Bariatric Surgery
...and the march of obesity

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Body Mass Index (BMI)

- Calculation of BMI:
  - weight (kg) / height (m)^2 for example: 80 / 1.60^2 = 31.25
- Overweight is defined as a BMI ≥ 25
- Obesity is defined as a BMI ≥ 30
- *Note: BMI does not differentiate between body fat and muscle mass*.

International cut-off points for adults aged 18 years and over

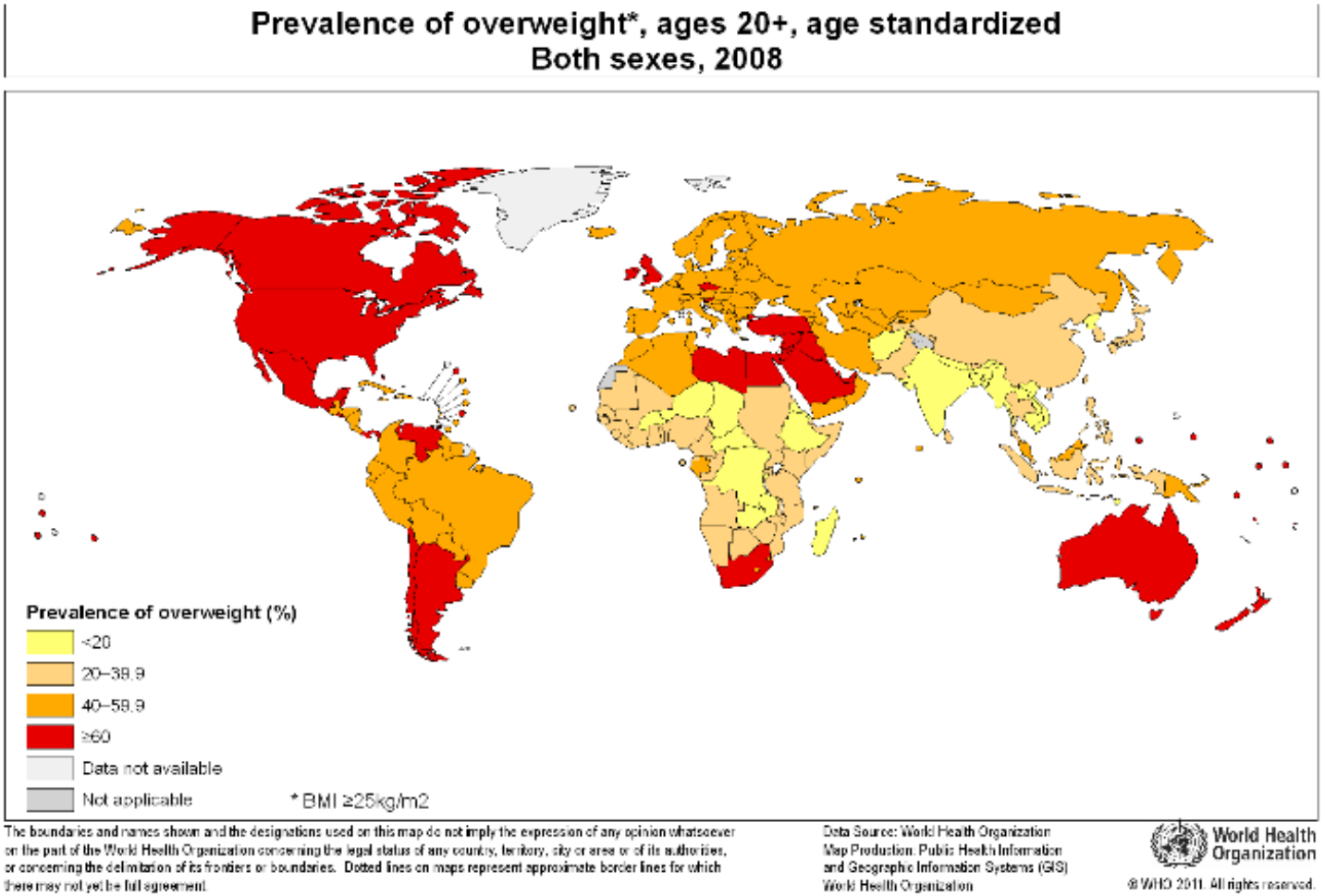
Classification	BMI score (kg/m^2)	Risk of co-morbidity (multiple diseases)
Underweight	< 18.50	Low risk (but risk of other clinical problems increased)
Normal range	18.50–24.99	Average risk
Overweight	25.00–29.99	Increased risk
Obese:	≥ 30.00	High risk
Obese (class I)	30.00–34.99	Moderate risk
Obese (class II)	35.00–39.99	Severe risk
Obese (class III)	≥ 40.00	Very severe risk

Global Weight Issues

- Globally - 2008:
  - More than 1.4 billion adults aged 20+ overweight
  - Of these, 200 million men and 300 million women considered obese
  - Approx 20% adults overweight and 7-10% obese
  - More than 40 million children under 5 overweight or obese
  - Overweight and obesity once high income country problem – now spreading to low/middle income as well[1]

1. http://www.who.int/mediacentre/factsheets/fs311/en

Global Weight Issues



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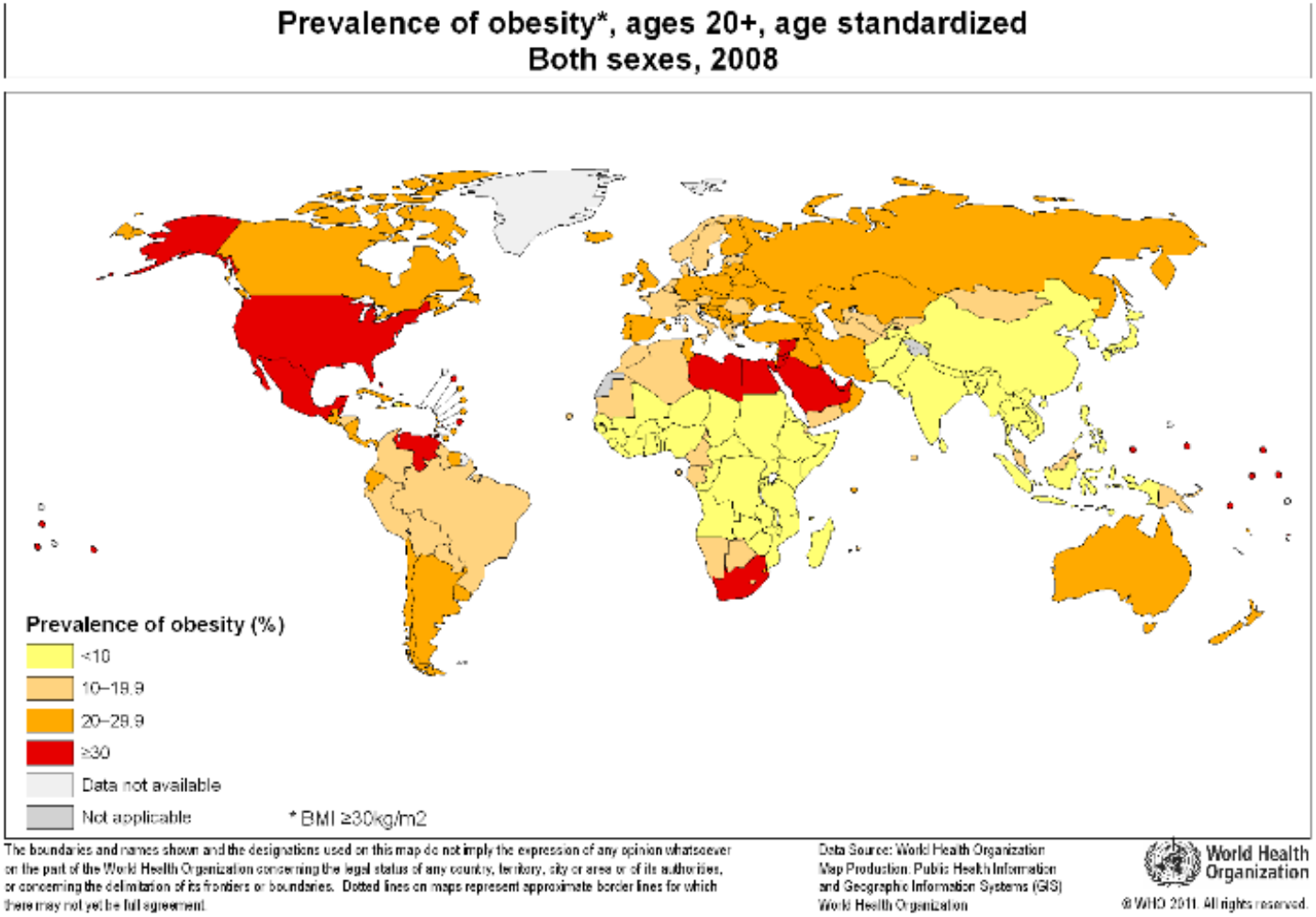
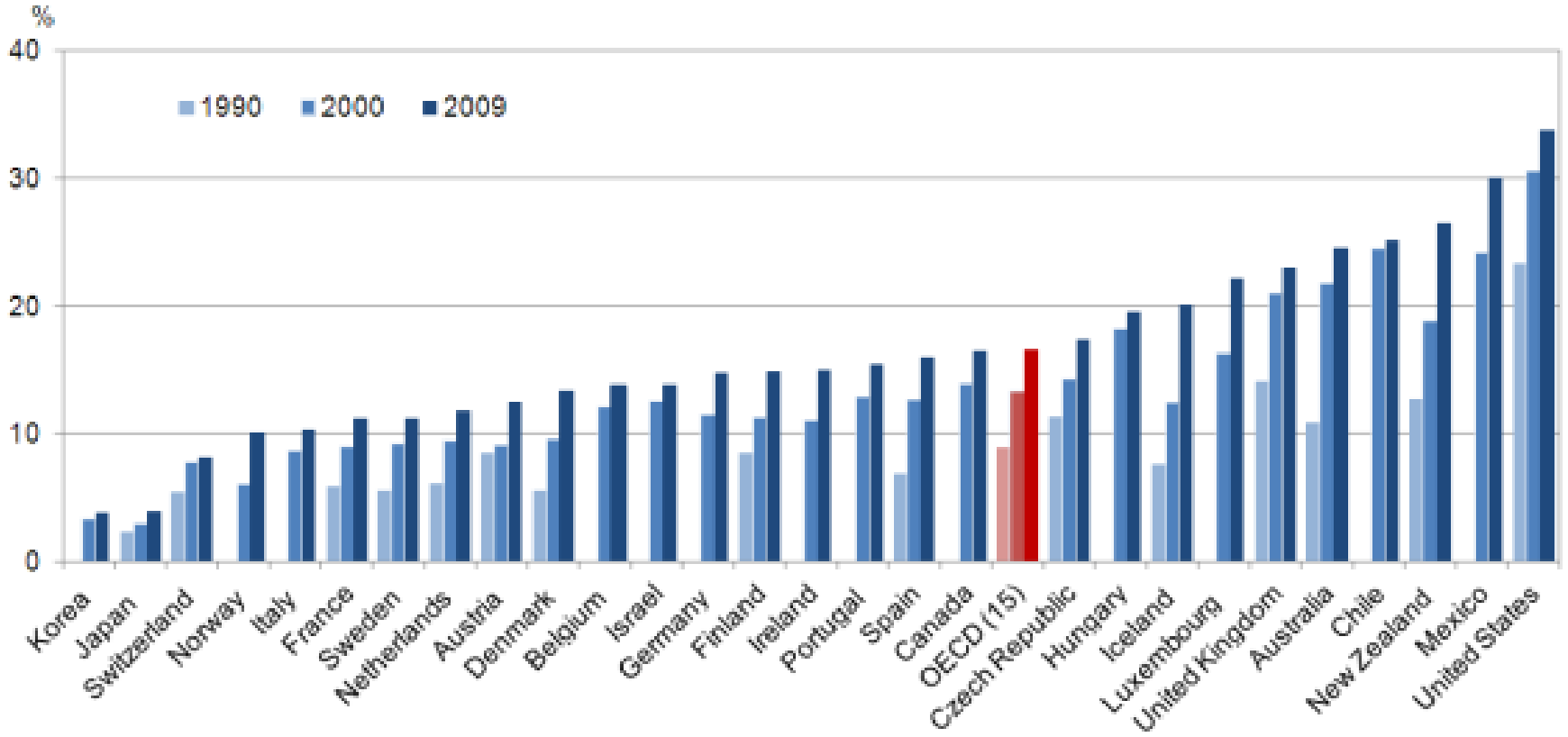


Global Obesity rates



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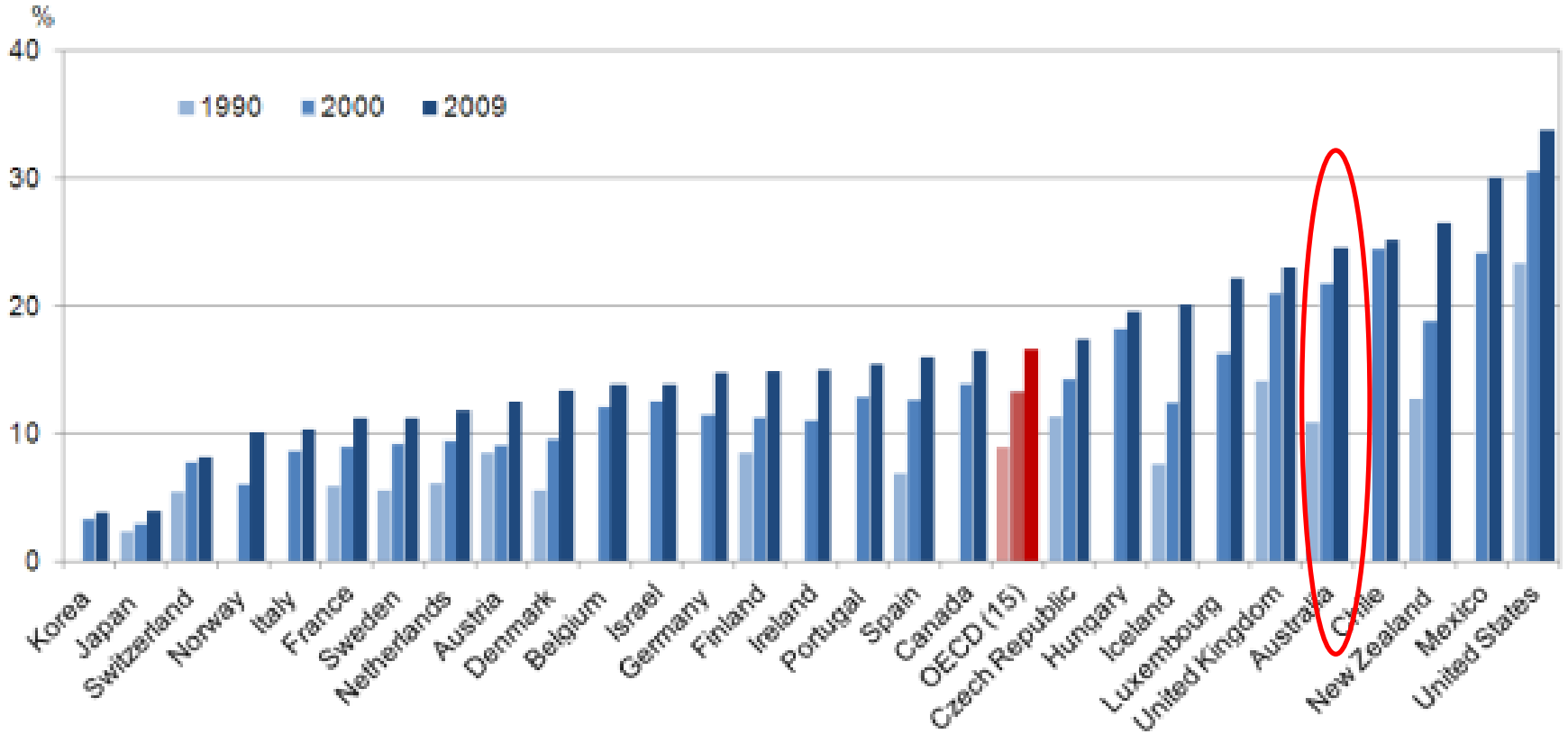

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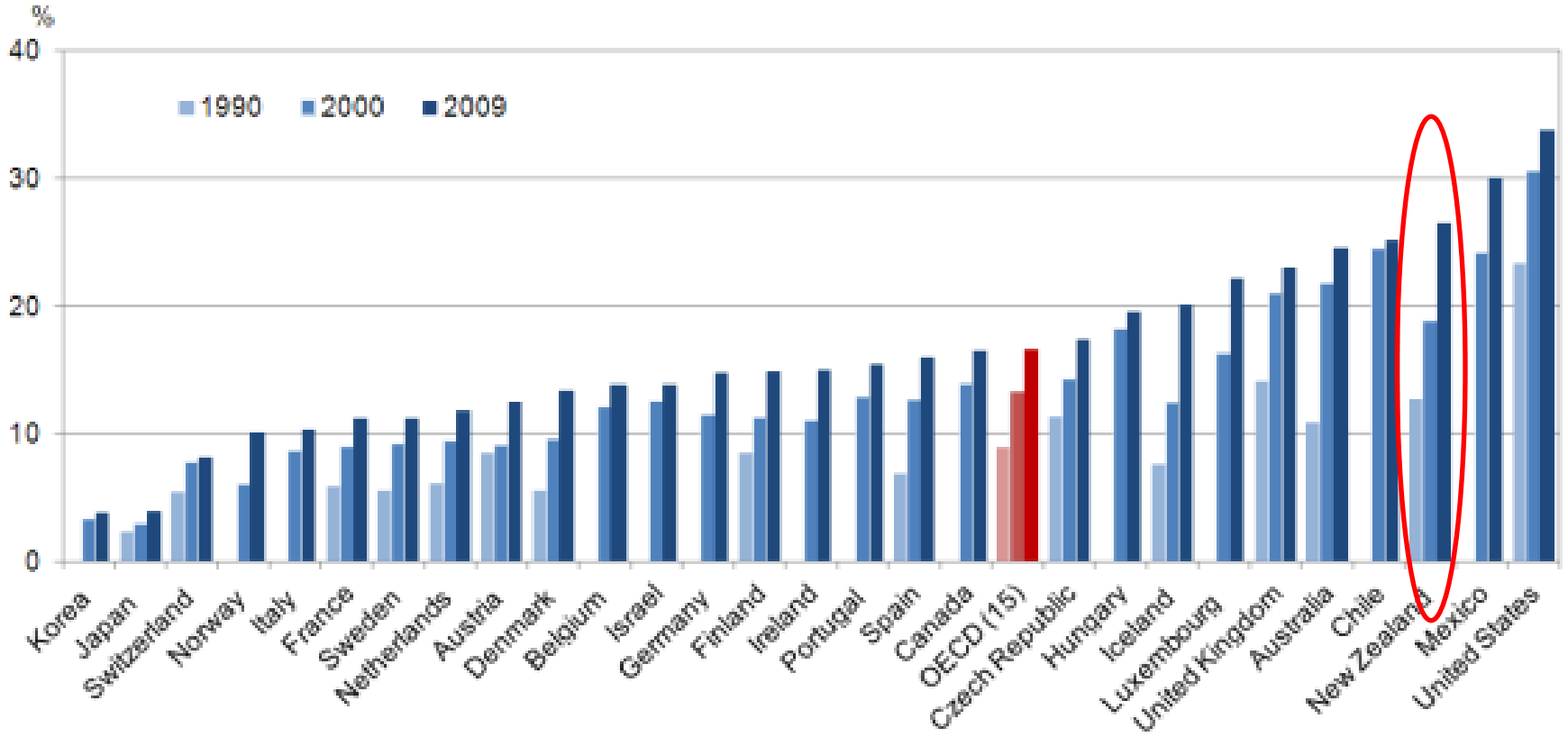

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Australia statistics

- Global rates of obesity continue to climb.
- 2003 - 60% of Australian adults – overweight/obese (MJA: 05/2003)
- 2012 - increased to 63% (approx. 14 million - Australian Bureau of Statistics)

  - >25% of these adults classified as obese

  - children aged 2 to 17 - 25% overweight or obese

  - children aged 2 to 4 - 22.8% overweight or obese

New Zealand statistics

Adult obesity statistics

- 2007 – third most obese nation in world at 26.5%
- Approx 66% of NZ'ers considered overweight or obese
  - 28% are in the obese range (The Lancet)
- Currently only smoking and high blood pressure surpass overweight/obesity as a contributor to burden of disease.

New Zealand statistics

The 2012/13 New Zealand Health Survey found:

- almost one in three adults (aged 15+) were obese (31%), a further 34% were overweight
- 48% of Māori adults were obese
- 68% of Pacific Island adults were obese
- increase in obesity in males from 17% in 1997 to 30% in 2012/13
- increase in obesity in females from 21% in 1997 to 32% in 2012/13.

http://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/obesity-data-and-stats

New Zealand statistics

Child obesity statistics

The 2012/13 New Zealand Health Survey found that:

- 1 in 9 children (aged 2–14 years) were obese (11%)
- a further 1 in 5 children were overweight (20%)
- 19% of Māori children were obese
- 27% of Pacific Island children were obese
- children in the most deprived areas 3 times as likely to be obese as children living in the least deprived areas.
- childhood obesity rate increased from 8% in 2006/07 to 11% in 2012/13.

http://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/obesity-data-and-stats

Issues associated with obesity

- Diabetes (8 fold higher incidence rate vs non obese)
- Hyperlipidemia (10 fold higher incidence)
- Blood circulation diseases (heart disease, high BP – 4 fold higher incidence, stroke, palsy, DVT risks, etc)
- Respiratory disorders (sleep apnoea, asthma)
- Skin disease
- Osteoarthritis (joint problems, back, knee, ankle, wrist – 4 fold increase carpal tunnel)
- Liver disease (Fatty liver - 2.5 fold higher incidence)
- Cholelithiasis

Issues associated with obesity

- Immune system deficiency
- Increased risk of kidney failure
- Menstrual abnormalities, female infertility, female stress incontinence
- Cancer – breast, endometrium, colon/rectum, oesophagus, stomach, kidney
- Decline in libido
- Mental stress
- Etc, etc, etc

Bariatric Surgery – what is it?

- Surgery on the stomach and/or intestines to help a person with extreme obesity lose weight.
- Is option for people - (BMI) above 40.
- Also option for people with a BMI 35 – 40 and comorbidities like type 2 diabetes or heart disease.
- Insufficient evidence to either prove or disprove benefits of bariatric surgery in a patient with a BMI <35

Bariatric Surgery – types of surgery

- Two basic types of bariatric surgery
  - restrictive surgeries
    - physically restricting the size of the stomach and slowing down digestion.
  - malabsorptive/restrictive surgeries
    - more invasive, restricts size of the stomach, physically removes parts of the digestive tract, and therefore interferes with absorption of calories

Guidelines for surgery - overseas

- New Policy for the surgical treatment of obesity (SMOB, Switzerland)
  - Valid from 2014 - Surgical treatment when:
    - BMI ≥ 35 and
    - 2 year history of unsuccessful weight reduction (only 1 year if BMI extreme – above 50)
- S3 guideline: complications of obesity (Germany) Regulations, 2011
  - After exhaustion of conservative therapy bariatric surgery is indicated
    - BMI ≥ 40
    - BMI ≥ 35 and at least one obesity-associated comorbidity
  - T2DM is independent indication criterion under study conditions when BMI <35 (that may be considered)
  - Update for 2014 is expected

Why Bariatric Surgery?

- Many obese individuals struggle with diet and exercise regimes to lose weight.
- Surgical intervention is often very effective in this situation.
- Bariatric surgery - most often in adult individuals with BMI of at least 35, and /or where there are also significant obesity related health problems.
- Is increasing trend to perform surgery in young obese individuals i.e. under 18 years of age.

Types of Bariatric Surgery?

Most common types of Bariatric Surgery

- Laparoscopic adjustable gastric banding (LAGB)
- Sleeve gastrectomy (SG)
- Roux-en-Y gastric bypass (RYGB) – gastric bypass

Lap Banding (LAGB)

- Stomach divided into two by laparoscopic placement of soft, adjustable silicon ring (gastric band)
- Band creates small reservoir, and narrow channel for food to pass through
- Reduces patients ability to eat as much – feel full more quickly, and for longer periods of time

LABG

- Tightness of band and resultant gastric restriction is adjusted by either injection of further saline (tightening) or withdrawing saline (loosening) via the infusion port.
- Easily performed via small incisions using a laparoscope and is therefore minimally invasive.
- Weight loss - 45% -75% of pre surgery weight after two years
- Patients need to be committed to following a dietary program to maintain their weight loss and lessen the risk of digestive problems.
- Most complications:
  - band being too loose or too tight
  - slips into the wrong position
  - erodes through the stomach wall
  - tubing can disconnect from the port or port migrates from the insertion site.

Sleeve Gastrectomy

A procedure removing up to 75% of the greater curvature of the stomach leaving a narrow sleeve.

Sleeve Gastrectomy

- Surgery results in smaller stomach
- Removal of so much tissue reduces the production of the hunger-triggering hormone, ghrelin.
- Is more effective in producing significant weight loss than LAGB
- Does not reduce nutritional absorption
  - less risk of malnutrition/digestive disorders that are common the other procedures.
- Patients lose on average 33% of their excess weight within the first year.

Sleeve Gastrectomy - Complications

- Lower complication rate and lower mortality rate
  - Due to ease of performing the procedure (laprascope) and maintenance of normal flow of food through the stomach.
- Bleeding is a more common early complications
  - occurs in up to 4% of patients (generally related to the resected and stapled area).
- More serious early complications
  - gastric leak - stomach contents leaks into the peritoneal cavity
    - can occur in up to 5.3% of patients.
  - pulmonary emboli and DVT are the most common causes of death
  - up to 30% of deaths associated with pulmonary embolus.
- Other longer term complications
  - hiatal hernia, especially in morbidly obese patients;
  - dilatation of the gastric sleeve;
  - small bowel obstructions;
  - cholelithiasis (rapid weight loss in morbidly obese patients can lead to gall stones).

Roux-en-Y Gastric Bypass

Roux-en-Y gastric bypass surgery is where the stomach is permanently divided into two unconnected parts, with the upper part being connected directly to the lower small intestine.

Roux-en-Y Gastric Bypass

Food bypasses parts of the stomach and upper small intestine. The resultant small stomach pouch (less than 30ml) encourages patients to eat less, and their digestive tract absorbs fewer calories.

Roux-en-Y Gastric Bypass

- Rapid weight loss (up to 50% of excess weight in the first 6 months).
- BUT reduced food absorption increases the risk of malnutrition and other unpleasant digestive side effects.
- High success rate
  - Weight loss averages 4.5 – 7 kg per month.
  - Patients lose on average between 62% - 68% of excess body weight in first year.
  - Two years post-op - overall weight loss of 50% - 75% may be expected.
- Involves an open surgical procedure.
- Surgery is more complex than sleeve gastrectomy
  - complications are much more diverse.

RYGB - Complications

- Dumping syndrome - moderate to longer term common complication
  - occurs in up to 50% of patients.
  - Food is moved much more quickly to the small intestine and the resultant symptoms are nausea, bloating, vomiting, cramping, abdominal pain, fatigue and light headedness.
- Change in bowel habits - loose stools/diarrhoea more common problems and related to dumping syndrome.
- Surgical complications include:
  - leaking, which normally occurs within the first 30 days post-surgery;
  - marginal ulcers that can result from acid injuring the jejunum and internal hernia, which occurs in up to 5% of patients.

RYGB – Complications

- Longer term complications include:
  - cholelithiasis, which can be associated with rapid weight loss
  - gastric remnant (pouch) may become progressively distended leading to rupture, spillage of gastric contents and peritonitis (a rare but potentially life threatening complication);
  - post-operative hypoglycaemia (occurs in a small number of patients).
- May require lifelong compliance with a prescribed diet and vitamin supplements plan.
- Successful outcome overall in losing weight following this procedure
  - studies have shown risk of significant late weight regain in up to 20% of patients.

Outcomes of Bariatric Surgery

- Marked improvement in established diabetes, hypertriglyciridaemia, hypertension and hyperuricaemia.
- Reduction in incidence rate of diabetes, hypertriglyciridaemia and hyperuricaemia.
- Bariatric surgery vs non-surgical weight loss - No significant differences in the incidence of hypertension and hypercholesterolemia.
- Some observational epidemiologic studies have suggested weight loss is associated with increased overall mortality and morbidity from cardiovascular risks.
- Overall, gastric bypass proved the most effective procedure for weight loss and improvement in obesity related risk factors.
- Gastric banding proved to be the least effective.

General Complications

- Almost 50% of patients required 1 or more revisional procedures, including revision or replacement of band.
- Other complications resulting in removal of band:
  - reflux
  - heartburn
  - erosion of band, or removal due to infection
  - poor weight loss.
- Incidence of Type 2 DM, commonly associated with obesity, was less in those having achieved significant weight loss through bariatric surgery.
- Resultant loose skin with obese, has a physical and psychological impact on patients having lost a great amount of weight.
- Further surgery may be required to remove excess skin.

Complications

Excessive loose skin is both a physical and psychological issue in the previously morbidly obese.

Longer-Term Results

- Long-term results reveal 10 years post-surgery, most patients had managed to maintain more than 50% of their estimated weight loss.

- Results of Swedish study (2012) revealed:
  - some weight regained with the average being 20 kg at both 10 years and at 15 years (which would be considered significant regain).

Before and After – Case Study Issue

John Doe, at his heaviest was 32 stone (203 kg)

At his lightest he reduced to 15 stone (95 kg)

Junk food addict had £30,000 of NHS surgery…

but liquidises kebabs to cheat his gastric band!

Liquidised Kebab!!

- Dr Chris Sherlock, psychiatrist, on why this patient regained weight following surgery:

- Emotionally uncontrollable behaviour not addressed by surgery
- Many people face the same problems after this kind of treatment.
- Quick fix, but doctors have undermined his responsibility for own eating habits.
- Having a gastric band is like being put in a prison
  - you’re restricted but you’re not learning to control your own behaviour.
- Self-discipline programme also required
  - allow a person to control the way they deal with his urges by themselves - not by tightening or loosening a gastric band.
- Is a behavioural issue rather than physical one and needs to be dealt with as such.

Underwriting Bariatric Surgery Applicants

Underwriting Considerations and Concerns

- Increasing in popularity
- Surgery doesn't undo vascular damage caused by obesity
  - May reduce future risks associated with continuing to be obese and the other conditions that are related to obesity.
- Statistically, the mortality /morbidity of obese patients who have undergone bariatric intervention does not reduce to that of non-obese group, for many years.
- There are still long term risks and side effects that result from bariatric procedures being undertaken.
- Longer term side effects and failure rates need to be considered when underwriting patients who have undergone bariatric surgery.
- Patients can still regain weight if they continue old eating habits
  - Will lead to treatment failing in long run, and so longer term post-surgical care and follow up need to be evident in order to provide a more favourable underwriting approach.

Underwriting Bariatric Surgery Applicants

- Increase in applicants with bariatric surgery
  - In the younger age groups
  - BMI less extreme (from an insurance point of view, we will likely see more people with lower BMI's undergoing bariatric surgery)

- Acceptance of risks – considerations
  - Sufficient period post-surgery before considering in view of complications, etc.
  - Is there any planned cosmetic surgery?
  - Is new weight "permanent"? Sufficient time post-surgery to ensure weight stays off?
  - Is there ongoing therapeutic support and is it successful i.e. counselling/psychological?
  - Is there an existence of comorbidities
  - Particularly in the case of disability insurance
    - Mentally stable?
    - Currently in a stable work environment
    - Any damage to the spine or joints in the past?

Conclusion

- Obesity is a “growing” problem globally
- Diets not solving the problem
  - Increase in cheap fatty fast food outlets
  - Problem is junk food is cheaper than healthy food
  - More attractive to the taste buds as well
- Will see increase in bariatric surgery in the future
- Concerns regarding young children and obesity
- Bariatric weight loss does not = normal healthy persons future risks
- Still longer term medical issues related to bariatric surgery as well as to past obesity
- Care in underwriting these types of cases
- Ongoing studies so stay up to date

Thank you

Matthew Ramjan

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