CLINICAL OUTCOMES BRIEFING

What Represents Health Gain for a Bariatric Surgeon

Metabolic outcomes, long-term risk reduction, and the QALY case for surgery

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INTRODUCTION

Disclosures

Educational Faculty for Johnson & Johnson Medtech

No bearing on this presentation

BACKGROUND

My Background - context

Consultant Upper GI / Bariatric Surgeon 20 years

Full spectrum primary and revisional surgery

Clinical & Research Interests

Governance & Leadership Positions – clinical and professional associations

General Bariatric Surgeon Goals

Safe Surgery

Weight Loss

Relief & Prevention of Disease

Minimal Long Term Issues

SETTING GOALS

What It Should NOT Be

Unrelenting ambition for unrealistic weight loss

“Must achieve BMI <30”

A single number is not a shared goal

Beyond The Scales

Patients may be weight / appearance focussed

- Important to orient to realistic outcomes
- Surgeons must not feed this & “chase” unrealistic weight loss
- The health benefit is conferred by the weight loss not the final BMI or number

Beyond The Scales

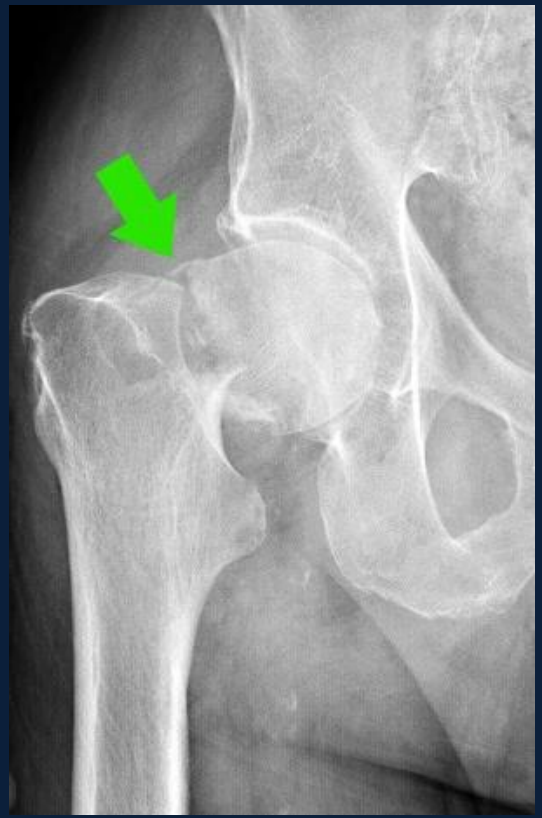
After surgery wish to see a significant net gain of health and quality of life

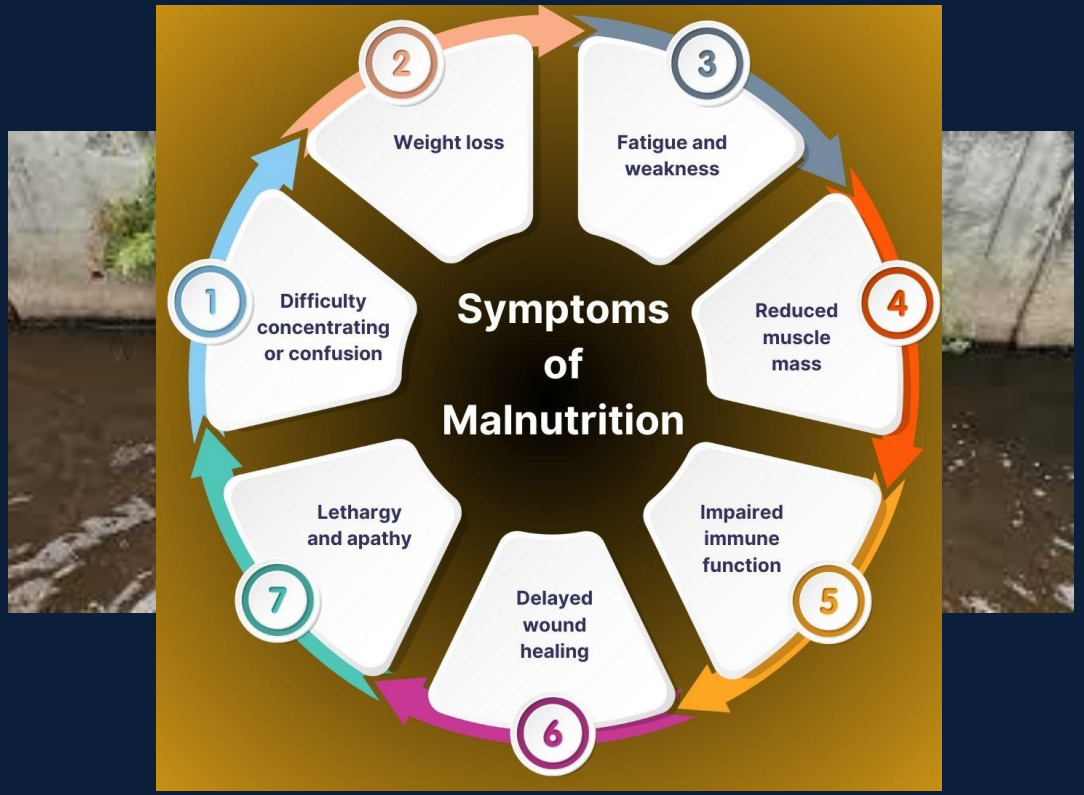
Benefit > Harm

So Perhaps we have…

- ✓ Excellent weight loss
- ✓ Durable weight loss
- ✓ Remission / Improvement in metabolic / physical health
- ✓ Improved physical functioning
- ✓ Improved emotional wellbeing

Cost

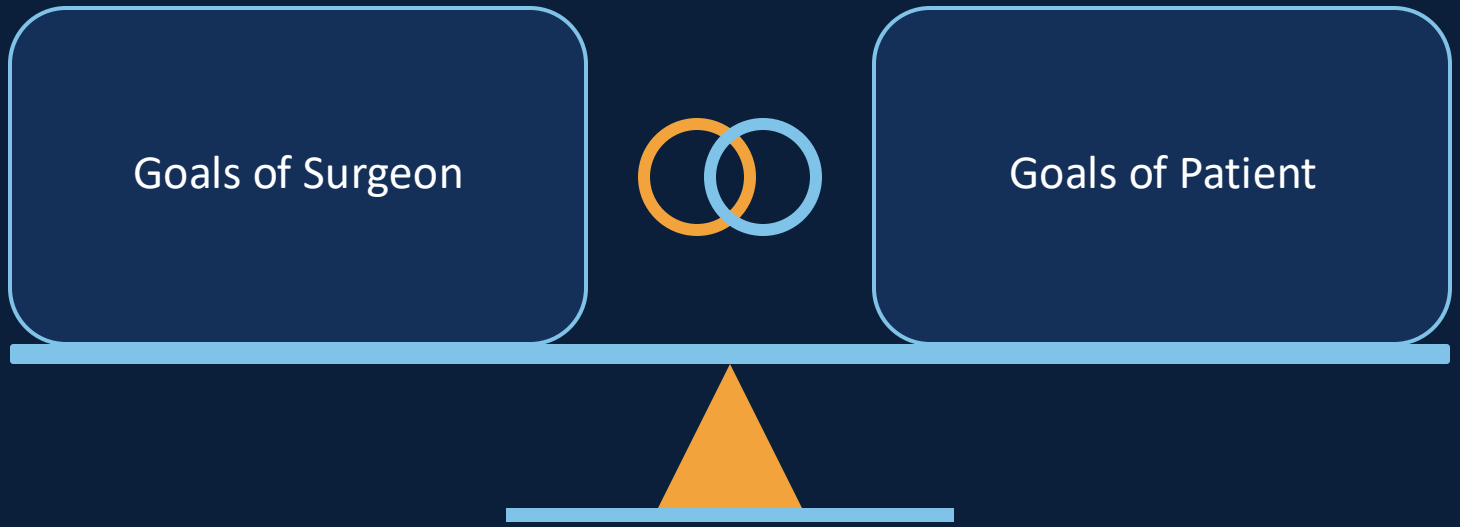



Symptoms of Malnutrition
1
Difficulty concentrating or confusion
2
Weight loss
3
Fatigue and weakness
4
Reduced muscle mass
5
Impaired immune function
6
Delayed wound healing
7
Lethargy and apathy

And What The Patient Thinks Matters…

- Unhappy patient → Affects quality of life
- May be “reasonable” or “unreasonable”
- Role of treating team
  - Education
  - Orientation to realistic outcomes
  - Identification of maladaptive thought patterns
  - Psychological intervention
- Ongoing Process

Goals Linked & Balanced



Patient Specific Goals / Priorities

Patients may have specific motivations

- Fertility
- “Want to get off CPAP”
- “Be here for my kids”
- “Keep up with my kids”
- Hajj

Priorities

- Diabetes remission priority vs general health goals
- Degree / duration of weight loss vs side effect profile or risk

These should inform our treatment choices

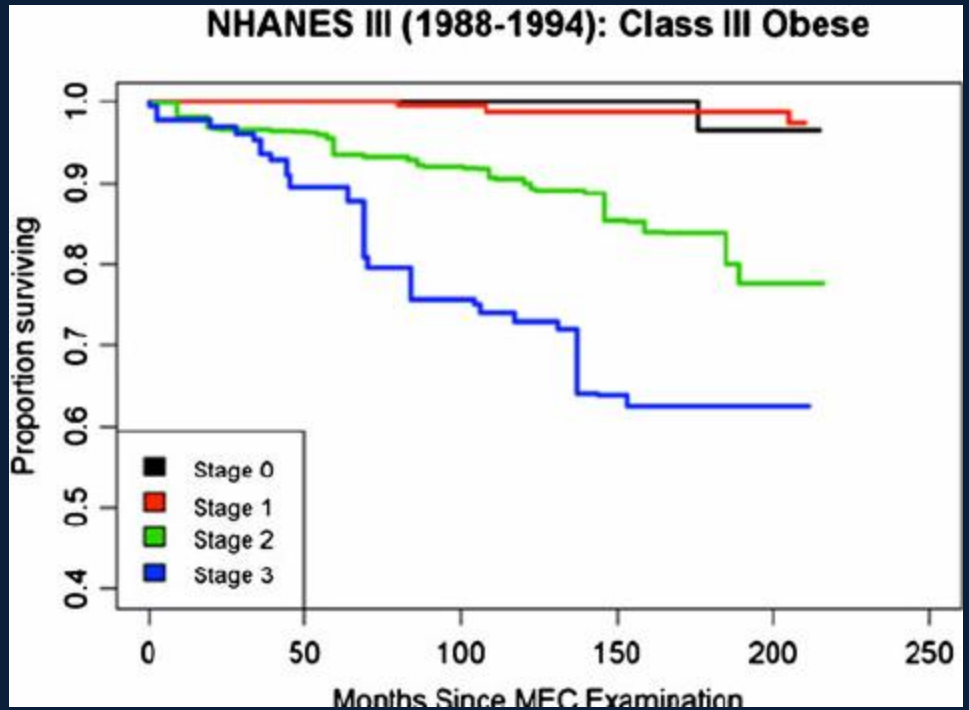
This will change the way we measure “net gain”

So For The Individual Surgeon

- Minimal morbidity operation
- Weight loss – 30% TBWL
- Metabolic remission / improvement
- Patients' specific goals met
- Improved physical functioning
- Mental well being / happiness
- Nutritionally sound
- Quality of life improved

So For The Individual Surgeon… Longer term

- Durable Weight Loss
- Durable Metabolic / Physical Benefits
- Improved Longevity*



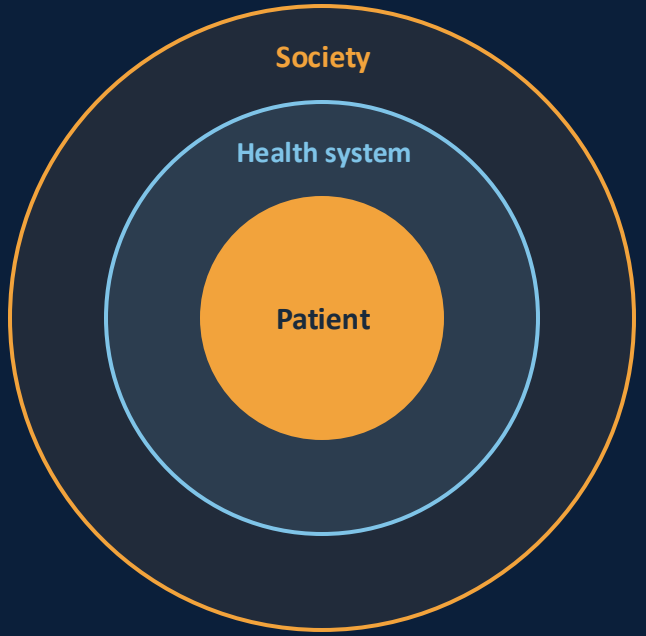
WIDER PERSPECTIVE

For the surgeon with wider perspective…

Health benefit to society
Healthier populations, less disease burden

Health economic benefit
Lower long-term care costs, productivity gains

Value beyond the individual
Impact that ripples out from every operation



Benefit ripples outward

OVERVIEW

Health gain is a net calculation

Surgical success is not weight loss alone. Health gain is durable metabolic improvement plus longer, better-quality life, minus surgical and nutritional risk.

Weight loss

Total weight loss achieved and maintained over time.

Metabolic outcomes

Weight loss, diabetes remission, blood pressure, lipids, sleep apnoea, liver disease.

Quality of life

Physical function, mobility, energy and mental health.

Patient specific goals

Fertility, specific comorbidity, QOL goals.

Long-term benefit

Cardiovascular events, all-cause mortality, obesity-related cancer, mobility and fertility.

PILLAR 02 | LONG-TERM RISK REDUCTION

Gain that compounds over decades

Cardiovascular events	Fewer myocardial infarctions and strokes than matched non-surgical management.
All-cause mortality	Consistent survival advantage in long-horizon cohort follow-up.
Obesity-related cancer	Reduced incidence, most clearly in endometrial, breast and colorectal disease.
Joints and mobility	Lower osteoarthritis burden and measurably better physical function.
Fertility and pregnancy	Improved conception rates and fewer hypertensive and gestational complications.

Direction of effect is well established; magnitude varies by cohort and procedure.

What must be subtracted

Perioperative

Leak, bleeding, venous thromboembolism and 30-day reoperation.

Nutritional

Iron, B12, vitamin D and protein deficiency requiring lifelong supplementation.

Functional

Dumping syndrome, reflux after sleeve gastrectomy, and internal hernia.

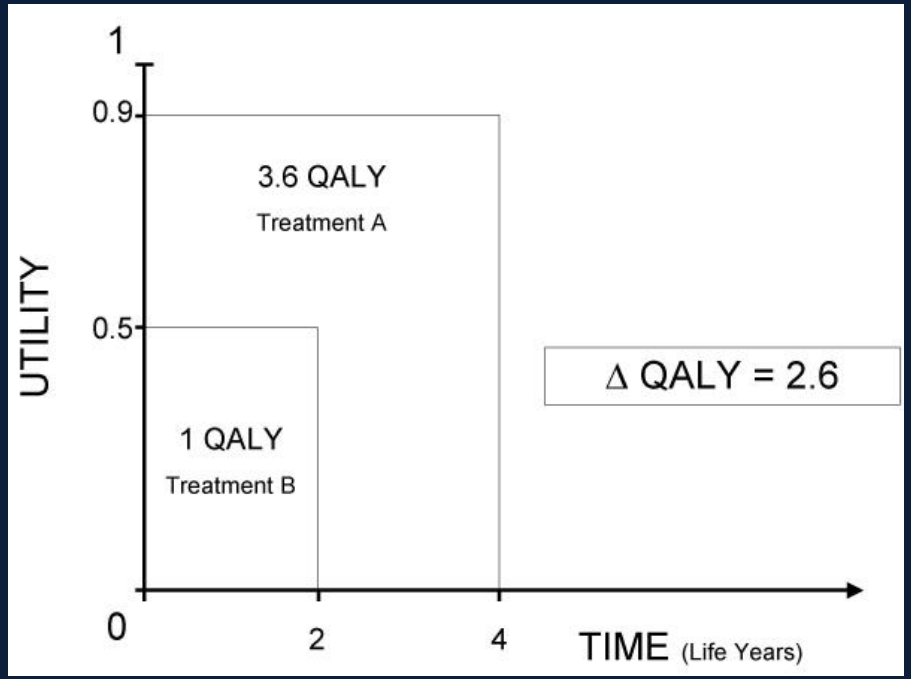
Durability

Weight regain and relapse of disease / Loss of patient specific outcome

BOTTOM LINE

Health gain is durable metabolic improvement plus longer, better-quality life and lower downstream cost, minus surgical and nutritional risk. QALYs gained per patient captures all of it in a single number.

Utility vs. QALY



Utility vs. QALY

- QALY = quality of life (utility) × quantity of life (length of life)

→1 QALY = 1 year of life in a perfect health state (where utility = 1.0)

→ 0.75 QALY = 1 year of life in a less than perfect health state (where utility = 0.75)

→ 0.75 QALY = 9 months (or 0.75 years) of life in a perfect health state (where utility = 1.0)

→ 0 QALY = dead

PILLAR 03 | VALUE

QALYs are the common currency

QALYs gained per patient

One number that folds survival, symptom burden and function together — the metric health systems fund against. Bariatric surgery is consistently cost-effective and, in diabetic patients, often cost-saving within a few years.

Quality of life

Physical function, mobility and mental health on validated instruments.

Medication burden

Fewer glucose-lowering, antihypertensive and lipid agents required.

Healthcare use

Lower downstream admissions and complication-related spend.

Work and participation

Higher employment and productivity, rarely captured in clinical endpoints.

Importantly, QALY gain is not just survival

A systematic review/meta-analysis of patient-reported health utilities found average utility increased from:

0.72 before surgery → 0.84 at 1 year

Xia Q, Campbell JA, Ahmad H, Si L, de Graaff B, Otahal P, Palmer AJ. Health state utilities for economic evaluation of bariatric surgery: A comprehensive systematic review and meta-analysis. Obes Rev. 2020 Aug;21(8):e13028. doi: 10.1111/obr.13028. Epub 2020 Jun 4. PMID: 32497417.

Across well-established economic models, the range is roughly **2–4 lifetime QALYs gained**:

Study/model	Time horizon	Incremental QALYs from surgery
UK electronic-health-record model	Lifetime	2.14 QALYs
Italian model	Lifetime	3.2 QALYs
German model	Lifetime	3.2 QALYs
UK registry/SOS-based model	Lifetime	4.0 QALYs
Italian model	10 years	1.1 QALYs
Spanish model	10 years	1.6 QALYs

Lucchese M, Borisenko O, Mantovani LG, Cortesi PA, Cesana G, Adam D, Burdukova E, Lukyanov V, Di Lorenzo N. Cost-Utility Analysis of Bariatric Surgery in Italy: Results of Decision-Analytic Modelling. Obes Facts. 2017;10(3):261-272. doi: 10.1159/000475842. Epub 2017 Jun 10. PMID: 28601866; PMCID: PMC5644931.

Obes Surg. 2022 Nov;32(11):3571-3580. doi: 10.1007/s11695-022-06216-4. Epub 2022 Jul 27.

Comprehensive Analysis of Improvements in Health-Related Quality of Life and Establishment of QALY Gains in a Government-Funded Bariatric Surgical Program with 5-Year Follow-up

Chiara Chadwick [1 2], Paul R Burton [3 4], Jennifer Reilly [3 5], Julie Playfair [3], Cheryl Laurie [3], Kalai Shaw [3 4], Wendy A Brown [3 4]

Results: At a mean (SD) 5.72 (1.07) years postbariatric surgery, participants demonstrated statistically significant improvements in mean AQoL-8D utility (0.135 (0.21); P < 0.0001), yielding a mean 3.2 (1.67) QALYs gained. Beck Depression Inventory-II scores improved (baseline mean 17.35 (9.57); 5-year mean 14.7 (11.57); P = 0.037). Short Form-36 scores improved in the domains of physical functioning and role limitations due to physical health and general health. Change in depression scores and patient satisfaction with surgery were found to be significant predictors of follow up AQoL utility scores.

IN SUMMARY

Summary

Health gain is a net assessment of benefit – harm

For the individual surgeon

Reflected in shared goals

- Realistic weight loss targets
- Metabolic and physical function
- Patient specific motivations
- Minimal or manageable risk and side effects
- Overall better QOL

For the wider discipline

Bariatric surgery as a whole

- Compounding gains
- Health benefit to society
- Economic benefit to society