

# Consultation Response

## **Development of the admitted care classifications**

**Prepared by Stryker South Pacific**

22 June 2021

## Summary

Stryker supports the overall approach of the Independent Hospital Pricing Authority (IHPA) in the development of the admitted care classifications.

As a leader in orthopaedic robotic surgery, Stryker provided a submission to the 2017-18 Impact of New Health Technology Framework, for the development of classifications associated with this new technology. As part of this consultation Stryker has provided further evidence supporting this technology, advocating for its unique inclusion in the Australian Classification of Health Interventions.

As proposed in this consultation Stryker supports the development of a specific ADRG for endovascular clot retrieval (ECR) for V11.0 of the Australian Refined – Diagnostic Related Groups.

We also recommend, in linking to IHPA's consultation paper on the pricing framework for Australian Public hospital services 2022–23, that a value-based health care approach is adopted so that any innovative funding models include these technologies that are regarded as peripheral, but make a large difference to patient outcomes and hence the cost to the health system.

Further recommendations and feedback against the proposed classifications are provided as follows.

## Consultation Commentary

### Section 3.2.4: Updates relating to new health technology

#### Question

Most interventions in the admitted patient setting are able to be classified to a code even though sometimes the code might not be specific. Are there other new interventions that should be uniquely classifiable in ACHI?

#### IHPA Commentary / Proposal

A number of submissions have been received to incorporate new health technology in ACHI, including submissions through IHPA's Impact of New Health Technology Framework. Submissions that identified gaps in ACHI were also prioritised. Consequently, a number of new or revised codes are proposed for ACHI Twelfth Edition.

#### Stryker's Comments

Stryker's Mako is a robotic system used to assist orthopaedic surgeons perform hip and knee replacements using 3D CT-based modelling and haptic technology enabling more precise planning, cutting and placement of the prosthetic implant.

The comprehensive research on Mako has demonstrated the potential clinical, functional and economic value of the system and the corresponding partial knee, total knee and total hip functions. Studies have shown enhanced patient outcomes, reductions in health resources utilization and episode-of-care (EOC) cost savings in PKA, TKA and THA versus those who underwent traditional surgery.<sup>1,2,3</sup>

#### Mako in total knee arthroplasty

A recent study<sup>4</sup>, found that robotic arm-assisted knee arthroplasty (performed with the assistance of Mako) has been associated with a short surgeon learning curve, improved patient satisfaction scores, enhanced surgical outcomes and reduced episode-of-care costs for patients, payers and hospitals. Specifically, compared to manual arthroplasty the robotic cohort had:

- Less postoperative pain and fewer physiotherapy sessions (lower allied health costs).
- 33 per cent readmission reduction.
- 25 per cent less post-acute discharge costs, attributed to home health aid or home self-care.
- Patients also experience less inpatient care, or 17 per cent fewer outpatient visits.
- Even when taking into consideration the added costs of CT-scan (to increase surgical accuracy) this study showed that 90-day episode-of-care costs to be significantly lower.

#### Mako in partial knee arthroplasty

Mako-assisted surgery enables less-invasive partial knee arthroplasty (PKA), as opposed to total knee arthroplasty (TKA), leading to improved clinical outcomes for patients including<sup>5</sup>:

- 55.4% lower median pain scores from day one to week eight postop, compared to manual surgery.
- Reduced use of opiates, due to reduced bone, ligament, and soft-tissue injury.
- Faster recovery times and return to work or the community and improved quality of life.
- 33 per cent shorter length of hospital stay, resulting in higher bed throughput.
- Reduced costs of implants (Mako partial knee replacement procedures are 24 per cent less expensive, compared to total knee replacement procedures).

- 88 per cent reduction in revisions at two years' follow up.
- US\$14,958 lower average cost per readmission within 90 days of follow up.

## **Mako in total hip arthroplasty**

The Mako System is designed to help the surgeon minimise the margin of error associated with component placement and to enhance the accuracy and reproducibility of THA. Mako Total Hip has demonstrated:

- Enhanced acetabular component placement accuracy and reduced dislocation rates and blood loss when compared with manual THA.<sup>1</sup>
- Favourable short-term patient-reported outcomes.<sup>6,7,8</sup>
- The highest Forgotten Joint Score reported in literature for THA.<sup>7</sup>
- Decreased length of stay compared to manual THA.<sup>9</sup>

At present, there are 47 Mako robotic systems in Australia. However, only four of these are located in stand-alone public hospitals with the majority of the rest in private hospitals which do not provide services to public patients. This creates inequities of access and denies public patients access to gold standard technology which can improve health outcomes and reduce the pain and rehabilitation associated with a joint replacement. It also means that the cost and efficiency benefits of robot-assisted joint replacements are not being realised in the public sector.

One major barrier to the increased uptake of evidence-based new technologies is the inadequacy of current funding mechanisms available for high capital cost items within the public hospital system. This is particularly the case with technologies like the Mako System where the full benefits accrue over the long term and are realised outside of the hospital system (for example in increased productivity and a reduced need for assistance with daily living).

Stryker is working with state and territory policy-makers, clinicians, researchers, and hospitals to address this inequity and improve access to robot-assisted orthopaedic surgery for public patients. As such, to accurately capture these procedures and associated episodes of care in both public and private settings Stryker proposes that a unique ACHI code be implemented for robotic total knee, partial knee and total hip arthroplasty.

It is important that a broad value-based approach be taken to the development of this code, including patient-reported experience and outcome measures, the long-term cost impact on the community and equity considerations.

*For more information on a value-based approach to health technology assessment see the Deeble Institute for Health Policy Research Issues Brief No. 37: [Measuring value in new health technology assessments: a focus on robotic surgery in public hospitals](#).*

## Section 4.1.3: Endovascular clot retrieval

### Question

Do you support the proposal to create an ADRG specifically for endovascular clot retrieval (ECR) in AR-DRG V11.0?

### IHPA Commentary / Proposal

Endovascular clot retrieval (ECR), also known as mechanical thrombectomy, involves the delivery of a clot retrieval device via a catheter into the cerebral arteries to remove the obstructing clot and restore blood flow to the brain. It is used in the treatment of acute ischaemic stroke for patients who present within four and half hours of stroke onset and are eligible for intravenous thrombolysis, but also for patients who are ineligible for intravenous thrombolysis (usually because they have presented more than four and half hours after stroke onset).

A submission to the Consultation paper on the Pricing Framework for Australian public hospital services 2018–19 requested that IHPA further investigate the delivery of ECR and the appropriateness of referring it for classification development. The submission highlighted that there has been a steady increase in the number of ECR interventions delivered since 2014 and projections indicate that this trend is likely to continue.

ECR episodes currently group to ADRG B02 Cranial Interventions within Major Diagnostic Category (MDC) 01 Diseases and Disorders of Nervous System. Analysis demonstrated that the volume of ECR episodes is increasing in recent years, from 417 episodes in 2015–16 to 1,713 episodes in 2018–19. ECR episodes appear to be less expensive than non-ECR episodes, especially within high complexity DRGs B02A and B02B.

A new ADRG B08 Endovascular Clot Retrieval is proposed for ECR episodes within MDC 01 in AR-DRG V11.0. This will prevent the average cost of ADRG B02 being diluted by ECR episodes.

### Stryker's Comments

Stryker has been a strong advocate for advancement in the delivery of stroke treatment across Australia. In 2019-20 Stryker engaged with IHPA advocating for further investigation into the delivery of ECR. This included undertaking our own modelling and pricing analysis in consultation with surgeons to present IHPA with evidentiary data and endorse the claims made by NSW Health within their submission to the *Pricing Framework for Australian public hospital services 2018–19*.

In addition, after consultation and engagement with industry, surgeons, consumers, and peak bodies as well as with federal MPs and Senators Stryker formulated a white paper discussing the development of a national plan for acute stroke treatment.

This paper outlines the evidence from clinical trials to support the use of ECR to substantially improve survival rates and functional outcomes following ischaemic stroke. It also includes data on how mechanical thrombectomy results in a significant reduction in length of hospital stay for stroke patients, much lower inpatient costs and a dramatically reduced need for ongoing nursing care.

This data estimates that treating 3,500 ischaemic stroke patients with ECR would save the Australian health system A\$17.6 million in the first year alone; and A\$47 million over a five-year period for the same cohort.

Stryker recognises that there are many steps which need to be taken to improve access to ECR at individual, service and systems levels, including the development of a specific ECR ADRG.

As such, Stryker strongly supports the proposal to create a new ADRG B08 Endovascular Clot Retrieval in Version 11.0 of the Australian Refined – Diagnostic Related Groups. Stryker is eager to see the successful development and implementation of this specific ADRG and trust it will accurately account the comprehensive costs associated with the delivery of this complex treatment.

Stryker recommends that the development of the proposed ADRG take into account the extensive research and work already conducted by the Victorian Department of Health into the treatment of strokes, which resulted in the development and implementation of a specific ECR AR-DRG within the Vic DRG 9.0. In particular, we hope that the cost weights developed by IHPA for this proposed ADRG align with those established in Victoria.

## References

- <sup>1</sup>Illgen, R, Bukowski, B, Abiola, R, Anderson, P, Chughtai, M, Khlopas, A, Mont, M. Robotic-assisted total hip arthroplasty: Outcomes at minimum two year follow up. *Surgical Technology International*. 2017 July 25; 30:365-372.
- <sup>2</sup>Kayani B, Konan S, Tahmassebi J, Pietrzak JRT, Haddad FS. Robotic-arm assisted total knee arthroplasty is associated with improved early functional recovery and reduced time to hospital discharge compared with conventional jig-based total knee arthroplasty: a prospective cohort study. *The Bone and Joint Journal*. 2018;100-B:930-7.
- <sup>3</sup>Kleebblad LJ, Borus T, Coon T, Douchis J, Nguyen J, Pearle A. Midterm survivorship and patient satisfaction of robotic arm assisted medial unicompartmental knee arthroplasty: a multicenter study. *The Journal of Arthroplasty*. 2018:1-8.
- <sup>4</sup>Cool, C.L., Jacofsky, D.J., Seeger, K.A., Sodhi, N. and Mont, M.A., 2019. A 90-day episode-of-care cost analysis of robotic-arm assisted total knee arthroplasty. *Journal of comparative effectiveness research*
- <sup>5</sup>Analysis conducted by Baker Tilly using a database compiled by OptumInsight, Inc. (Eden Prairie, MN) comprising claims generated by a national commercial health plan consisting of approximately 25 million members. Index cases incurred Jan. 2013 – Dec. 2013, revision cases incurred within 24 months of index procedure.
- <sup>6</sup>Bukowski BR, Anderson P, Khlopas A, Chughtai M, Mont MA, Illgen RL. Improved functional outcomes with robotic compared with manual total hip arthroplasty. *Surg Technol Int*. 2016; 29:303-308.
- <sup>7</sup>Perets I, Walsh JP, Close MR, Mu BH, Yuen LC, Domb BG. Robot assisted total hip arthroplasty: clinical outcomes and complication rate. *Int J Med Robot*; 2018;14(4): e1912. doi:10.1002/rcs.1912
- <sup>8</sup>Domb BG, Chen JW, Lall AC, Perets I, Maldonado DR. Minimum 5-year outcomes of robotic-assisted primary total hip arthroplasty with a nested comparison against manual primary total hip arthroplasty: a propensity score- matched study. *J Am Acad Orthop Surg*. Accepted manuscript. Published online February 25, 2020. doi:10.5435/JAAOS-D-19-00328
- <sup>9</sup>Heng YY, Gunaratne R, Ironside C, Taheri A. Conventional vs robotic arm assisted total hip arthroplasty (THA) surgical time, transfusion rates, length of stay, complications and learning curve. *J Arthritis*.