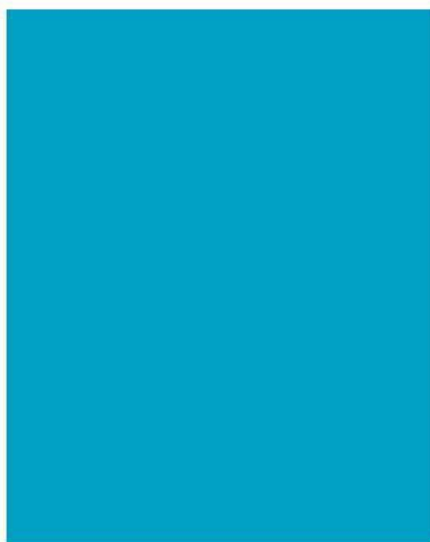


**Clinical Commissioning
Policy Statement: Percutaneous
mitral valve leaflet repair
for mitral regurgitation**

April 2013

Reference: NHSCB/A09/PS/b



NHS Commissioning Board Clinical Commissioning Policy Statement: Percutaneous mitral valve leaflet repair for mitral regurgitation

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**Prepared by the NHS Commissioning Board Clinical Reference Group for
Specialised Cardiology**

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POLICY STATEMENT:

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Percutaneous mitral valve leaflet repair for mitral regurgitation	NHSCB/A09/PS/b
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Treatment:	Percutaneous mitral valve leaflet repair using MitraClip Abbott Vascular http://www.abbottvascular.com/int/mitraclip.html
For:	Mitral regurgitation
Background:	<p>This policy statement is primarily about one device for percutaneous mitral valve leaflet repair for mitral regurgitation (MR). The MitraClip mitral valve repair system is a catheter-based device which can reduce mitral regurgitation. The MitraClip device has been CE marked for commercial use in Europe since March 2008. It does not have approval for use by the U.S. Food and Drug Administration (FDA) although this is currently under review.</p> <p>The mitral valve normally ensures one way forward flow of blood from the left atrium into the left ventricle. Mitral regurgitation occurs when the valve does not close properly at the end of ventricular filling. When the left ventricle contracts, blood passes normally through the aortic valve and into the aorta but some blood leaks backwards through the regurgitant mitral valve into the left atrium. If the volume of blood pumped into the left atrium is large, this will reduce the efficiency of the heart as a pump and will lead to heart failure. The most common cause of mitral regurgitation is degenerative disease but there are a range of causes.</p> <p>Functional mitral regurgitation occurs when the mitral valve leaflets are structurally normal but there is a failure of apposition (coming together) of the leaflets, resulting in mitral regurgitation. Functional mitral regurgitation may be caused by dilatation of the left ventricle, causing stretching of the mitral valve annulus, or by tethering of the valve leaflets. Functional mitral regurgitation, therefore, is a consequence of another cardiac disease process and is not the primary abnormality.</p> <p>The usual intervention for mitral valve disease is cardiac surgery. This is carried out under general anaesthetic using</p>

heart / lung bypass. This may involve repairing the native valve or replacing the valve with a prosthetic valve. A number of different repair techniques are available dependent on the

	<p>mechanism of regurgitation (leak). When the valve is suitable for surgical repair, mitral valve repair is regarded as having better outcomes than mitral valve replacement. The Society for Cardiothoracic Surgeons (SCTS) has a comprehensive patient database that reviews the underlying causes of mitral valve disease and outcomes following mitral valve surgery.¹</p> <p>The MitraClip system is a catheter-based device which can reduce mitral regurgitation without the need for open heart surgery. It is indicated for use in patients who are at unacceptably risk from conventional mitral valve repair or replacement.</p> <p>MitraClip tries to reproduce an accepted surgical repair of the mitral valve (Alfieri repair). In the Alfieri repair, the surgeon brings the two mitral valve leaflets together with a suture to create a “double orifice” valve which reduces, but does not abolish, leak through the valve. The MitraClip device aims to effect a similar repair using a stainless steel clip to clip the leaflets together without the need for open heart surgery. In selected patients with mitral regurgitation, this procedure can reduce the symptoms of heart failure and can improve quality of life.</p>
<p>Commissioning position:</p>	<p>The NHS Commissioning Board will not routinely fund MitraClip for percutaneous mitral valve leaflet repair.</p> <p>There is a current lack of evidence of a suitable quality or statistical significance to demonstrate that MitraClip for mitral regurgitation shows sufficient benefit for patients and value for the NHS.</p>
<p>Effective from:</p>	<p>1 April 2013</p>
<p>Evidence Summary:</p>	<p>Heart failure affects about 900,000 people in the UK and the incidence is expected to rise through a combination of an aging population and more effective treatments for ischaemic heart disease. It has a poor prognosis and accounts for a relatively high degree of NHS resource. Functional mitral valve regurgitation (FMR) due to annular dilatation occurs in between 40-60% of patients with heart failure. Such valvular dysfunction is associated with worsening symptoms and increased mortality, which may be as high as 60% after 5 years. This increases health service costs particularly due to repeated admissions to hospital.</p> <p>Interventions to improve symptoms and reduce mortality include medical therapies, myocardial revascularisation and cardiac resynchronisation pacing (CRT) with or without defibrillator implantation. However, these therapies do not directly address mitral valve dysfunction. Patients with FMR who require surgical revascularization (CABG) should be</p>

considered for mitral valve repair at the time of CABG. However, many patients with FMR do not require revascularisation or are considered too high risk for surgery for a variety of reasons including severe left ventricular systolic dysfunction, previous cardiac surgery and comorbid diseases. Furthermore, current guidelines regard surgery as not well established for secondary MR in end stage heart failure.² Many patients therefore continue on medical therapy alone with few undergoing treatment that addresses their leaking mitral valve directly.

The prevalence of mitral regurgitation from a USA study in 2001 is about 2% of the population equally affecting males and females.³

Key points from mitral valve analyses (all causes, SCTs database 2008¹)

- There has been a doubling in the number of mitral valve repairs between 2001 & 2008.
- There has been no change in the number of mitral valve replacements.
- Many patients referred for mitral valve repair have significant damage to left ventricular function or severe symptoms and will not derive optimum benefit from surgery.
- The overall mortality for isolated mitral valve repair is around 2%, the mortality from mitral valve replacement remains high at 6.1%.
- 63% of all isolated repairs & 34% of all isolated replacements are for degenerative valve disease.
- There has been an increase in the proportion of patients with degenerative mitral valve disease who undergo mitral valve repair from 52% in 1999 to 67% in 2008.
- Whether patients with degenerative mitral valve disease undergo mitral repair or replacement varies significantly between hospitals.

NICE IPG309⁴ reports that:

Evidence on the safety and efficacy of percutaneous mitral valve leaflet repair for mitral regurgitation is currently inadequate in quality and quantity. Therefore, this procedure should only be used:

with special arrangements for clinical governance, consent and research for patients who are well enough for surgical mitral valve leaflet repair to treat their mitral regurgitation, or in the context of research for patients who are not well enough for surgical mitral valve leaflet repair to treat their mitral regurgitation.

The European Society of Cardiology Guidelines on the management of valvular heart disease² covers the indications for operative intervention. They highlight a relative lack of good data on patients with functional mitral regurgitation.

Surgery for secondary MR remains a challenge. Operative mortality is higher than in primary MR and the long-term prognosis is worse due—at least in part—to the more severe comorbidities ... In ischaemic MR patients, indications and the preferred surgical procedure remain controversial, mainly because of the persistence and high recurrence rate of MR after valve repair and the absence of evidence that surgery prolongs life. Most studies show that severe ischaemic MR is not usually improved by revascularization alone, and that persistence of residual MR carries an increased mortality risk. The impact of valve surgery on survival remains unclear, since there are no randomized trials and the few observational studies addressing this issue have too many limitations to draw definite conclusions.

The British Cardiovascular Intervention Society's (BCIS) analysis of the 2010 audit from the CCAD registry (slide 201)⁵ shows that nine units registered 83 MitraClip cases, almost doubled the number of MitraClips carried out in 2009. This gave an average of nine cases per annum per unit with only a single unit performing 20 cases in one year.

The EVEREST I trial⁶ was a non-randomized observational study of the first 107 patients to be treated with MitraClip. At 1 year the MitraClip successfully reduced MR. The study demonstrated that the procedure could be performed safely and that patients who had a suboptimal procedure could undergo successful subsequent open MV surgery if necessary. Follow up data confirmed that the technique does not lead to the development of mitral stenosis (obstruction).

The EVEREST II trial⁷ randomized patients with significant MR to MitraClip or surgical repair in a 2:1 ratio. For the primary efficacy endpoint, the MitraClip device was non-inferior to surgery at 1 year (clinical success rate of 72.4% for MitraClip patients with successful initial treatment compared with a clinical success rate of 87.8% for surgery patients). At 1 year, the MitraClip procedure demonstrated a significant reduction in the severity of MR with reductions in left ventricular diastolic diameter and volume measurements. Compared to baseline, MitraClip produced an improvement in physical and mental quality of life and an improvement in symptoms with 97.5% of patients being NYHA class 1 or 2 compared with baseline when 52.6% were NYHA class III or IV).

	<p>(EVEREST II demonstrated that MitraClip reduced mitral regurgitation in some patients but also showed significant limitations to the technology; only 55% of MitraClip patients were free from death, surgical valve intervention or severe (grade 3-4) mitral regurgitation at one year. It is unproven whether or not MitraClip treatment confers benefit to patients with functional mitral regurgitation who are considered not fit for conventional surgery. Despite the non-inferior outcome of the EVEREST II study, it is clear that a randomized trial is required to demonstrate whether MitraClip repair really benefits patients with heart failure and functional MR compared to optimal medical therapy.</p> <p>The current evidence base is insufficient for a detailed analysis of cost-effectiveness</p>
Equality Impact:	<p>The NHS Commissioning Board (NHSCB) has a duty to have regard to the need to reduce health inequalities in access to health services and health outcomes achieved as enshrined in the Health and Social Care Act 2012. The NHSCB is committed to ensuring equality of access and non-discrimination, irrespective of age, disability (including learning disability), gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex (gender) or sexual orientation. In carrying out its functions the NHSCB will have due regard to the different needs of protected equality groups in line with the Equality Act 2010. This document is compliant with the NHS Constitution and the Human Rights Act 1998. This applies to all the activities for which they are responsible including policy development, review and implementation.</p>
Responsible CRG:	Specialised Cardiology CRG
Date approved by NHSCB Board:	April 2013
Policy review date:	During 2013/14
Version:	1

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Personal communication: Baker C to J Howell. Re: Proposed Imperial MitraClip trial. NIHR application for funding for UK study to understand the long term outcomes for patients with FMR receiving MitraClip. Some of the summary epidemiological and evidence information has been used here. The study was not funded.

**Change Notice for Published Specifications and Products
developed by Clinical Reference Groups (CRG)**

Amendment to the Published Products

Product Name	Percutaneous mitral valve leaflet repair for mitral valve regurgitation
Ref No	A09/PS/b
CRG Lead	Complex Invasive Cardiology

Description of changes required

Describe what was stated in original document	Describe new text in the document	Section/Paragraph to which changes apply	Describe why document change required	Changes made by	Date change made
MitraClip	Percutaneous mitral valve leaflet repair for mitral valve regurgitation	Title page and second and third page	To standardise naming and coding of products	Programme of Care Director for Internal Medicine	September 2013