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# Survivorship of the dual mobility construct in elective primary total hip replacement. A systematic review and meta-analysis including joint registry data.

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## Background

- Dislocation is a common complication associated with total hip replacement (THR) with more than half occurring within the first 3 months[1].
- Dual mobility constructs (DMC-THR) may be used in high-risk patients and have design features that may reduce the risk of dislocation but other causes of failure may be increased[2].

## Aims

- The primary aim of this study was to report survivorship of DMC-THR used in primary elective THR.
- Secondary aims included reporting crude dislocation rate following DMC-THR and revision for instability, infection and fracture.

## Methods

- A systematic search was performed in MEDLINE, EMBASE, Web of Science, Cochrane Library and national joint registry reports (QR code).
- Studies were included if they published revision (all-cause) survival estimates and confidence intervals.
- A meta-analysis was performed weighting each series on the overall pooled estimate.
- Revision (all-cause) was chosen as the primary outcome because this is what is important to patients[3].

## Results

*Primary outcome:*
All-cause construct survivorship:

Case series (CS):
- **99.5%** (95% CI 99.3 – 99.8) at **5** years
- **95.7%** (95% CI 94.9 – 96.5) at **10** years
- **98.4%** (95% CI 95.3 – 100) at **15** years
- **77%** (95% CI 73.2 – 80.8) at **20** years

Registry series (RS):
- **97.9%** (95% CI 97.1 – 98.6) at **2** years
- **97.3%** (95% CI 96.9 – 97.7) at **5** years
- **96.1%** (95% CI 94.0– 98.1) at **10** years

## Results

*Secondary outcomes:*
Rate of dislocation:
- Reported in 37-case series (16,809 DMC-THR)
- **1.1%** with a mean patient age at the time of operation of 66.4 years (weighted)

Rate of DMC-THR revision:
- Instability - **0.79%**
- Infection - **0.36%**
- Fracture - **0.33%**
- Mean follow up of 7.0 years (2 – 25.3).

Survivorship at 15 years
**98.4%**(CS)

Survivorship at 20 years
**77%**(CS)

Survivorship at 10 years
**95.7%**(CS)
**96.1%**(RS)

Survivorship at 5 years
**99.5%**(CS)
**97.3%**(RS)

**Figure 1.** Estimates of survival from case series[4-12] at 5 years,10 years, 15 years and 20 years.

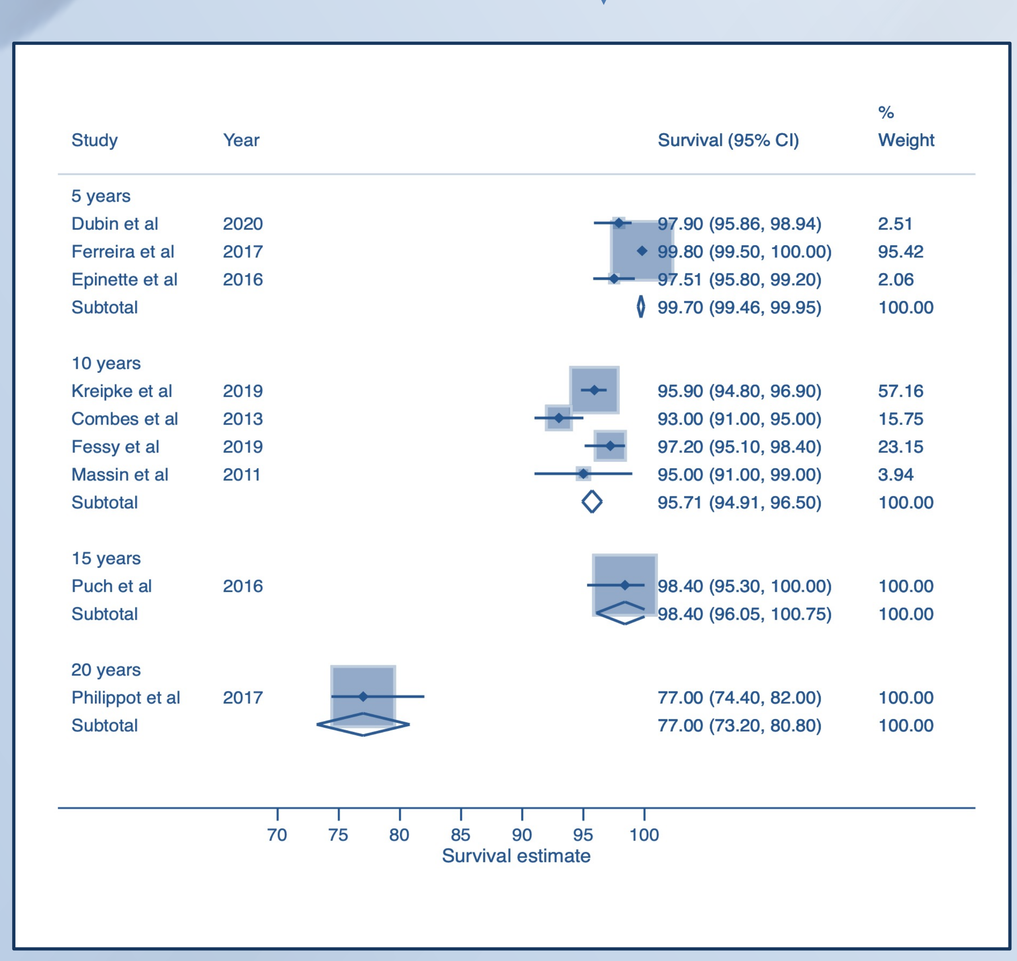
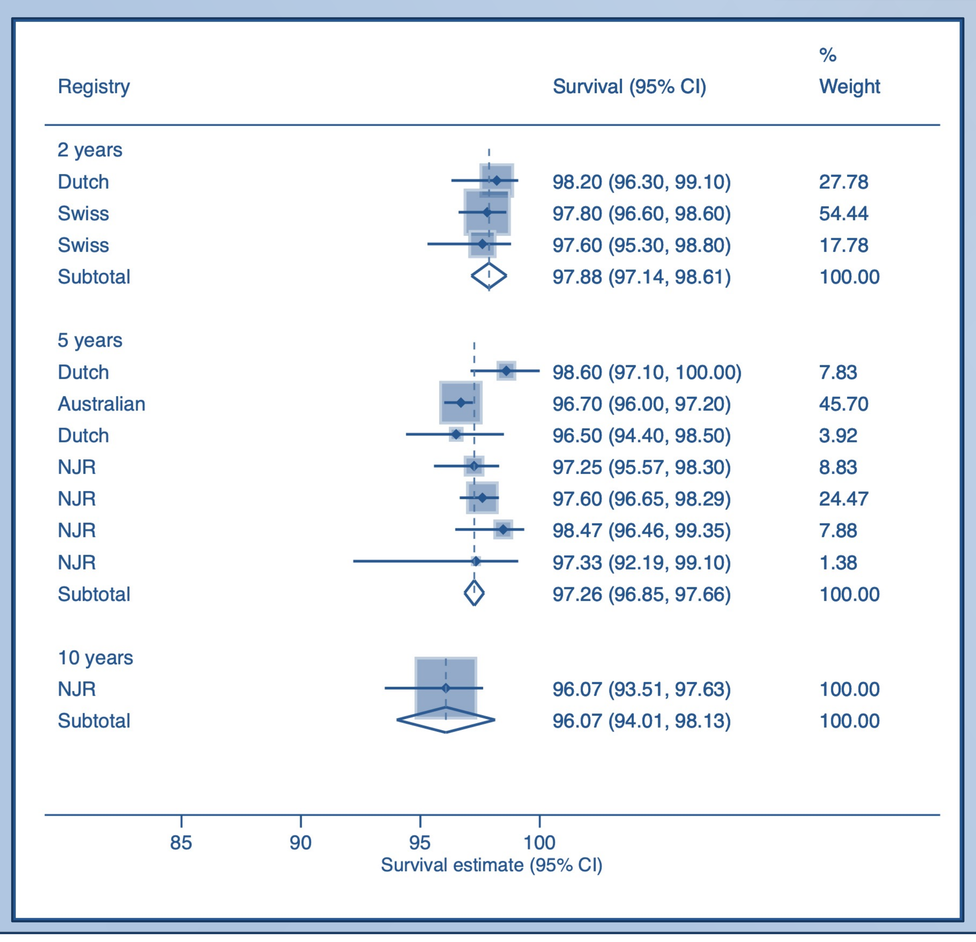



**Figure 2.** Estimates of survival from registries[2] at 2 years, 5 years and 10 years.




## Conclusions

- Previous studies reporting on case series have shown an association between the use of DMC-THR and lower dislocation rates.
- The current study shows that at comparable time points, the survivorship of DMC-THRs from case series was superior at 5 years and lower at 10 years when compared to registry series.
- Dislocation rate and revision for dislocation may be reduced with the use of DMC-THR. However, an association with higher rates of revision for other causes may not warrant its routine use.

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Scan QR code for references & PRSIMA diagram