Bienne _ 30 mars 2019

Carences nutritionnelles après chirurgie bariatrique

NutriDays 2019

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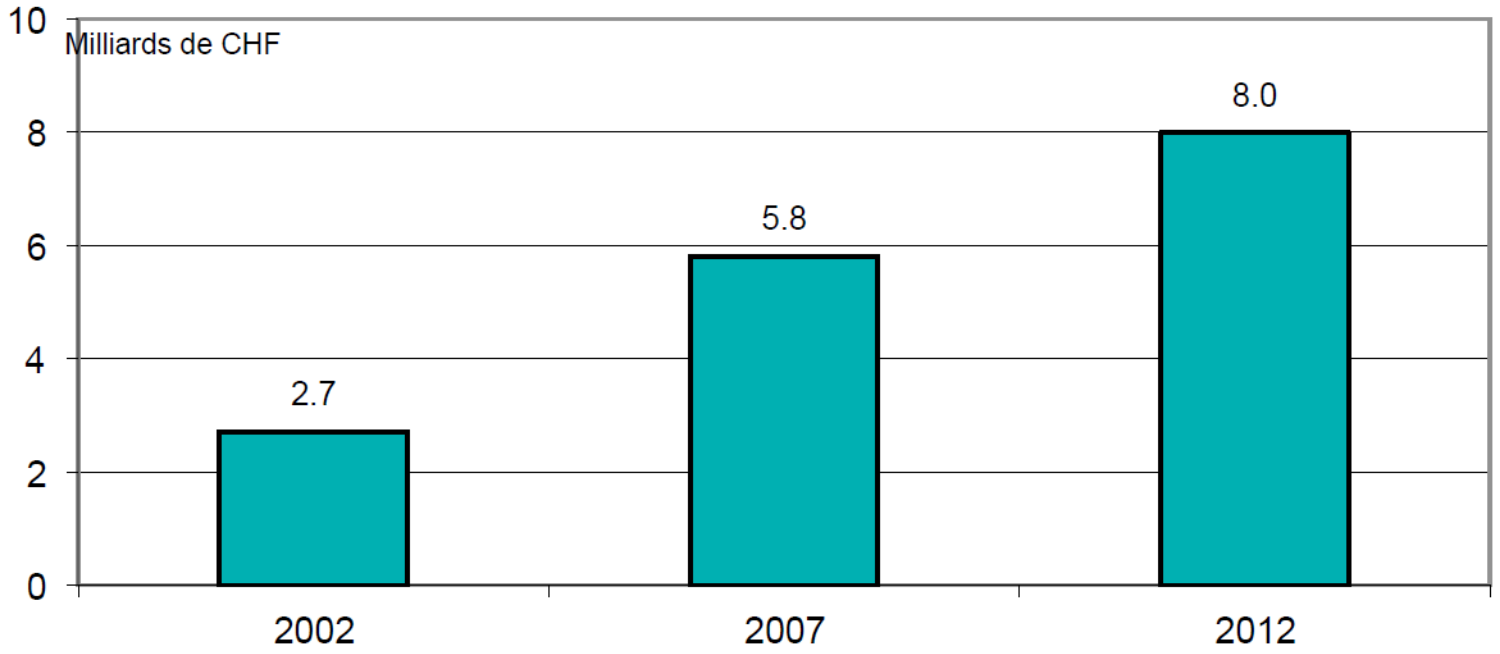
Endocrinologie, diabétologie et métabolisme

Cost of obesity in Switzerland

A) Coûts du surpoids et de l'obésité en Suisse, de 2002 à 2012 (en milliards de CHF)



Source : Schneider et Venetz (2014).

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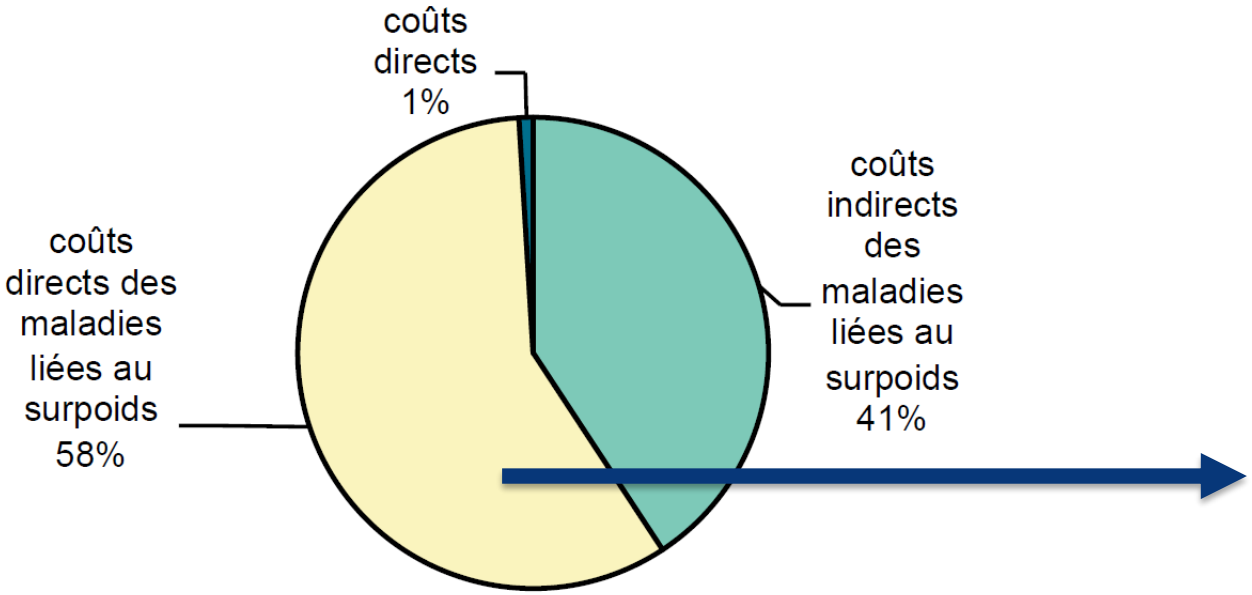
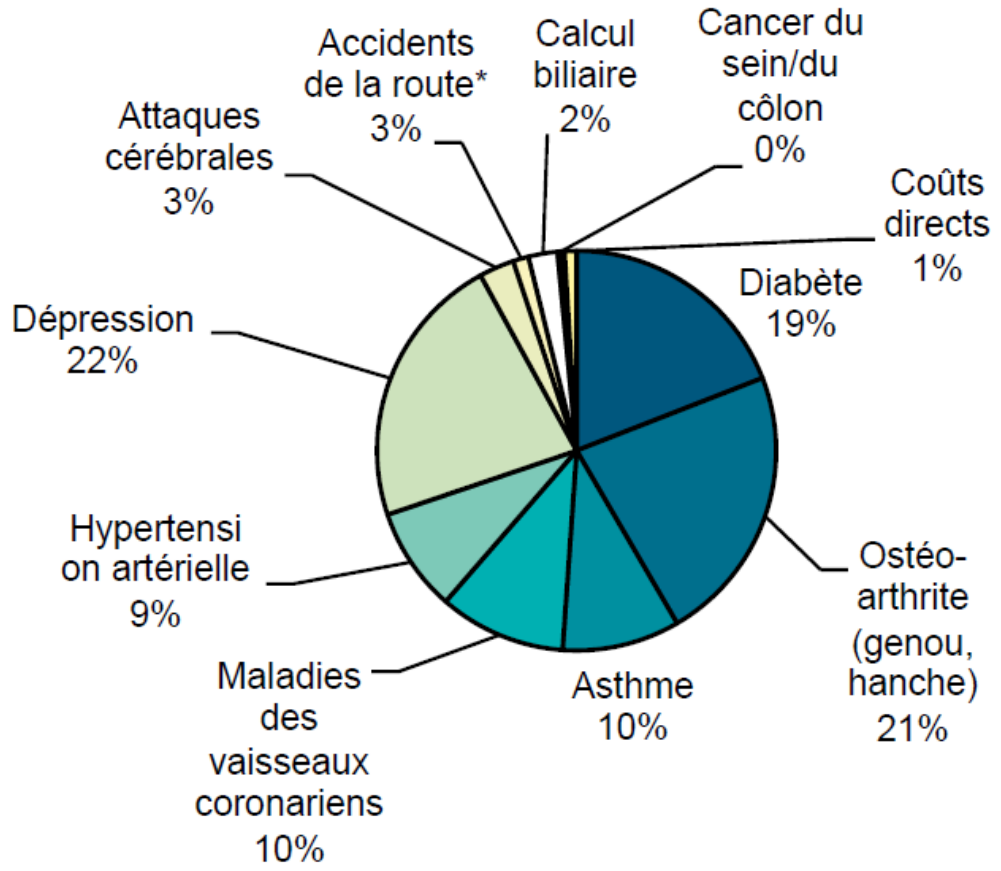
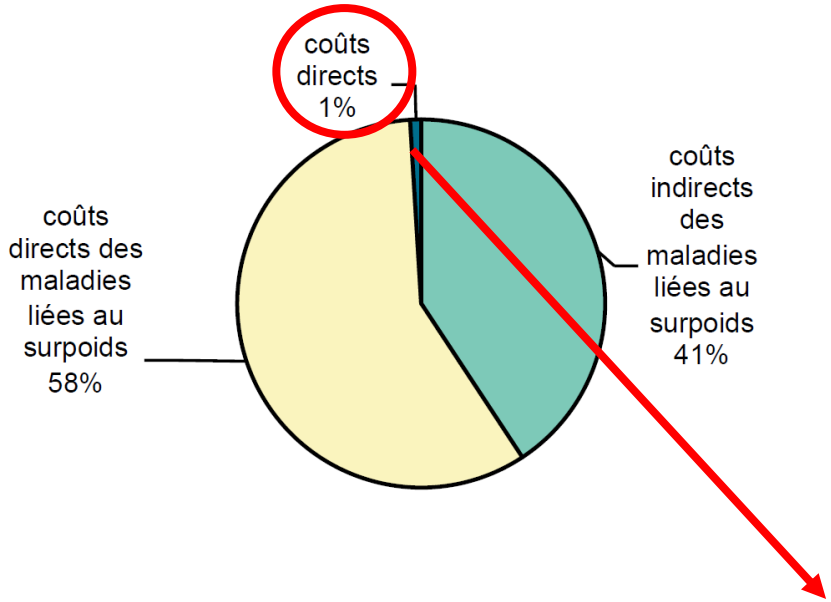
Cost of obesity in Switzerland







B) Coûts directs du surpoids et de l'obésité, 2007 et 2012 (en millions de CHF)

	2007	2012
Médicaments	25	24
Opérations	19	50
Consultations	3	3
Total	*47*	*77*

Source : Schneider et Venetz (2014)

Bariatric surgery in Switzerland

Swiss Society for the Study of morbid Obesity and metabolic disorders

3.1.8. Das multidisziplinäre bariatrische Team ist verpflichtet, alle bariatrischen Patienten lebenslang nach zu kontrollieren.

3.2.4. Das anerkannte bariatrische Zentrum stellt eine Nachbetreuungsrate von mindestens 75% seiner Patienten über minimal 5, bei jugendlichen Patienten <18 minimal 10 Jahre sicher.

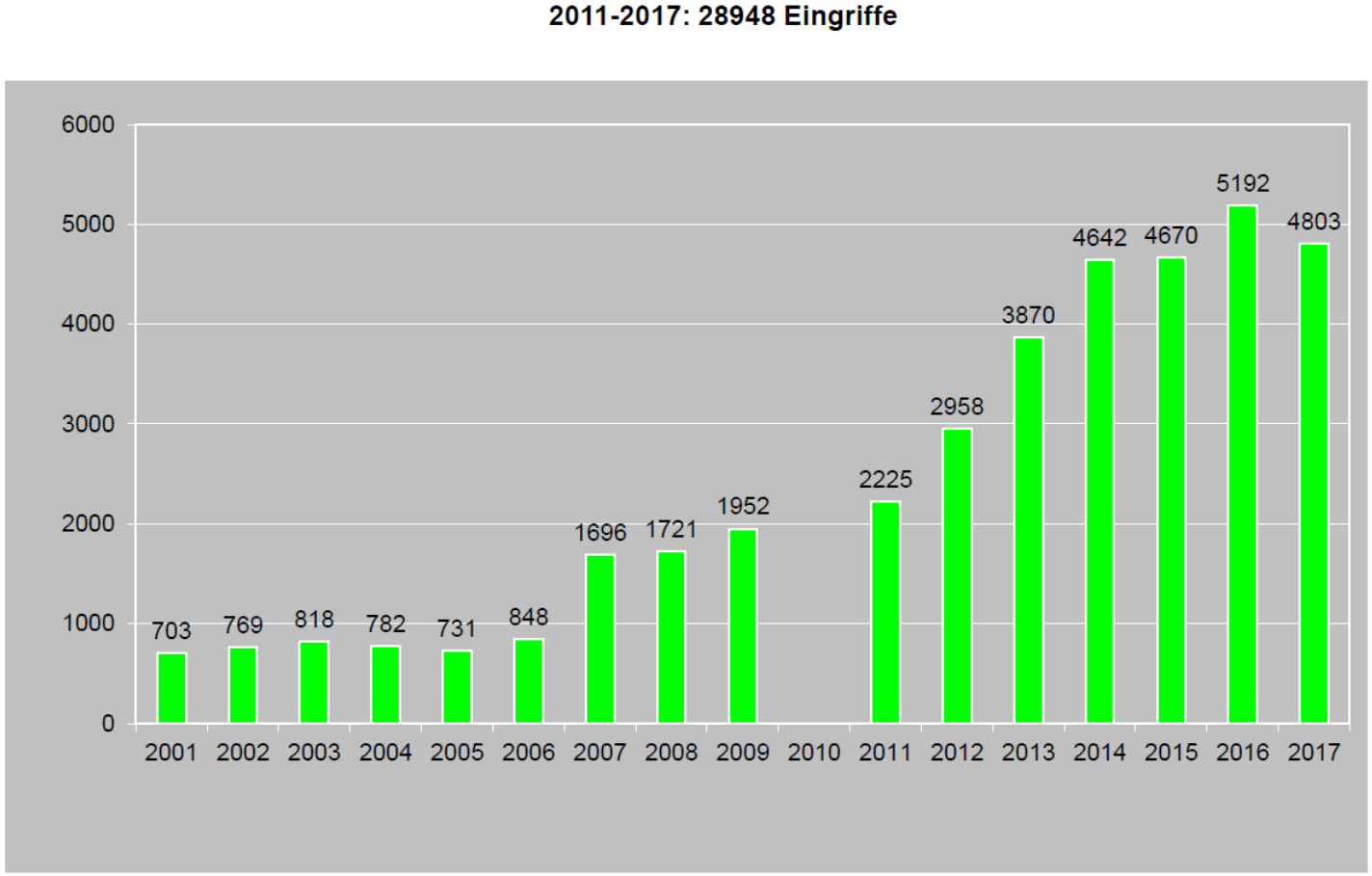
3.1.8 L'équipe multidisciplinaire a l'obligation de suivre les malades à vie après l'intervention chirurgicale selon les directives SMOB. Le suivi peut différer d'un cas à l'autre en fonction de l'intervention réalisée, mais doit être unitaire pour une opération donnée.

3.2.4 Les centres reconnus doivent pouvoir faire état d'un taux documenté de suivi des malades par les membres de l'équipe multidisciplinaire d'au minimum 75% à 5 ans.

- **Multidisciplinary long-term follow-up is recommended after bariatric surgery and the provision of an adequate follow-up program is mandatory for bariatric centers.**
- Any time, a patient can be redirected to team that had prepared and operated him.

canton de vaud

CHUV



Giving the accumulating numbers of bariatric patients, follow-up should be at least in part transferred to primary care over time

There is a growing need for dissemination of first-level knowledge in managing bariatric patients

The aim of this presentation is therefore to **provide a brief but comprehensive review** of the major practical recommendations for post-bariatric surgery medical management

Referral to bariatric multidisciplinary center, preferably the one performing the original procedure, should be considered in case of **more complex clinical situations**

Guidelines for nutritional management post-bariatric surgery

AACE/TOS/ASMBS: Clinical Practice Guidelines for the Perioperative Nutritional, Metabolic, and Nonsurgical Support of the Bariatric Surgery-2013 Update. Surg Obes Relat Dis; 9 (2013) 159-191

ASMBS: American Society for Metabolic and Bariatric Surgery Integrated Health Nutritional Guidelines for the Surgical Weight Loss Patients 2016 Update: Micronutrients. Surg Obes Relat Dis; 13 (2017) 727-741

Endocrine and Nutritional Management of the post-bariatric surgery patient. **An Endocrine Society Clinical Practice Guideline**. JCEM 2010, 95, 4823-4843

Practical recommendations of the Obesity Management Task Force of the **EASO** for the Post-Bariatric Surgery Medical Mx. Obesity Fact. 2017,

Plan

1. Micronutrient supplementation
2. Management of co-morbidities
3. Contraception and Pregnancy
4. Pharmacotherapy after bariatric surgery
5. Psychological aspects

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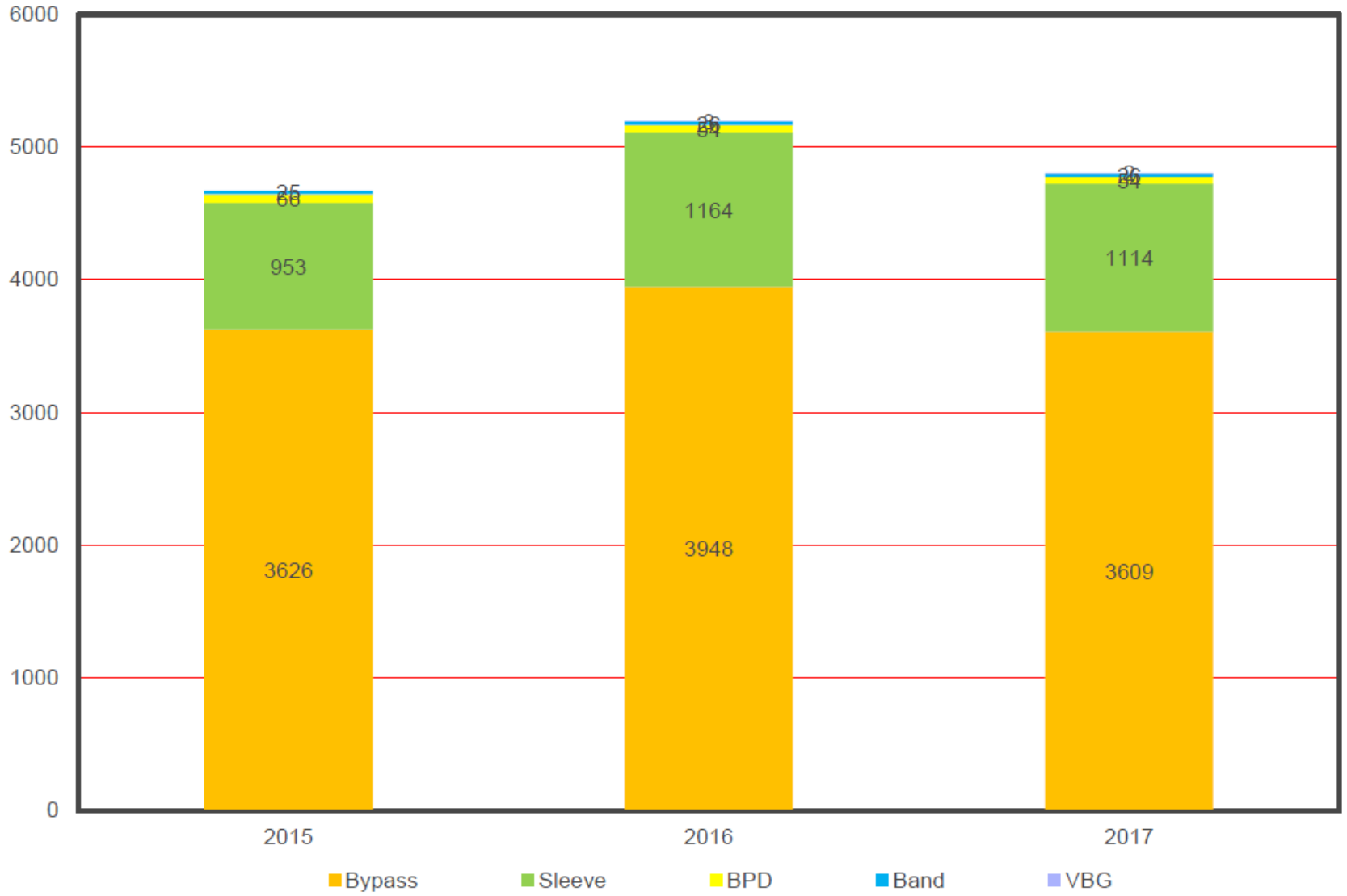
Micronutrient supplementation

The occurrence of vitamin and mineral deficiencies is one of the most common problems after bariatric surgery

The anatomical characteristics and the mechanisms of action of the various procedures mostly dictate the frequency and severity of vitamin and mineral deficiencies

However, **the occurrence of nutritional deficits is influenced by factors independent from the surgical technique** :

- Regular and nutrient-dense food intake
- Adherence with post-operative mineral and supplementation



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Swiss Society for the Study of morbid Obesity and metabolic disorders

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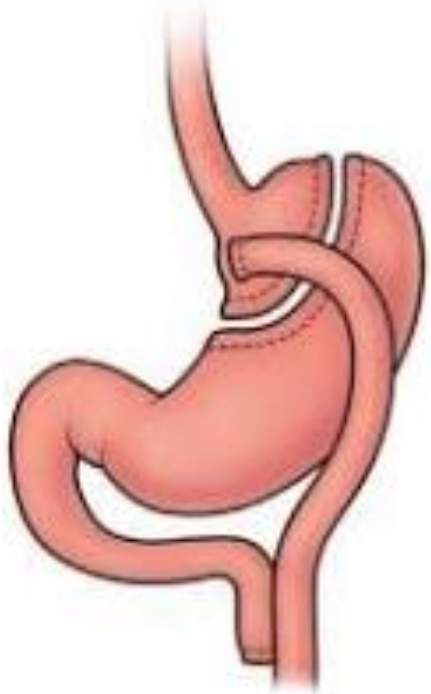
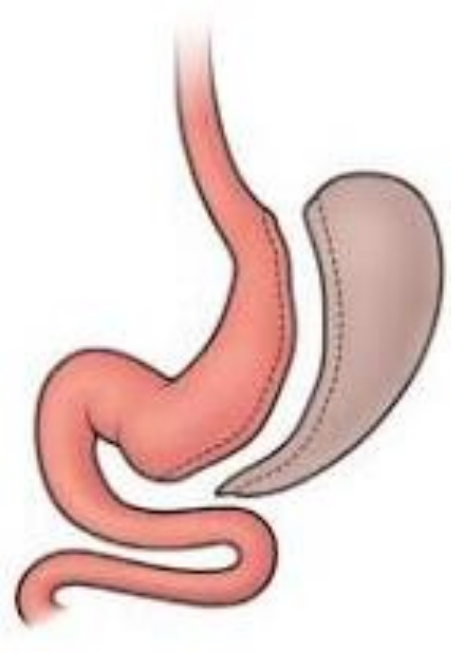
RYGB



- Primary sites of absorption are bypassed (duodenum and proximal jejunum)
- Reduced gastric acid and intrinsic factor secretion

Sleeve Gastrectomy



Accelerated gastric emptying => faster gastrointestinal passage promote nutrient deficiencies

In this presentation, I suggest the same recommendations for the medical management after these two surgeries. Future data will eventually suggest different recommendations

Multivitamin + Mineral

Minimal daily nutritional supplementation should include:

1. **One multivitamin** plus mineral supplements containing
   - Folic acid 400 ug
   - Thiamine (vitamin B1)

2. **Calcium supplement 1000 mg/d** with **vitamin D min 800 Ui/d**

However, **this is not sufficient to ensure adequate supplementation** and a biochemical monitoring for micro- and macro-nutritional deficiencies after bariatric surgery is recommended annually

Minimal periodic surveillance for nutritional deficiencies after bariatric surgery

	1x/year	Pre-conceptional / Pregnancy
Complete blood count	X	X
Electrolytes, Creatinine	X	X
Glucose, HbA1c	X	X
Liver function tests	X	X
Albumin / prealbumin	X	X
Ferritin	X	X
Vitamin B12	X	X
Vitamin B9 (Folate)	Particular attention to female patients of childbearing age	X
Vitamin B1 (Thiamin)	Particular attention to patients with GI symptoms (nausea, vomiting, rapid weight loss)	X
25-OH-vitamine D, Ca, PTH, P	X	X
Zinc	X	X
Vitamin B2, B6	optional	X
Vitamin A, K	optional	X
Copper, Selenium	optional	X

The type and frequency of monitoring not only reflect the bariatric procedure but also the need of individual patients.

Vitamin B_{12}

Very common

Cobalamin stores are usually high and vitamin B_{12} deficiency is therefore rare in the first year after surgery, but tends to increase with time

Factors :

- Decreased acid production in the stomach
- Reduced secreting of intrinsic factor
- Reduced meal consumption

Untreated vitamin B12 deficiency may result in irreversible neuropathy

Treatment first phase

- Intranasal 500ug/push, 1-3 times/week
- Parenteral 1’000 ug /1-4 months im

Vitamin B1 _ Thiamine

Causes:

The human body has a low storage for the water-soluble vitamin B1 and can become rapidly devoid without regular and sufficient intake

A **short period of persistent vomiting** impairing regular food intake can precipitate thiamine deficiency

Risk factors:

Prolonged post-operative vomiting

Excessive alcohol consumption

Rapid post-bariatric weight loss

Non-compliance with multivitamin supplementation

Psychogenic anorexia

Clinical manifestations:

Peripheral neuropathy

Wernicke's encephalopathy and Korsakoff's psychoses

13 case reports on Wernicke encephalopathy following Sleeve gastrectomy

Prevention:

Daily multivitamin

Oral or parenteral thiamine supplementation (100 mg/d) should promptly be considered and started in every bariatric patient suffering from persistent vomiting

Iron deficiency

Common; most frequently in menstruating women

Factors :

- Iron absorption occurs mostly in the duodenum and proximal jejunum
- Absorption is aided by the acid secretion of the stomach
- Intake in iron-rich foods is reduced

Treatment first phase

- Oral Fe^{2+} with vitamin C
- Away from calcium supplements (2h)

Treatment second phase

- Parenteral iron administration

Vitamin D

Causes

- Vitamin D is a fat-soluble vitamin absorbed preferentially in the jejunum and ileum
- Obese patients frequently present vitamin D deficiency at baseline

Prevention

- Min 800 U of vitamin D oral per day
- This standard supplementation is frequently insufficient to maintain sufficient vitamin D levels in patients with malabsorption
- Higher oral or parental doses may be required
- **Goals:**
  - **25-OH-vitamin D > 30 ng/ml (> 75 nmol/l)**
  - **PTH < 50 ng/l**

Calcium

Causes

Calcium absorption occurs preferentially in the duodenum and proximal jejunum and is facilitated by vitamin D in an acid environment

Prevention

1’200-2’000 mg/d of elemental calcium (in diet and supplement doses)

Calcium intake is frequently reduced after bariatric surgery (early dumping syndrome)

Min 1’000 mg calcium supplement / day

Calcium and iron supplements should not be taken at the same time (2h)

It is recognized that calcium citrate in the absence of gastric acid is more bioavailable than calcium carbonate, however, it is not readily available in CH

In patients with RYGB, bone density measurements DXA may be indicated to monitor for osteoporosis

If therapy is indicated, intravenously administered bisphosphonate should be used (concerns about adequate oral absorption and potential anastomotic ulceration with oral)

Vitamins A, E, K, B2, B6, Copper, Selenium

For the majority of patients, requirements for this vitamins and mineral can usually be met by oral diet and a complete multivitamin and mineral supplement.

Levels should be checked before and during pregnancy and in case of unexplained symptoms (anemia, fatigue, disturbances in night vision, xerophtalmia, etc.)

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Lipid levels

Lipid levels and need for lipid-lowering medications should be periodically evaluated

The effect of weight loss on dyslipidemia is variable and incomplete

Lipid-lowering medications should not be stopped unless clearly indicated

Hypertension

- The need for antihypertensive medications should be evaluated repeatedly
  - The effect of weight loss on blood pressure is variable, incomplete and at times transient
  - Caution should be applied when administrating diuretics because the combined diuretic effect of the drugs and the operation may cause dehydration

Nonsteroidal anti-inflammatory drugs

- Should be completely avoided after bariatric surgery
  - Have been implicated in the development of anastomotic ulcerations/perforations

Long-Term Post-Operative Diabetes Management

After the first early post-operative period, standard diabetes guidelines should be followed in the management of patients still requiring pharmacologic anti-diabetic treatment after bariatric surgery

For patients not requiring glucose-lowering medications after surgery, treatments goals for co-morbid conditions and screening for microvascular complications should be the same as those for patients with diabetes [1]

With prolonged remission (>5 years)

- treatment goals appropriate for patients without diabetes can be considered
- Screening for particular complication can be stopped only in the absence of that complication

1. Buse JB, Caprio S, Cefalu WT, et al. How do we define cure of diabetes? Diabetes care 2009;32:2133-5.

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Contraception following bariatric surgery

Avoid pregnancy for 12-18 months after bariatric surgery

- The first 12 months after bariatric surgery represent an active catabolic state

Use of **non-oral** contraceptives

- Estrogen is absorbed in the upper gastrointestinal tract
- The efficacy of oral contraceptive pills is not guaranteed after bariatric surgery
- Caution with Depo Provera (medroxyprogesterone acetate) because of the increased risk of osteoporosis

Pregnancy after bariatric surgery

Pre-conception care:

- Screening for nutritional deficiencies
- Folic acid 400 ug/d in the pre-conception period and up to 5 mg/d according to the folic acid level

During pregnancy:

- Micronutrient supplementation is essential
- Standard multivitamin post bariatric surgery should be substituted by pre-natal multivitamin preparation in order to reduce vitamin A intake (max 5’000 U/d)
- Laboratory testing at least every trimester
- Dietary advice with adequate protein intake
- Weight gain should be in the line with standard recommendations for pre-pregnancy BMI
- Careful consideration to women with **abdominal pain** in pregnancy because of this risk of internal herniation exacerbated by increased intra-abdominal pressure from gravid uterus (RYGB+)
- Women presenting with hyperemesis gravidarum are at increased risk of Wernicke’s encephalopathy (consider parenteral vit B1)

Adequate nutritional supplementations during breastfeeding

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Pharmacotherapy after bariatric surgery

Patients should be closely monitored in order to evaluate long-term safety and efficacy of their drug regimen

Factors

- Absorption of drugs is affected
- Tissue distribution

Prevention

- Plasma drug levels should be checked for drugs requiring plasma level control
- Antipsychotic drugs, anti-depressant
- Anti-epileptics
- Anticoagulants
- Anti-rejections
- …

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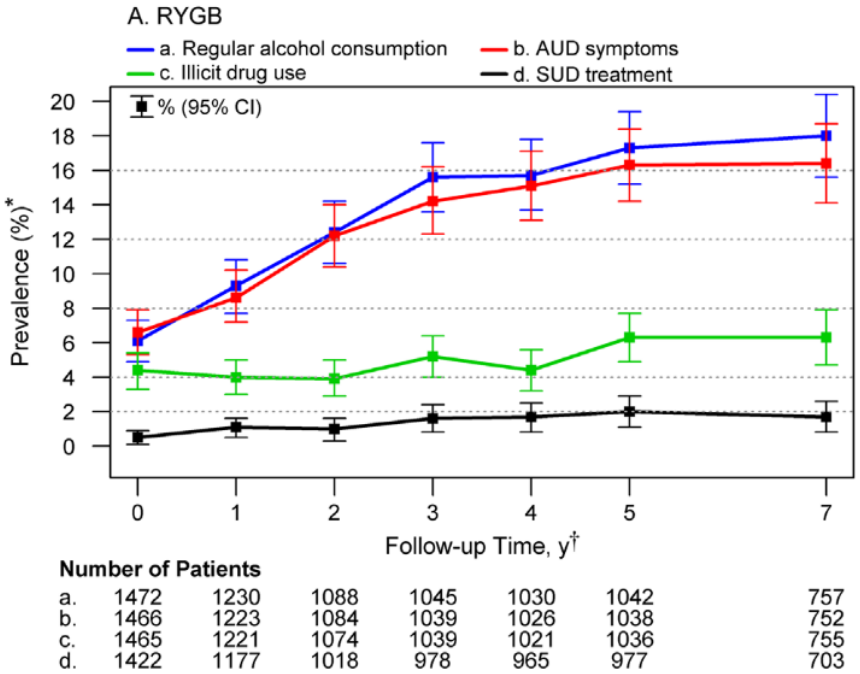
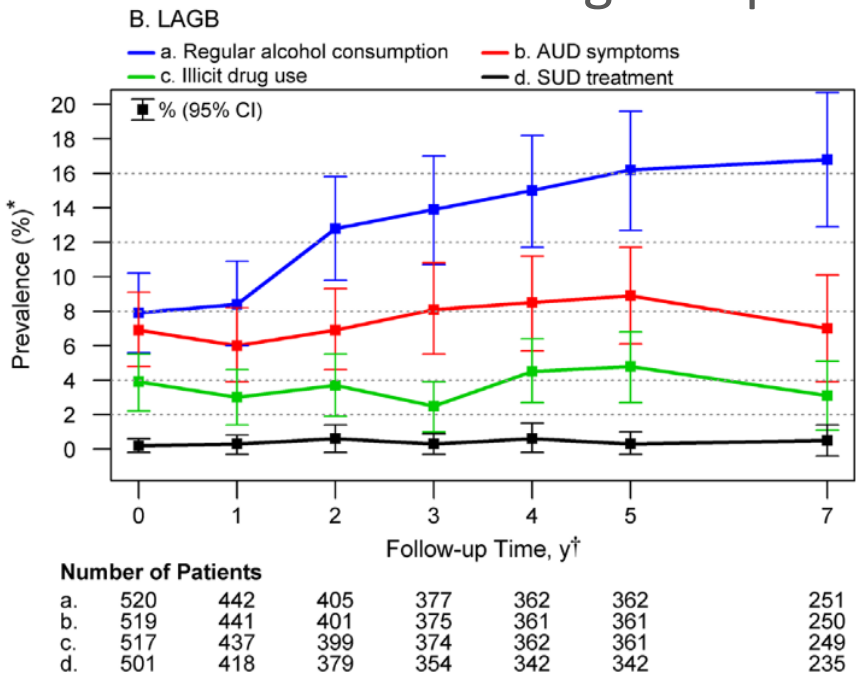
Dépendance substances psychoactives après chirurgie bariatrique

RYGB



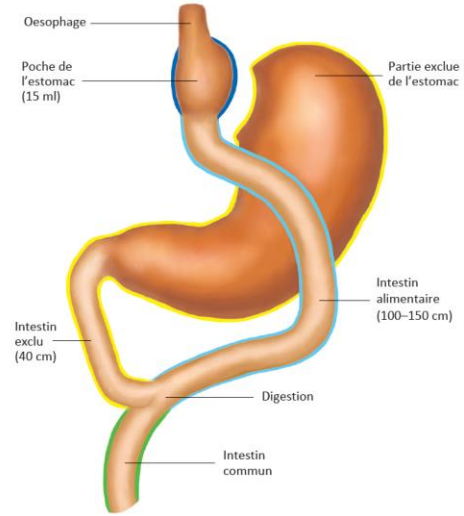
Anneau gastrique

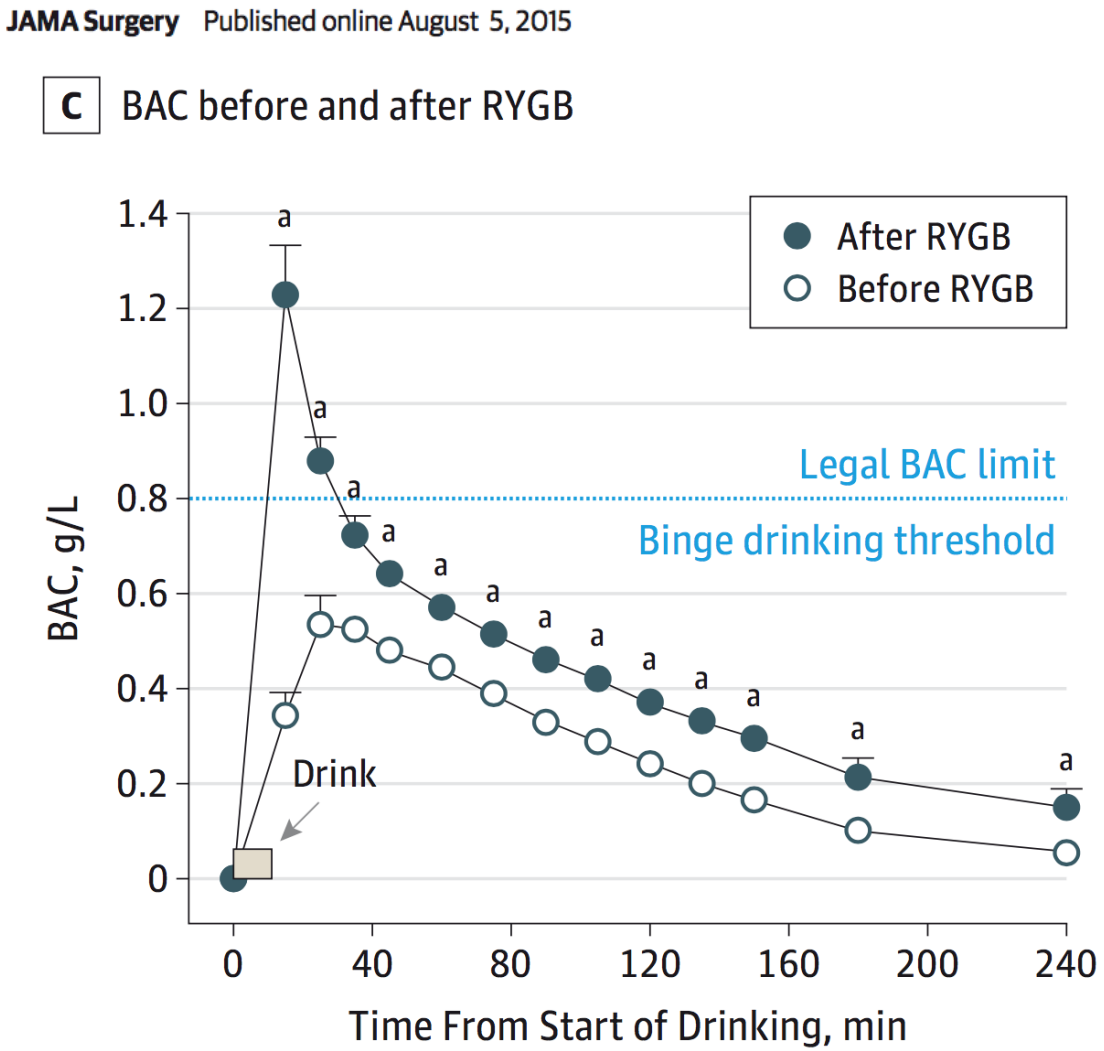


Prévalence dépendance OH population américaine 14%

King WC al. Alcohol and other substance use after bariatric surgery: prospective evidence from a U.S. multicenter cohort study. Surgery for obesity and related diseases. 2017.

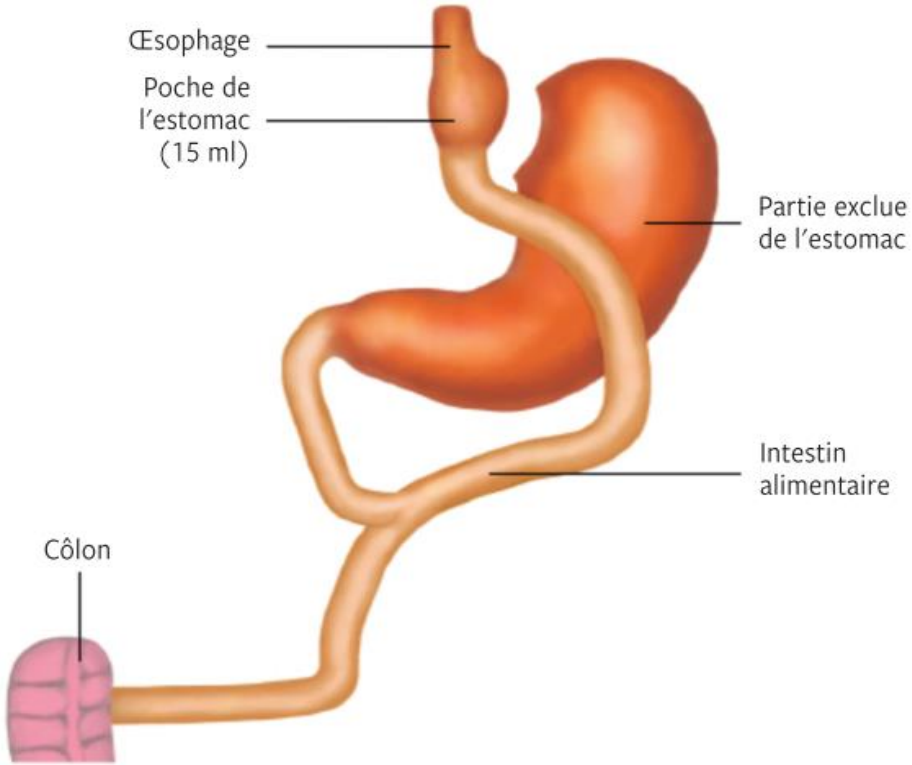
BAC Blood Alcohol Concentration





0.5 g/kg masse maigre (environ 2 boissons OH standard)

Roux-en-Y gastric bypass



- Passage rapide au jéjunum où 80% alcool est absorbé
- Diminution volume gastrique => réduction alcool deshydrogénase gastrique

Alcohol abuse

- Bariatric surgery elevates the risk for an alcoholic disease (+ RYGB)
- The prevalence of alcohol use disorder significantly increases in the 2nd year after surgery
- Patient should be educated about the potential effects of bariatric surgery to increase the risk of alcohol use disorder
- Alcohol dependence screening should be part of the routine postoperative clinical care

Risk of suicide

- Several studies demonstrated higher suicide rate among bariatric surgery patients than among the general community
- Careful postoperative psychiatric surveillance

Conclusion

Bariatric surgery is in general safe and effective, but can cause **new clinical problems** and it is associated with specific diagnostic, preventive and therapeutic needs

Giving the growing number of post-bariatric patients, an increasing part of the follow-up, **after the early period after surgery**, should be transferred to the primary care physicians

A post-bariatric multidisciplinary follow-up program should be an integral part of the clinical pathway at centers delivering bariatric surgery and it should be offered to patients requiring it in case of **more complex clinical situations**

Merci de votre attention

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