Obesity and Implications for Total Joint Replacement

Dr. Thomas Barber

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An Agonizing Dilemma: When Obesity Prevents a Joint Replacement

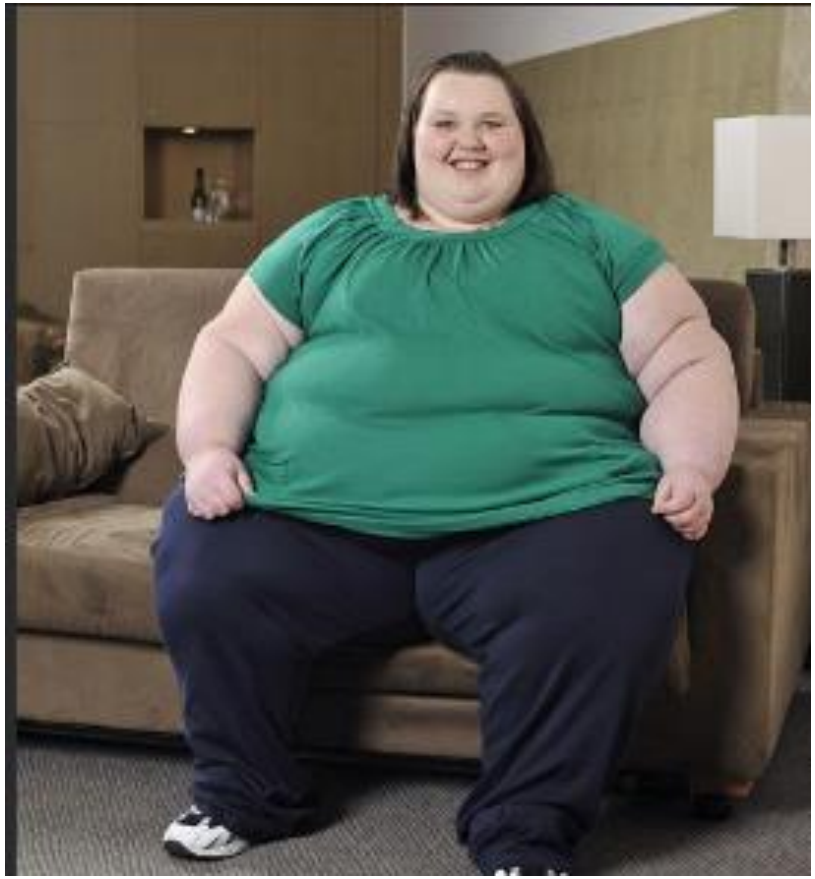
Many doctors say it is too dangerous to perform the common surgeries on people with high body mass indexes, but patients say they are facing discrimination.

Less than half of orthopedic surgeons in a survey published last year said they would operate on a patient with a B.M.I. over 40 — more than 22 million American adults fell into that category in 2017-18. Only 11 percent would operate on one of the 3.9 million Americans with a B.M.I. over 50. And patients with a B.M.I. over 55 would be rejected almost everywhere. Just 3 percent of U.S. orthopedists would operate.

And even if a doctor is willing to operate, insurers often refuse to pay. Hospitals also may turn away these patients, who tend to need longer stays and more care and are considered money-losers.

The result, said Dr. Nathanael Heckmann of the University of Southern California, is that "whole populations are being denied orthopedic care."

A Story



Super-Obesity is Associated With an Increased Risk of Complications Following Primary Total Knee Arthroplasty

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ABSTRACT

Background: Obesity, defined as a body mass index (BMI) $\geq$ 30, is an ever-growing epidemic, with > 35% of adults in the United States currently classified as obese. Super-obese individuals, defined as those who have a BMI $\geq$ 50, are the fastest-growing portion of this group. This study sought to quantify the infection risk as well as the incidence of surgical, medical, and thromboembolic complications among super-obese patients undergoing total knee arthroplasty (TKA).

Methods: An all-payer claims database was used to identify patients who underwent elective, primary TKA between 2016 and 2021. Patients who had a BMI $\geq$ 50 were compared to those who had a normal BMI of 18 to 25. Demographics and the incidence of 90-days postoperative complications were compared between the 2 groups. Univariate analysis and multivariable regression were used to assess differences between groups.

Results: In total, 3,376 super-obese TKA patients were identified and compared to 17,659 patients who had a normal BMI. Multivariable analysis indicated that the super-obese cohort was at an increased postoperative risk of periprosthetic joint infection (adjusted odds ratio [aOR] 3.7, 95% confidence interval [CI]: 2.1 to 6.4, $P < .001$), pulmonary embolism (aOR 2.2, 95%-CI: 1.0 to 5.0, $P = .047$), acute respiratory failure (aOR 4.1, 95%-CI: 2.7 to 6.1, $P < .001$), myocardial infarction (aOR 2.5, 95%-CI: 1.1 to 5.8, $P = .026$), wound dehiscence (aOR 2.3, 95%-CI: 1.4 to 3.8, $P = .001$), and acute renal failure (aOR 3.2, 95%-CI: 2.4 to 4.2, $P < .001$) relative to patients who have normal BMI.

Conclusions: Super-obese TKA patients are at an elevated risk of postoperative infectious, surgical, medical, and thromboembolic complications. As such, risk stratification, as well as appropriate medical management and optimization, is of utmost importance for this high-risk group.

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Increased risks for obese patients

1. Mortality: NO.

Higher mortality for BMI less than 18, but not for high BMI
Namba, et al Clin Ortho and Related Research 2019

2. Revision Rate: YES

Rate of revision in morbidly obese is 7% vs 2%
at 5-7 years

3. Wound Infection: YES

Superficial and deep infection rate differences
Have been found in multiple studies: Dead space & Operative Time

4. PE & DVT: YES

Obesity shown as a predictive factor in many studies

5. Dislocation after THR:

YES, maybe. Canadian registry says no, others say
Yes, but not if you use a dual mobility cup

What is the Impact of Body Mass Index Cutoffs on Total Knee Arthroplasty Complications?

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ABSTRACT

Background: Body mass index (BMI) cutoffs are commonly used to decide whether to offer obese patients elective total knee arthroplasty (TKA). However, weight loss goals may be unachievable for many patients who are consequentially denied complication-free surgery. The purpose of this study was to assess the impact of different BMI cutoffs on the rates of complication-free surgery after TKA.

Results: A total of 314,719 patients underwent TKA, and 46,386 (14.7%) had a BMI ≥40 kg/m^2. With a BMI cutoff of 40 kg/m^2, 268,333 (85.3%) patients would have undergone TKA. A total of 282,552 (94.8%) would experience complication-free surgery, and 17.3% of all complications would be prevented. TKA would proceed for 309,479 (98.3%) patients at a BMI cutoff of 50 kg/m^2. A total of 293,108 (94.7%) would not experience a complication, and 2.8% of complications would be prevented. A BMI cutoff of 35 kg/m^2 would prevent 36.6% of all complications while allowing 94.8% of complication-free surgeries to proceed.
Conclusion: Lower BMI cutoffs can reduce complications, but will limit access to complication-free TKA for many patients. These data do not indicate TKA should be performed without consideration of risks from obesity; however, a holistic assessment and shared decision-making may be more valuable when deciding on appropriate goal weight reduction.

2021

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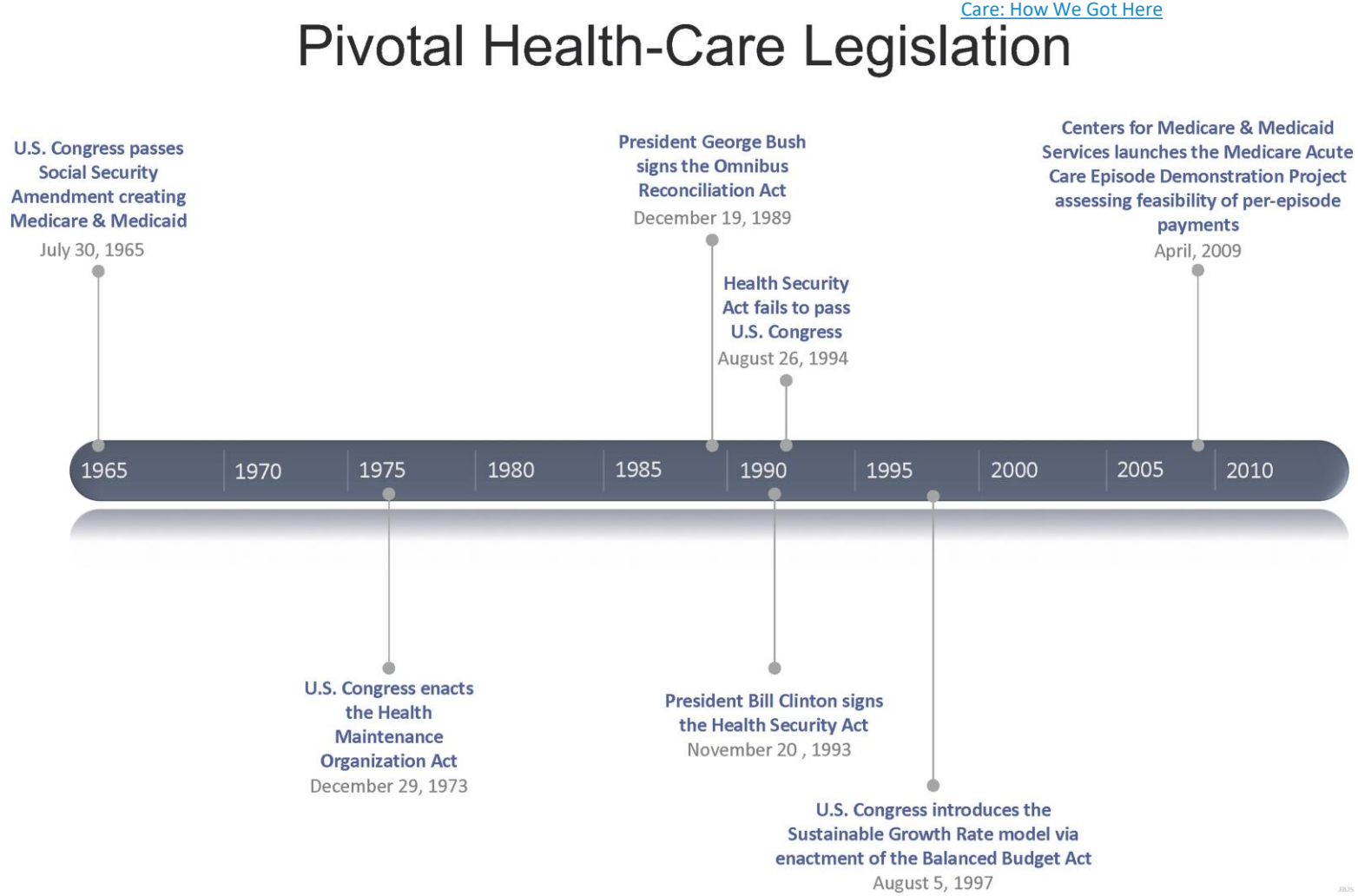
Fig. 1

The Historical Development of Value-Based Care: How We Got Here



Key Events over time

Medicare Reimbursement	1992	2007	2024	Decline
Primary Total Knee	$ 1,816.00	$ 1,465.00	$ 1,408.00	22%
Primary Total Hip	$ 1,697.00	$ 1,361.00	$ 1,510.00	11%

2009 Value Based Care Initiatives:

Cost of care in total joint replacement became very important. Patient Selection was critical to success (fewer fractures, fewer obese patients).

Information and BMI limits for patients with obesity eligible for knee arthroplasty: the Swedish surgeons' perspective from a nationwide cross-sectional study

Perna Ighani Arani[1,2*], Per Wretenberg[1,2] and Annette W-Dahl[3,4]

2022

Results: A total of 203 (64%) knee surgeons responded to the questionnaire. Almost 90% of the surgeons claimed to inform their patients with obesity that obesity has been associated with an increased risk of complications after knee arthroplasty. Seventy-nine percent reported that they had an upper BMI limit to perform knee arthroplasty, a larger proportion of the private centers had a BMI limit compared to public centers. The majority of the centers had an upper BMI limit of 35.

Obesity and Total Knee Arthroplasty

Obesity is Associated With Greater Improvement in Patient-Reported Outcomes Following Primary Total Knee Arthroplasty

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ABSTRACT

Background: Body mass index (BMI) cutoffs have been established for total knee arthroplasty (TKA) patients due to increased risk of medical complications in obese patients. However, evidence-based medical optimization may mitigate risk in these patients. This study examined the influence of BMI on patient-reported outcome measures (PROMs) following primary TKA with specialized perioperative optimization

Greater improvement in PROs for the obese group than the non obese.

Baseline function was worse for the obese group

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Bariatric Surgery Prior to Total Joint Arthroplasty May Not Provide Dramatic Improvements In Post Arthroplasty Surgical Outcomes

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Bariatric Surgery Greater than two years before joint replacement was beneficial; Revision rates remained high for those undergoing bariatric surgery, but complication rate was lower

Patient Story

45 year old patient with osteoarthritis of the hip

Presented with BMI of 43

Asked to lose weight

Came back at a BMI of 36

Surgery performed successfully

Published online 2022 Sep 19. doi: 10.1001/jamanetworkopen.2022.31982 PMID: 36121652

Weight Loss Outcomes Associated With Semaglutide Treatment for Patients With Overweight or Obesity

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In this cohort study of 175 patients with overweight or obesity, the total body weight loss percentages achieved were 5.9% at 3 months and 10.9% at 6 months.

Presently approved for patients with at least one significant morbidity, but Medicare only pays for it in diabetic care

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The Journal of Arthroplasty

journal homepage: www.arthroplastyjournal.org

Primary Knee

Does Semaglutide Use Decrease Complications and Costs Following Total Knee Arthroplasty?

Check for updates

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1. Decreased risk for readmission, sepsis, and total joint infection
2. Increased risk for MI, renal disease, pneumonia, hypoglycemia
    1. *Remember these patients are diabetic and others may not be.*

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Pen Injector · 1mgdose · 28-day supply

With insurance

est. $30.00

Estimated insurance price. Final price varies with your insurance.

Without insurance

$967.00 ~~$1,185.30~~

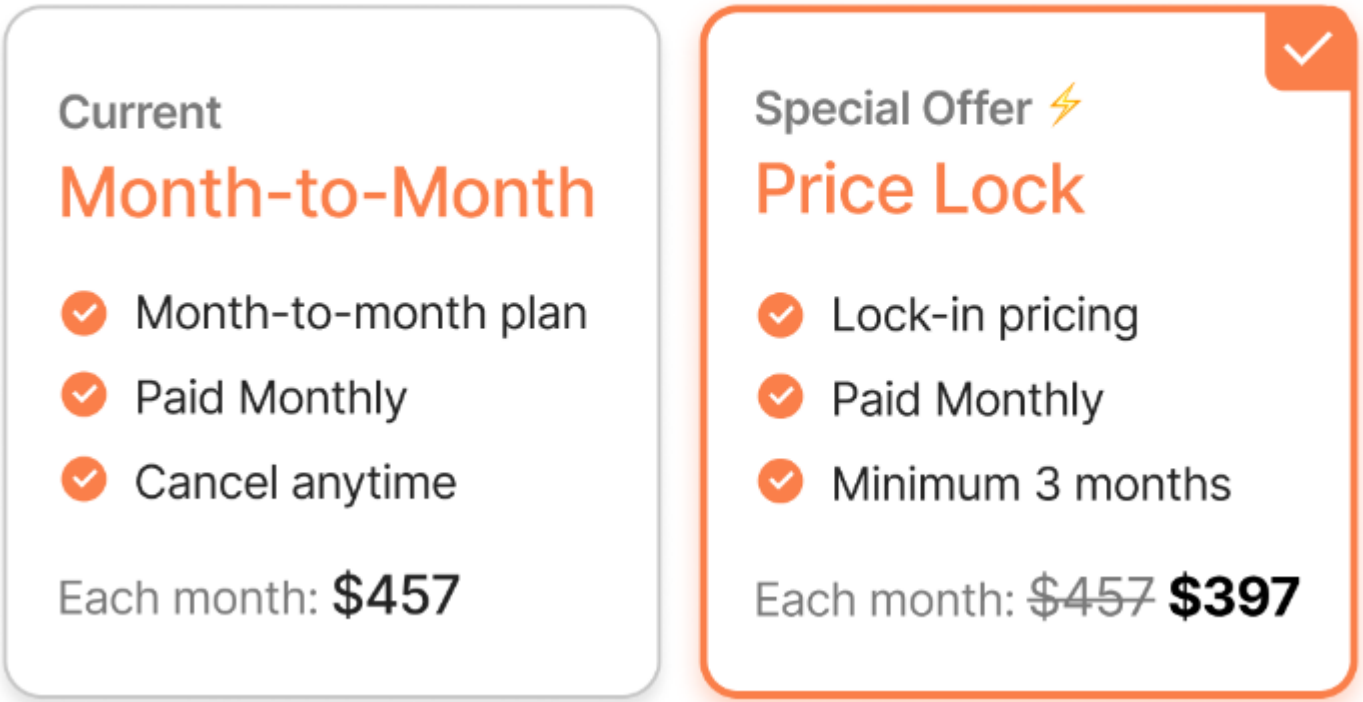
Prime member price, 28-day supply.

amazon pharmacy FREE delivery

See options

Health

Alan Pharmacy: Semiglutide



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Summary

Total Joint Replacement in the Obese does carry a higher risk for infection, PE, and revision

Total Joint Replacement in the Obese does result in major improvements in Patient Reported Outcomes – even greater improvements than are seen in the non obese

Weight loss prior to total joint replacement MAY improve outcomes

Medical treatment has been successful in weight loss

A rigid BMI cutoff may not be appropriate


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