ Tan (Tri Stapler) | ☐ GST Blue |
| ☐ Black TRS (Tri Stapler) | ☐ GST Gold |
| ☐ Purple TRS (Tri Stapler) | ☐ Purple (Tri Stapler) |
| ☐ White Stapler | ☐ Black (Tri Stapler) |

Route of loop GJ

- | | |
|---|--|
| ☐ Ante-colic / ante-gastric | ☐ Retro-colic / ante-gastric |
| ☐ Ante-colic / retrogastric | ☐ Retro-colic / retrogastric |

Additional procedures

- | | |
|--|---------------------------------------|
| ☐ None | ☐ Liver biopsy |
| ☐ Cholecystectomy | ☐ Other |
| ☐ Hernia repair | |

Other additional procedure

Hernia repair

- | | |
|------------------------------------|--|
| ☐ Umbilical | ☐ Incisional |
| ☐ Ventral | ☐ Hiatus hernia |

Leak test

- | | |
|--------------------------------------|--|
| ☐ Not done | ☐ Under water air seal |
| ☐ Methylene blue | ☐ Endoscopic air seal |

Leak result

- | | |
|-------------------------------|----------------------------|
| ☐ No leak | ☐ Leak |
|-------------------------------|----------------------------|

Drains

- | | |
|----------------------------------|-------------------------------------|
| ☐ No drain | ☐ Penrose drain |
| ☐ Tube drain | ☐ Suction drain |

Blood loss

- | | |
|-----------------------------------|--|
| ☐ Minimal | ☐ 50 to 100 cc |
| ☐ Up to 50 cc | ☐ More than 100 cc |

Histopathology

- | | |
|-------------------------------|------------------------------------|
| ☐ None | ☐ Liver biopsy |
| ☐ Stomach | ☐ Other |

Any complications

- | | |
|--------------------------|---------------------------|
| ☐ No | ☐ Yes |
|--------------------------|---------------------------|



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Unique patient identifier	
Date of operation	dd/mm/yyyy
Complications for mini-gastric bypass	
Date of complication	dd/mm/yyyy
Complication	☐ Leak ☐ Bleeding ☐ Obstruction ☐ Other
Details of other complication	
Leak location	☐ Gastrojejunostomy ☐ Jejunojejunostomy ☐ Gastric remnant ☐ His angle ☐ Other
Details of other leak location	
Probable source of bleeding	☐ GI tract ☐ Intra-abdominal ☐ Other
Treatment of bleeding	☐ None ☐ Blood transfusion ☐ Surgical ☐ Endoscopic
Details of other source of bleeding	
Any re-operation	☐ No ☐ Yes
Re-operation performed	☐ Band slippage; re-positioned ☐ Band removed ☐ Attention to port/tubing ☐ Re-fashioning anastomosis ☐ Gastrostomy ☐ Attention to bleeding area ☐ Enteral feeding ☐ Hernia repair ☐ Laparoscopy ☐ Drain replacement ☐ Repair gastric line staple ☐ 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



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Date of operation dd/mm/yyyy

Gastric balloon placement or removal

Type of anesthesia	☐ None ☐ Conscious sedation	☐ Deep sedation ☐ General anaesthesia
Location of gastric balloon operation	☐ Hospital ☐ Outpatient clinic	
Gastric balloon	☐ Obalon ☐ ReShape dual balloon ☐ ORBERA intragastric balloon	
Number of balloons	☐ 1 ☐ 2 ☐ 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	☐ 250 cc ☐ 500 ml ☐ 650 ml ☐ 550 ml ☐ 700 ml ☐ 600 ml ☐ Other	
Other fill volume	ml	
Methylene blue	☐ No ☐ Yes	
Has this balloon been removed yet?	☐ No ☐ Yes	
Date of removal	dd/mm/yyyy	
Any complications	☐ No ☐ Yes	





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



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Unique patient identifier

Date of operation dd/mm/yyyy

Post-operative complications and discharge

Cardio-vascular complications	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> ☐ None ☐ MI ☐ PE ☐ Stroke </td> <td style="width: 50%; padding: 5px;"> ☐ DVT ☐ Dysrhythmia ☐ Cardiac arrest ☐ Other </td> </tr> </table>	☐ None ☐ MI ☐ PE ☐ Stroke	☐ DVT ☐ Dysrhythmia ☐ Cardiac arrest ☐ Other
☐ None ☐ MI ☐ PE ☐ Stroke	☐ DVT ☐ Dysrhythmia ☐ Cardiac arrest ☐ Other		
Other cardiovascular			
Other complications	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> ☐ None ☐ Fluid / electrolyte problems ☐ Acute cholecystitis / biliary colic ☐ CBD stones / cholangitis ☐ Gastric distention ☐ Other abscess / infection / fever ☐ Acute renal failure ☐ Pneumonia / atelectasis ☐ Rhabdomyolysis </td> <td style="width: 50%; padding: 5px;"> ☐ UTI / urinary tract infection ☐ Vomiting / poor intake ☐ Wound infection / breakdown ☐ Unanticipated transfer to ITU ☐ Respiratory tract infection ☐ Leak ☐ Bleeding ☐ Portal vein thrombosis ☐ Port site infection </td> </tr> </table>	☐ None ☐ Fluid / electrolyte problems ☐ Acute cholecystitis / biliary colic ☐ CBD stones / cholangitis ☐ Gastric distention ☐ Other abscess / infection / fever ☐ Acute renal failure ☐ Pneumonia / atelectasis ☐ Rhabdomyolysis	☐ UTI / urinary tract infection ☐ Vomiting / poor intake ☐ Wound infection / breakdown ☐ Unanticipated transfer to ITU ☐ Respiratory tract infection ☐ Leak ☐ Bleeding ☐ Portal vein thrombosis ☐ Port site infection
☐ None ☐ Fluid / electrolyte problems ☐ Acute cholecystitis / biliary colic ☐ CBD stones / cholangitis ☐ Gastric distention ☐ Other abscess / infection / fever ☐ Acute renal failure ☐ Pneumonia / atelectasis ☐ Rhabdomyolysis	☐ UTI / urinary tract infection ☐ Vomiting / poor intake ☐ Wound infection / breakdown ☐ Unanticipated transfer to ITU ☐ Respiratory tract infection ☐ Leak ☐ Bleeding ☐ Portal vein thrombosis ☐ Port site infection		
Bleeding surgery	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> ☐ Required surgery </td> <td style="width: 50%; padding: 5px;"> ☐ Not required surgery </td> </tr> </table>	☐ Required surgery	☐ Not required surgery
☐ Required surgery	☐ Not required surgery		
Leak treatment procedure	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> ☐ Laparoscopic drainage ☐ Percutaneous drainage ☐ Stent </td> <td style="width: 50%; padding: 5px;"> ☐ Used pigtail ☐ Surgery </td> </tr> </table>	☐ Laparoscopic drainage ☐ Percutaneous drainage ☐ Stent	☐ Used pigtail ☐ Surgery
☐ Laparoscopic drainage ☐ Percutaneous drainage ☐ Stent	☐ Used pigtail ☐ Surgery		
Leak surgery	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> ☐ Total gastrectomy ☐ Fistulated jejunostomy </td> <td style="width: 50%; padding: 5px;"> ☐ Other </td> </tr> </table>	☐ Total gastrectomy ☐ Fistulated jejunostomy	☐ Other
☐ Total gastrectomy ☐ Fistulated jejunostomy	☐ Other		
Other leak surgery			
Patient status at discharge	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> ☐ Alive </td> <td style="width: 50%; padding: 5px;"> ☐ Dead </td> </tr> </table>	☐ Alive	☐ Dead
☐ Alive	☐ Dead		
Date of discharge (or in-hospital death)	dd/mm/yyyy		
Discharged to	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> ☐ Home ☐ Another hospital </td> <td style="width: 50%; padding: 5px;"> ☐ Other </td> </tr> </table>	☐ Home ☐ Another hospital	☐ Other
☐ Home ☐ Another hospital	☐ Other		
Reason to transfer to another hospital			
Details of other discharge destination			
Cause of death	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> ☐ Cardiac ☐ Leak ☐ Bleed </td> <td style="width: 50%; padding: 5px;"> ☐ Pneumonia ☐ Other </td> </tr> </table>	☐ Cardiac ☐ Leak ☐ Bleed	☐ Pneumonia ☐ Other
☐ Cardiac ☐ Leak ☐ Bleed	☐ Pneumonia ☐ Other		
Details of other case of death			



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Unique patient identifier
Date of follow up dd/mm/yyyy

Follow up data

Follow up visit

Patient status today	☐ Alive	☐ Dead
Cause of death		
Patient hospitalization in 30 days following discharge	☐ No ☐ Yes	
Reason for hospitalization		
Weight at follow up		kg
How was the patient followed up	☐ Hospital clinic ☐ Other clinic ☐ Other in person; phone or electronic contact ☐ Did not attend follow up/uncontactable	
Who did follow up	☐ Bariatric surgeon ☐ Bariatric physician ☐ Specialist nurse/ dietician ☐ Endocrinologist ☐ Other	
Details of the other person who did the follow up		
CT scans in follow up	☐ No ☐ Yes	
CT scans details in follow up		
Vitamins / minerals supplement	☐ No ☐ Yes ☐ No recommendation made	
Follow-up endoscopy	☐ No ☐ Yes	
Esophagitis	☐ No ☐ 2 - B ☐ 4 - D ☐ 1 - A ☐ 3 - C ☐ Non-erosive	
Stomach	☐ Bleeding ☐ Gastritis ☐ Ulcer	
Duodenum	☐ Bleeding ☐ Ulcer	
Abdominal ultrasound	☐ No ☐ Yes	
Abdominal ultrasound result	☐ Normal ☐ Severe steatosis ☐ Cholecystitis ☐ Mild steatosis ☐ Cirrhosis ☐ Other ☐ Moderate steatosis	
Other abdominal ultrasound		



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Unique patient identifier

Date of follow up dd/mm/yyyy

Follow up visit continued ...

New complications

- | | |
|--|--|
| ☐ None | ☐ Gastric stenosis |
| ☐ Leak | ☐ Gastric stricture |
| ☐ Bowel obstruction | ☐ Other |

Other new complication

Treatment of new complication

- | | |
|---------------------------------------|-----------------------------------|
| ☐ Conservative | ☐ Surgical |
| ☐ Endoscopic | |



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Unique patient identifier
Date of follow up dd/mm/yyyy

Follow up comorbidity

Clinical evidence of malnutrition	☐ No ☐ Yes													
Type 2 diabetes	☐ No diabetes ☐ Impaired glycaemia or impaired glucose tolerance ☐ Oral hypoglycaemics ☐ Insulin treatment ☐ OAD+insulin treatment ☐ No indication of type 2 diabetes ☐ Not investigated ☐ Unknown													
HbA1c	☐ No ☐ Yes ☐ Not investigated													
HbA1c value														
Duration of type 2 diabetes	<table border="0"> <tr> <td>☐ <1 year</td> <td>☐ 3 years</td> <td>☐ 6 years</td> <td>☐ 9 years</td> </tr> <tr> <td>☐ 1 year</td> <td>☐ 4 years</td> <td>☐ 7 years</td> <td>☐ 10 years</td> </tr> <tr> <td>☐ 2 years</td> <td>☐ 5 years</td> <td>☐ 8 years</td> <td>☐ >10 years</td> </tr> </table>		☐ <1 year	☐ 3 years	☐ 6 years	☐ 9 years	☐ 1 year	☐ 4 years	☐ 7 years	☐ 10 years	☐ 2 years	☐ 5 years	☐ 8 years	☐ >10 years
☐ <1 year	☐ 3 years	☐ 6 years	☐ 9 years											
☐ 1 year	☐ 4 years	☐ 7 years	☐ 10 years											
☐ 2 years	☐ 5 years	☐ 8 years	☐ >10 years											
Hypertension	☐ No hypertension ☐ Treated hypertension ☐ Untreated hypertension ☐ Not investigated													
Lipids	☐ No indication of dyslipidaemia ☐ Dyslipidaemia ☐ Other													
Other lipids														
Diagnosed sleep apnea	☐ No ☐ Yes ☐ Not investigated													
Sleep apnea treatment	☐ None ☐ CPAP ☐ BiPAP													
Functional status	☐ Can climb 3 flights of stairs without resting ☐ Can climb 1 flight of stairs without resting ☐ Can climb half a flight of stairs without resting ☐ Requires wheelchair/housebound													
GERD	☐ No symptoms ☐ Intermittent symptoms; no medication ☐ Intermittent medication ☐ Daily medication (H2RA/PPI) ☐ Previous anti-reflux operation													
Type of previous anti-reflux operation														
Back or leg pain	☐ No ☐ Yes													



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Date of follow up dd/mm/yyyy

Follow up comorbidity continued ...

Poly-cystic ovarian syndrome

- | | |
|--|-----------------------------------|
| ☐ No indication / diagnosis; no medication | ☐ Infertility |
| ☐ Diagnosis of PCOS; no medication | |
| ☐ PCOS on medication | |

Menstrual

- | | |
|--|---|
| ☐ Regular menstrual cycle | ☐ Amenorrhea |
| ☐ Irregular / infrequent periods | ☐ Previous hysterectomy |
| ☐ Menorrhagia | ☐ Post-menopausal |

Depression

- | | |
|---|--|
| ☐ No indication of depression | ☐ Depression on medication |
|---|--|



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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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