

<b>Title</b>	Total prosthetic replacement of the temporomandibular joint: a rapid evidence assessment and economic analysis
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<b>Reference</b>	May 2013 (English); ISBN 978-1-926929-08-8 (online): <a href="http://www.ihe.ca/publications/total-prosthetic-replacement-of-the-temporomandibular-joint-a-rapid-evidence-assessment-and-economic-analysis">http://www.ihe.ca/publications/total-prosthetic-replacement-of-the-temporomandibular-joint-a-rapid-evidence-assessment-and-economic-analysis</a>

### Aim

- To assess the safety and effectiveness of the TMJ Concepts® and Biomet® Microfixation TMJ prostheses for adult patients requiring temporomandibular joint (TMJ) replacement.
- To determine the cost-effectiveness of total TMJ replacement surgery, compared with no surgical intervention, and to determine the budget impact of total TMJ replacement in Alberta.

### Conclusions and results

#### *Safety and efficacy/effectiveness*

Nine relevant case series studies of varying methodological quality were identified. Four studies were conducted retrospectively, three studies did not describe patient enrollment, five studies did not provide a detailed description of patient inclusion criteria, seven studies did not provide a description of additional procedures performed, and five studies did not provide an adequate description of the length of follow-up.

The five studies examining the TMJ Concepts® prosthesis indicated improvement in maximal incisal opening, lateral excursion, jaw pain, facial pain, jaw function, diet function, and disability. Adverse events were rare. The three studies on the stock Biomet Microfixation® prosthesis indicated improvement in maximum incisal opening, jaw pain, and eating interference. The single study on the custom-fit (or patient-matched) Biomet Microfixation® prosthesis reported improvement in maximal incisal opening and jaw pain. Almost all adverse events were transient and/or correctable with minor surgery, and were resolved relatively quickly. Prosthesis removal was required in 7% of patients, likely due to the multiple surgeries patients had undergone prior to TMJ replacement.

#### *Economic outcomes*

No relevant cost-effectiveness or cost analyses were identified. A primary cost analysis was conducted from a payer's perspective, including only direct medical service costs associated with total TMJ replacement, based on data from Alberta Health, Alberta Health Services, and the Alberta Health Care Insurance Plan claims database. The estimated cost of total TMJ replacement per patient is between

C\$38,191 and C\$39,258. The average cumulative provider cost per case of TMJ that would be eligible for total TMJ replacement is approximately C\$8,317 (not including data on inpatient and outpatient service use). There was no evidence to suggest that health service use is reduced after TMJ replacement; hence, the cost of surgery is unlikely to be offset by reductions in health service use. In 2012, 14 TMJ replacements were conducted in Alberta and three were referred to Ontario. The cost of conducting those 14 procedures was between C\$534,673 and C\$549,612, of which C\$205,990 was paid by Alberta Health Services.

### Recommendations

Evidence from nine case series studies indicated that total TMJ replacement provided stable improvement in incisal opening, jaw and diet function, and reduced pain at least up to two years following treatment, with minimal risk of serious adverse events.

No evidence was available on the cost-effectiveness of total TMJ replacement. At current volumes, the budget impact of total TMJ replacement is, at most, C\$581,085 per patient. However, the budget impact would be greater if capacity were increased to meet the current demand for TMJ replacement within Alberta.

### Methods

Please refer to the full report for details of the methods.

### Further research/reviews required

None of the studies described the effect of surgeon training or experience on patient outcomes, and no data were available comparing the two brands of TMJ prostheses. Given the relatively young age of TMJ prosthetic replacement recipients, evidence on the long-term effectiveness and need for additional TMJ prostheses over a patient's lifetime would be useful.

### Written by

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