

DAIR versus Implant Revision for Acute Periprosthetic Joint Infection after Total Hip Arthroplasty

TriNetX US Collaborative Network · propensity-score matched · 5-year outcomes

Wayne Hoskins¹ Muaz Wahid² Zuhair Zaidi² Jaime Bellamy³ Charles Gusho⁴ Antonia F. Chen²

¹ University of Melbourne, Melbourne, VIC, Australia ² UT Southwestern, Dallas, TX, USA ³ University of Missouri–Kansas City, Kansas City, MO, USA ⁴ University of Missouri, Columbia, MO, USA

KEY FINDING

For hip PJI treated within 6 weeks, DAIR resulted in LOWER 5-year PJI-related event rates than implant revision, with no penalty in revision or mechanical complications. Beyond 6 weeks, the two were equivalent.

Background & Aim

- Early periprosthetic joint infection (PJI) within 6 weeks of hip arthroplasty is a therapeutic window; immature biofilm makes debridement, antibiotics and implant retention (DAIR) feasible. DAIR success ranges widely (0–84%).
- Concern over DAIR failure has driven interest in early implant revision, but comparative evidence is scarce.
- Aim: compare infection-related and mechanical outcomes of DAIR versus implant revision for early THA PJI, by timing.

Methods

- TriNetX US network (>118M patients); primary THA 2005–2020 with PJI (ICD-10 T84.5) treated ≤ 12 weeks.
- Timing strata: ≤ 6 weeks and 6–12 weeks; 1:1 propensity-score matched (age, sex, race, 13 comorbidities).
- Primary outcome: PJI-related event at 5 years. Secondary: surgical site infection (SSI), all-cause revision, mechanical complications, mortality.
- Odds ratios with 95% CI; p < 0.05; analyses validated in R v4.3.

321

matched pairs
DAIR vs. Implant Revision
≤6 weeks

289

matched pairs
DAIR vs. Implant Revision
6–12 weeks

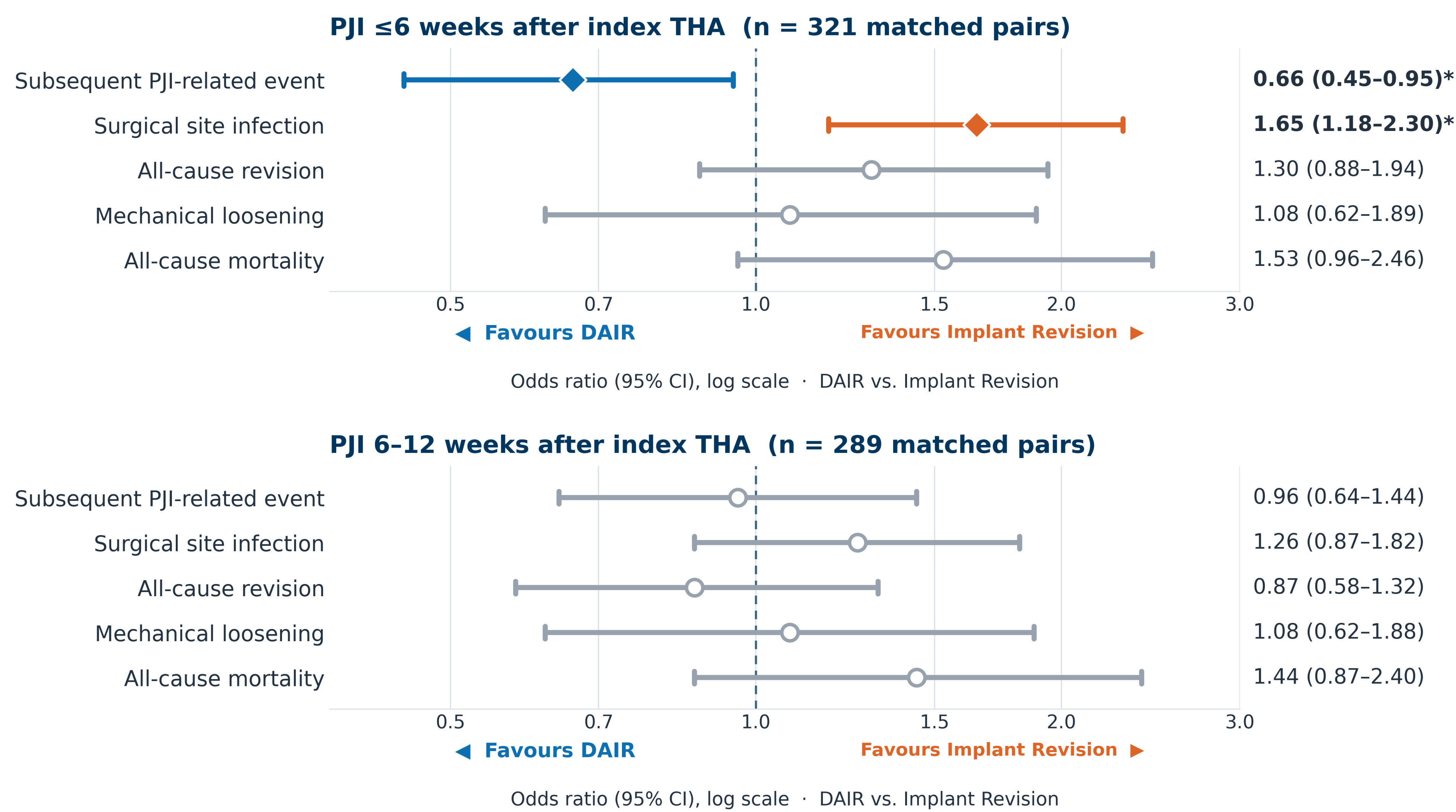
5-yr

outcome
follow-up

1:1

propensity-
score matched

Results: 5-year outcomes (THA PJI, DAIR vs. implant revision)



OR 0.66

Favours DAIR ★

PJI-related event, ≤6 weeks (p = 0.025)

OR 1.65

Higher with DAIR ★

Surgical site infection, ≤6 weeks (p = 0.003)

OR 0.96

No difference

PJI-related event, 6–12 weeks (p = 0.84)

n.s.

No difference

All-cause revision & mechanical (n.s.)

Conclusions & clinical take-home

- DAIR ≤6 weeks after THA resulted in significantly lower 5-year PJI-related events than implant revision (with higher SSI); the two were equivalent at 6–12 weeks.
- No difference in all-cause revision or mechanical complications at either time point.
- Supports implant retention (DAIR) as a strong first-line option for early hip PJI ≤6 weeks; higher SSI warrants meticulous debridement.



UT Southwestern
Medical Center



Mizzou
University of Missouri