

Patella Parody –
To resurface or not to
resurface, that is the
question

Against Routine Resurfacing

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No Conflicts or Disclosures

What can we do with the patella in TKA?

Always Resurface

Never Resurface

Selectively
Resurface

Geographic Variation

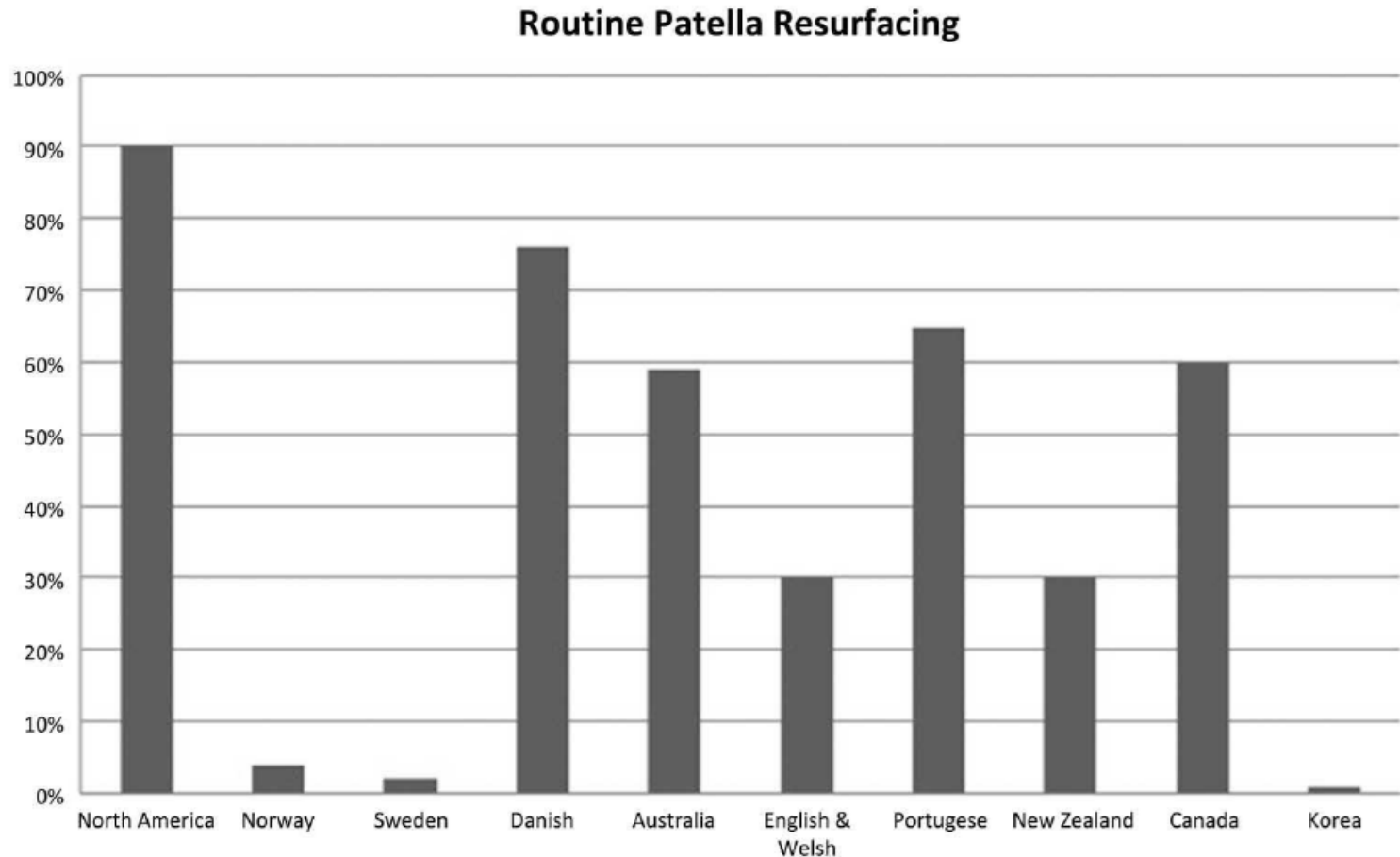


Figure 1 International distribution of patellar resurfacing based on results reported by Vielgut⁶, Fraser⁷ and Koh.⁹

Why is there such a high rate of patellar resurfacing in the United States?

- Less anterior knee pain?
- Lower revision rate?
- Better patient outcomes?

Literature Review:

- Meta-Analyses
- American Joint Replacement Registry

Contents lists available at ScienceDirect

The Journal of Arthroplasty

journal homepage: www.arthroplastyjournal.org



Systematic Review & Meta-Analysis

<http://www.arthroplastyjournal.org>

Patellar Resurfacing in Primary Total Knee Arthroplasty: A Meta-Analysis of Randomized Controlled Trials

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Conclusions

- No difference in anterior knee pain
- No clinically meaningful difference in patient reported outcomes

Conclusions

- “The only consistent relationship ...is that knees that do not receive patellar resurfacing are more likely to receive reoperation”
- “Secondary resurfacing is the predominant reason for higher reoperation rates”

Why do we perform secondary resurfacing?

“Addressing patellar-specific pathology or a surgeon-level bias toward secondary patellar resurfacing in patients with persistent pain after TKA?”

J Knee Surg 2025;38:122–129.

Is secondary resurfacing effective?

“Secondary resurfacing for anterior knee pain does not appear to reliably improve patients’ anterior knee pain or satisfaction with the outcome of the procedure.”

Coory JA, et al. J Arthroplasty.
2020 Jan;35(1):132-138.



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Contents lists available at [ScienceDirect](#)

The Knee

journal homepage:

Review

Patellar resurfacing was not associated with a clinically significant advantage when a modern patellar friendly total knee arthroplasty is employed: A systematic review and meta-analysis

Cameron JRW Simpson^{a,*}, Nathan Ng^b, Solomon Ndou^b, Evan Wright^a, Ngee Jin Yap^b,
Chloe E H Scott^{b,c}, Nick D Clement^{b,c}

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^cUniversity of Edinburgh, Scotland

Conclusions

- For “patellar-friendly” femoral components, no statistically significant differences in anterior knee pain or revision rates
- For “patellar-friendly” femoral components, no clinically important differences in patient reported outcomes

American Joint Replacement Registry

Leaving the Patella Unresurfaced Does Not Increase the Risk of Short-Term Revision Following Total Knee Arthroplasty: An Analysis from the American Joint Replacement Registry

Dencel A. García Vélez, MD¹ Anirudh Buddhiraju, MD¹ Ryland Kagan, MD⁴ Isabella Zaniletti, PhD²
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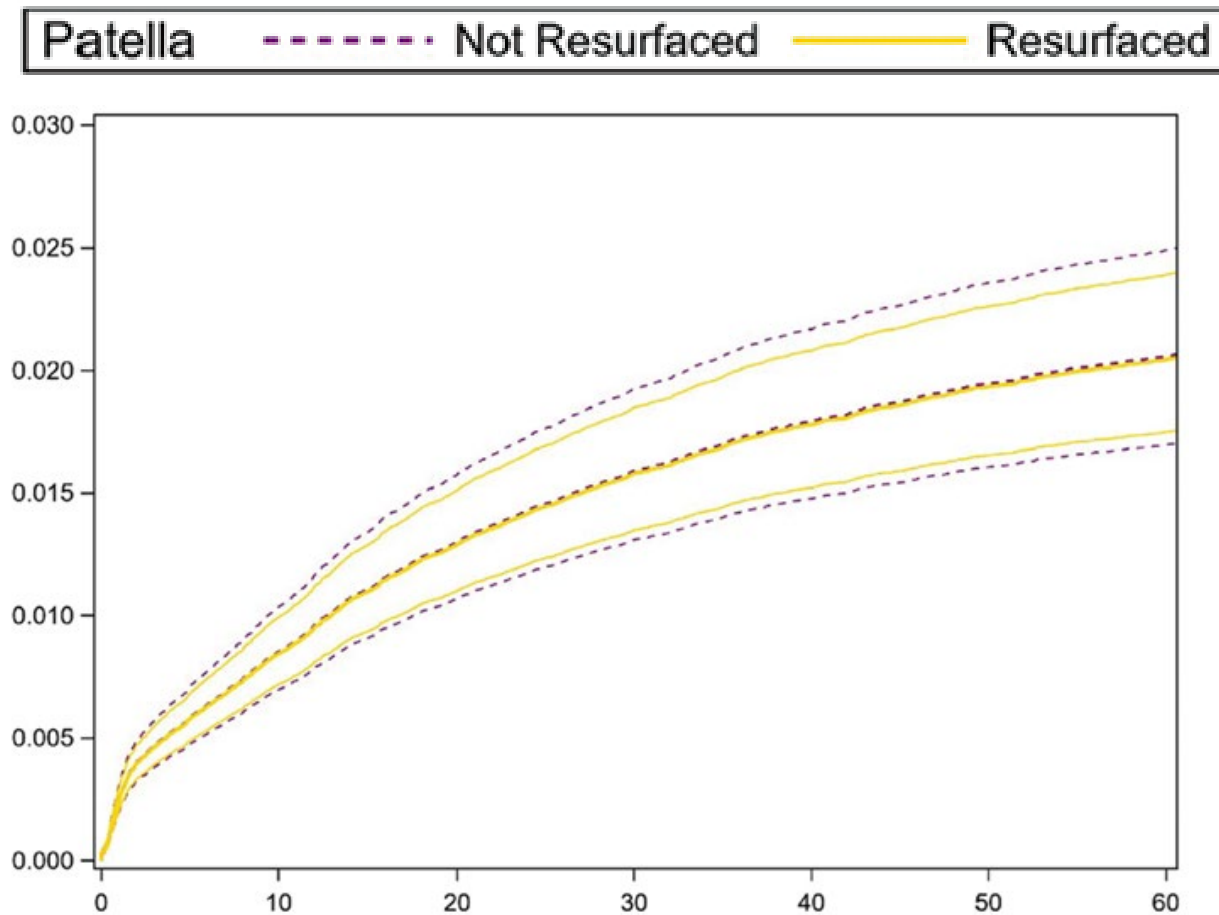
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Methods

- Primary TKAs between 2012 and 2020
- Patients Medicare patients 65 years and older
- Adjusted for age, sex, Charlson comorbidity index , femoral component design, and method of fixation (cemented or cementless)

Results: No difference in revision rate



Conclusion: Selective resurfacing?

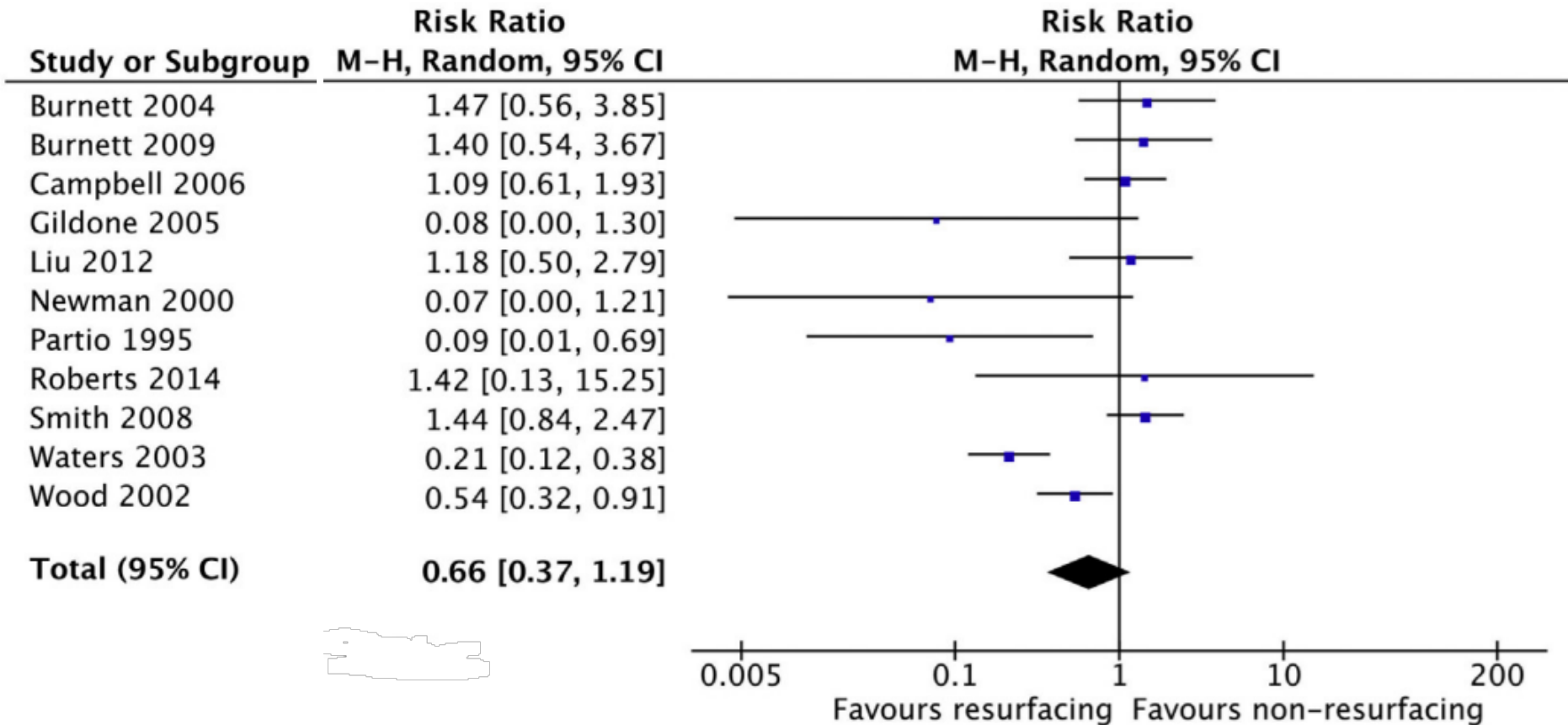
- At the population level, patellar resurfacing and patellar retention yield similar results
- Can we identify individual patients who would benefit from resurfacing?
- Optimal selection criteria for resurfacing have not been determined

Conclusion: Selective resurfacing?

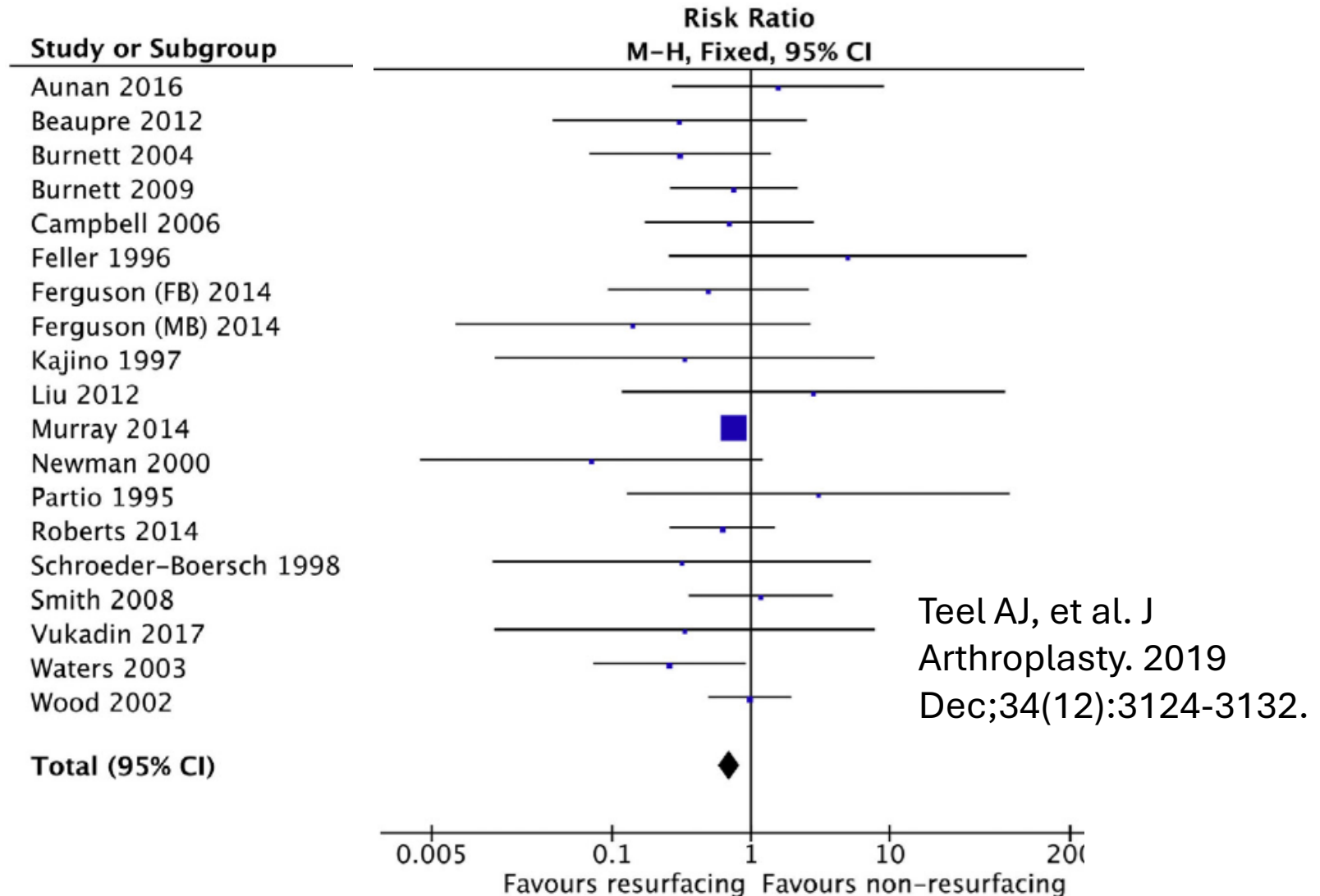
- Patient preference
- Inflammatory arthropathy
- Preoperative patellofemoral symptoms
- Implant design
- Patellar cartilage wear
- Patellar thickness
- Intraoperative patellofemoral function
- Risk of dissatisfaction

Supplementary Materials

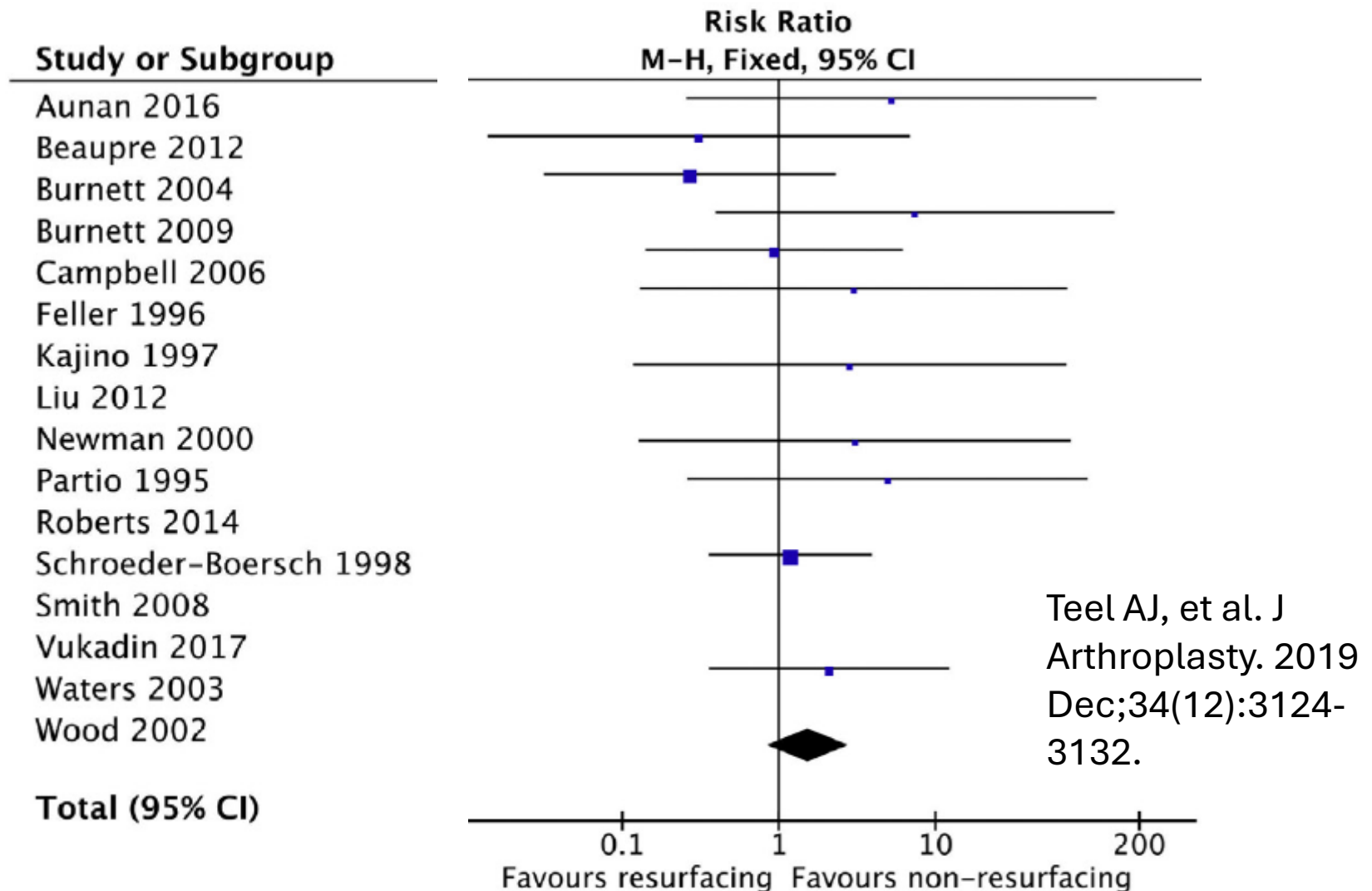
Anterior Knee Pain



All-Cause Revision



Non-Patellofemoral Revision



Registries

Registry results “may reflect confounding based on patient characteristics and baseline risk...this represents an association rather than a causal relationship and does not account for potential confounders.”

AJRR 2024 Annual Report

Statistical Adjustment

- American Registry:

García Vélez DA, et al. Buddhiraju A, Kagan R, Za J Knee Surg. 2025 Feb;38(3):122-129.

- Adjustments

- Age
- Sex
- Charlson comorbidity index
- Femoral component design
- Method of fixation (cemented or cementless)

- Australian Registry:

Coory JA, et al. J Arthroplasty. 2020 Jan;35(1):132-138.

- Adjustments

- Age
- Sex
- Femoral component design

Secondary resurfacing

The Journal of Arthroplasty 39 (2024) 1093–1107



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The Journal of Arthroplasty

journal homepage: www.arthroplastyjournal.org

Systematic Review and Meta-Analysis

What are the Outcomes of Secondary Patella Resurfacing for Dissatisfaction Following Primary Knee Arthroplasty? A Systematic Review and Meta-Analysis of 604 Knees

Octavian Andronic, MD, PhD ^{a, b, 1, *}, Vishwa Suravaram ^{c, 1}, Victor Lu, MD ^d,
Simon J. Wall, MBBS ^a, Thomas A. Bucher, MBBS, MSc ^a,
Gareth H. Prosser, MBChB, MRCS ^a, Piers J. Yates, MBBS (Hons), MRCS (Eng) ^a,
Christopher W. Jones, PhD ^{a, e}

- Slightly over half of patients benefited from secondary patellar resurfacing
- Limited by heterogeneity and variable methods

Cost-effectiveness

Usman et al.

Journal of Orthopaedic Surgery and Research (2025) 20:492

<https://doi.org/10.1186/s13018-025-05892-z>

Journal of Orthopaedic
Surgery and Research

SYSTEMATIC REVIEW

Open Access

Functional outcome and cost effectiveness of patellar resurfacing and non-resurfacing in total knee arthroplasty: systematic review and meta-analysis



Muhammad Andry Usman^{1,2}, Henry Yurianto², Nur Rahmansyah^{1,3,4} and St.Fatimah Zahrah Anwar^{1*}

No difference

Cost effectiveness

The Journal of Arthroplasty 33 (2018) 3412–3415



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journal homepage: www.arthroplastyjournal.org

Health Policy & Economics

Patellar Resurfacing in Total Knee Arthroplasty: A Cost-Effectiveness Analysis

Colleen A. Weeks, MD, MPH, FRCSC^{a,*}, Jacquelyn D. Marsh, PhD^a,
Steven J. MacDonald, MD, FRCSC^a, Stephen Graves, PhD, FAOrthA^b,
Edward M. Vasarhelyi, MSc, MD, FRCSC^a

“Unresurfacing the patellae resulted in higher costs (\$13,296.63 vs \$12,917.01) and lower quality-adjusted life year (5.37 vs 6.01) at 14 years”

Table 1
Model Parameters.

Parameters	Resurfaced	Nonresurfaced
Transition probabilities		
Patella pain	12.9%	24.1%
Adverse event ^a	2.8%	4.2%
Secondary resurfacing	—	1.3%
Costs ^b		
Primary TKA	\$7833.20	\$7590.80
Secondary resurfacing	—	\$6310.60
Revision TKA	\$13,879.21	\$13,879.21