

Balloon dilatation of pulmonary valve stenosis

Interventional procedures guidance

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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 balloon dilatation of pulmonary

valve stenosis 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 Balloon dilatation of pulmonary valve stenosis should only be performed in a specialist unit where paediatric cardiac surgery is available.
- 1.3 The Department of Health runs the [UK Central Cardiac Audit Database](#) (UKCCAD) and clinicians are encouraged to enter all patients undergoing paediatric cardiovascular interventions onto this database.

2 The procedure

2.1 Indications

- 2.1.1 Pulmonary valve stenosis is narrowing of the pulmonary valve in the heart. It is usually congenital. The outflow of blood from the right ventricle of the heart to the lungs is obstructed. Symptoms include shortness of breath, chest pains, fainting and, in some instances, sudden death.
- 2.1.2 Balloon dilatation is an alternative to open surgical valvotomy.

2.2 Outline of the procedure

- 2.2.1 Balloon dilatation is a minimally invasive transvenous procedure to dilate the pulmonary valve orifice during cardiac catheterisation.

2.3 Efficacy

- 2.3.1 The evidence identified was limited to case series and one historical controlled study. All the studies reported a reduction in the residual pressure gradient across the pulmonary valve. In addition, the studies that reported data with more than 11 months follow-up showed that the reduction in pressure gradient persisted. In a case series of 533 children who received the procedure, an immediate residual gradient of less than 36 mmHg was reported in 74% (394/533) of patients. No clinical outcomes were reported. For more details, refer to the Sources of evidence section.

- 2.3.2 The Specialist Advisors considered this procedure to be established practice and had no concerns about its efficacy.

2.4 Safety

- 2.4.1 Most of the studies identified did not report safety findings in detail. The study that described safety findings in most detail reported the following immediate complications among 811 patients: arrhythmia, 1% (8/811); bleeding from catheter site, 0.9% (7/811); femoral vein thrombosis, 0.6% (5/811); hypoxia, 0.4% (3/811); death, 0.2% (2/811); tricuspid regurgitation, 0.2% (2/811); femoral vein tears, 0.2% (2/811); arterial thrombosis, 0.2% (2/811); cardiac perforation, 0.1% (1/811); and respiratory arrest, 0.1% (1/811). For more details, refer to the Sources of evidence section.
- 2.4.2 The Specialist Advisors commented that pulmonary regurgitation was common after the procedure, but that the long-term effects of this were unknown. They considered the risks to be greater in neonates than in older infants and children. The Advisors also recommended that the procedure should be carried out only in paediatric cardiology units with special expertise.

2.5 Other comments

- 2.5.1 This procedure has become established practice on the basis of clinical experience. There is very limited research evidence published.
- 2.5.2 Most of the data relates to neonates and children, but the procedure can also be performed in adults.

3 Further information

Sources of evidence

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

'Interventional procedure overview of balloon dilatation of pulmonary valve stenosis', March 2003.

Information for patients

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.

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

8 May: minor maintenance.

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Endorsing organisation

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