

Artificial metacarpophalangeal and interphalangeal joint replacement for end-stage arthritis

Interventional procedures guidance

Published: 23 February 2005

[nice.org.uk/guidance/ipg110](https://www.nice.org.uk/guidance/ipg110)

Your responsibility

This guidance represents the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take this guidance fully into account. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Commissioners and/or providers have a responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

1 Guidance

- 1.1 Current evidence on the safety and efficacy of artificial metacarpophalangeal (MCP) and interphalangeal (IP) joint replacement of the hand for end-stage

arthritis appears adequate to support the use of this procedure provided that the normal arrangements are in place for consent, audit and clinical governance.

- 1.2 Most of the evidence was based on a single type of joint prosthesis. The range of prostheses used is continually changing and clinicians are encouraged to submit their results to the appropriate joint-replacement registry for evaluation of long-term outcomes of different types of prosthesis.

2 The procedure

2.1 *Indications*

- 2.1.1 Arthritis of the hand joints is a common condition that deteriorates over time, although the severity of symptoms, rate of deterioration and functional effects are variable. Artificial metacarpophalangeal (MCP) and interphalangeal (IP) joints are used primarily to treat the pain of severe end-stage arthritis.
- 2.1.2 Conservative treatments for arthritis of the hand include anti-inflammatory and analgesic medication, and steroid injections. Other treatments include complete joint excision without replacement (also called excision arthroplasty), native graft arthroplasties (in which the patient's own tissue, typically tendon, is interposed in the space left after joint excision) and fusion of joints (arthrodesis).

2.2 *Outline of the procedure*

- 2.2.1 A general anaesthetic is usually used and a tourniquet is applied to the affected arm to maintain a blood-free operation site. An incision is made over the diseased joint and the tendons are retracted. The joint is removed with an oscillating saw and a prosthetic joint (typically made of a silicone-based material) is inserted in its place. A splint is applied to the fingers.

2.3 *Efficacy*

- 2.3.1 Four studies reported efficacy data on a total of 125 patients and 202 joints. Pain relief was the main outcome reported. In three studies, the proportion of joints with less pain after the procedure ranged from 97% (67/69) to 100% (31/31). Two studies, including 74 joints with osteoarthritis, reported that there was no significant improvement in the range of movement, but another study

reported that 71% (22/31) of joints had improved power and 81% (25/31) had improved dexterity. Two studies reported that 95% (18/19) and 87% (27/31) of patients were satisfied with the result of the surgery, after mean follow-up of 3 years and 6 years, respectively. For more details, refer to the Sources of evidence.

- 2.3.2 The Specialist Advisors noted concerns regarding the long-term benefits compared with the use of arthrodesis.

2.4 *Safety*

- 2.4.1 A systematic review, including 70 articles (15,556 MCP and IP joint replacements), reported on complications. The most common complication was change to surrounding bones, including bone cysts, osteolysis, resorption and heterotopic bone formation, in 4% (577/15,556) of implants. Other complications included implant fracture in 2% (352/15,556) of joints, implant loosening in less than 1% (114/15,556) and infection in less than 1% (86/15,556). Removal of the implant was necessary in 1% (143/15,556) of joints. The reasons for removal included implant fracture, infection, loosening, pain and synovitis. Two small case series reported that 7% (5/69) and 3% (1/31) of implants had fractured after mean follow-up periods of 3 years and 6 years, respectively. For more details, refer to the Sources of evidence.

- 2.4.2 The Specialist Advisors listed potential adverse effects including stiffness, loosening of the prosthesis, generation of wear debris, bone resorption, nerve injury, wound haematoma, silicone synovitis, infection and prosthesis fatigue.

2.5 *Other comments*

- 2.5.1 This procedure is primarily used to treat pain in end-stage arthritis.

3 Further information

- 3.1 The Institute has issued guidance on [artificial trapeziometacarpal joints of the hand for end-stage osteoarthritis](#).

Andrew Dillon
Chief Executive
February 2005

Information for the public

NICE has produced [information on this procedure for patients and carers](#) ('Understanding NICE guidance'). It explains the nature of the procedure and the guidance issued by NICE, and has been written with patient consent in mind.

Sources of evidence

The evidence considered by the Interventional Procedures Advisory Committee is described in the following document.

['Interventional procedures overview of artificial metacarpophalangeal and interphalangeal joint replacement for end-stage arthritis'](#), July 2004.

4 About this guidance

NICE interventional procedure guidance makes recommendations on the safety and efficacy of the procedure. It does not cover whether or not the NHS should fund a procedure. Funding decisions are taken by local NHS bodies after considering the clinical effectiveness of the procedure and whether it represents value for money for the NHS. It is for healthcare professionals and people using the NHS in England, Wales, Scotland and Northern Ireland, and is endorsed by Healthcare Improvement Scotland for implementation by NHSScotland.

This guidance was developed using the NICE [interventional procedure guidance](#) process.

We have produced a [summary of this guidance for patients and carers](#). Information about the evidence it is based on is also [available](#).

Changes since publication

26 January 2012: minor maintenance.

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Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way which would be inconsistent with compliance with those duties.

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Endorsing organisation

This guidance has been endorsed by [Healthcare Improvement Scotland](#).