NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Interventional Procedures Programme

Specialist Adviser questionnaire

Before completing this questionnaire, please read Conflicts of Interest for Specialist Advisers. Certain conflicts exclude you from offering advice, however, please return the questionnaire to us incomplete for our records.

Please respond in the boxes provided.

Please complete and return to: Sally.Jones@nice.or.uk or Hawra.Abugulal@nice.org.uk

Procedure Name:	Percutaneous endoscopic catheter laser balloon pulmonary vein isolation for atrial fibrillation
Name of Specialist Advisor:	Dr Tim R Betts
Specialist Society:	British Heart Rhythm Society

1 Do you have adequate knowledge of this procedure to provide advice?

☒ Yes.

☐ No – please return the form/answer no more questions.

1.1 Does the title used above describe the procedure adequately?

☒ Yes.

☐ No. If no, please enter any other titles below.

Comments:

2 Your involvement in the procedure

2.1 Is this procedure relevant to your specialty?

☒ Yes.

☐ Is there any kind of inter-specialty controversy over the procedure?

☒ No. If no, then answer no more questions, but please give any information you can about who is likely to be doing the procedure.

Comments:

The next 2 questions are about whether you carry out the procedure, or refer patients for it. If you are in a specialty that normally carries out the procedure please answer question 2.2.1. If you are in a specialty that normally selects or refers patients for the procedure, please answer question 2.2.2.

2.2.1 If you are in a specialty that does this procedure, please indicate your experience with it:

☐ I have never done this procedure.

☐ I have done this procedure at least once.

☒ I do this procedure regularly.

Comments:

I started doing this procedure in 2015 and have performed 28 cases to date

2.2.2 If your specialty is involved in patient selection or referral to another specialty for this procedure, please indicate your experience with it.

☐ I have never taken part in the selection or referral of a patient for this procedure.

☐ I have taken part in patient selection or referred a patient for this procedure at least once.

☒ I take part in patient selection or refer patients for this procedure regularly.

Comments:

2.3 Please indicate your research experience relating to this procedure (please choose one or more if relevant):

☒ I have done bibliographic research on this procedure.

☐ I have done research on this procedure in laboratory settings (e.g. device-related research).

☒ I have done clinical research on this procedure involving patients or healthy volunteers.

☐ I have had no involvement in research on this procedure.

☐ Other (please comment)

Comments:

3 Status of the procedure

3.1 Which of the following best describes the procedure (choose one):

☐ Established practice and no longer new.

☐ A minor variation on an existing procedure, which is unlikely to alter the procedure's safety and efficacy.

☒ Definitely novel and of uncertain safety and efficacy.

☐ The first in a new class of procedure.

Comments:

A recent RCT comparing laser balloon to standard radiofrequency energy ablation suggests comparable efficiency and safety. The operators had a long experience with the standard technique but all were new to and inexperienced with the laser balloon. J Am Coll Cardiol 2015;66:1350–60

3.2 What would be the comparator (standard practice) to this procedure?

Irrigated-tip radiofrequency catheter ablation with contact force measurement, or the Advance cryoballoon

3.3 Please estimate the proportion of doctors in your specialty who are doing this procedure (choose one):

☐ More than 50% of specialists engaged in this area of work.

☐ 10% to 50% of specialists engaged in this area of work.

☒ Fewer than 10% of specialists engaged in this area of work.

☐ Cannot give an estimate.

Comments:

4 Safety and efficacy

4.1 What is the potential harm of the procedure?

Please list adverse events and major risks (even if uncommon) and, if possible, estimate their incidence, as follows:

1. Adverse events reported in the literature (if possible please cite literature)

In the Heartlight RCT (**J Am Coll Cardiol 2015;66:1350–60**) the AE rate was 11.8% in the VGLB group versus 14.5% in controls (absolute difference: -2.8%; p = 0.002 for noninferiority). The AE rate reflects the number of patients experiencing at least 1 AE rather than the total number of PAEs. There were a total of 24 AEs (14.1%) in the VGLB group and 27 (15.7%) among controls (p = NS). Diaphragmatic paralysis persisting beyond the blanking period occurred in 6 (3.5%) and 1 (0.6%) in the VGLB and control groups, respectively (p =0.05). Of these, 3 (1.8%) persisted at 12 months in the VGLB group, with 1 resolving after 12 months. The single diaphragmatic paralysis in the control arm was persistent at 12 months. At 3 months, CT or CMR demonstrated a significantly higher rate of significant PV stenosis (>50% diameter decrease) in controls (2.9% vs. 0.0%; p = 0.03). The rate of PV narrowing (>20% but <50% diameter decrease, evaluated on a per-vein basis) was 21.9% in those who underwent VGLB ablation compared with 24.7% in controls. There were 2 strokes in the VGLB arm (1 before discharge, 1 a week after discharge) and 1 in the control group (p ¼ 0.56). The VGLB patient who experienced a stroke after discharge was not anticoagulated before ablation but received dabigatran beginning the day of ablation. All 3 strokes completely resolved.

TABLE 3 Primary Adverse Events

	VGLB (n = 170)	Control (n = 172)	p Value
Stroke	2 (1.2)	1 (0.6)	0.56
TIA	0 (0.0)	0 (0.0)	–
Cardiac tamponade, perforation, or significant effusion	2 (1.2)	3 (1.7)	0.66
Diaphragmatic paralysis	6 (3.5)	1 (0.6)	0.05
Atrio-esophageal fistula	0 (0.0)	0 (0.0)	–
PV stenosis >50%	0 (0.0)	5 (2.9)	0.03
Cardioversion for atrial arrhythmias	14 (8.2)	16 (9.3)	0.73
Major bleeding requiring transfusion	0 (0.0)	1 (0.6)	0.32
Myocardial infarction	0 (0.0)	0 (0.0)	–
Death	0 (0.0)	0 (0.0)	–
Total PAEs	24 (14.1)	27 (15.7)	NS
Total PAE rate*	20 (11.8)	25 (14.5)	

Values are n (%). *The total PAE rate reflects the number of patients experiencing a PAE rather than the total of the number of PAEs.

PAE = primary adverse event(s); other abbreviations as in Tables 1 and 2.

2. Anecdotal adverse events (known from experience)

Femoral vascular injury (psudo- or false femoral aneurysm) should also be recorded as an adverse event. I have had one patient with this.

3. Theoretical adverse events

Atrioesophageal fistula is a rare but often fatal event (1 in 500 to 1 in 1000)

4.2 What are the key efficacy outcomes for this procedure?

Freedom from atrial fibrillation. Freedom from atrial arrhythmias. Freedom from atrial arrhythmias off antiarrhythmic drug therapy. Single procedure success rate. Multiple procedure success rate. Improvement in QOL

4.3 Are there uncertainties or concerns about the *efficacy* of this procedure? If so, what are they?

Not specific to the laser balloon, but to AF ablation in general. The consenus for research is that success is no symptomatic or asymptomatic atrial fibrillation lasting >30 seconds including 7 day ECG Holter recordings, at 6 months followup. In reality, a patient often feels the ablation is successful if their overall burden of AF is reduced. This means someone who used to have 3 or 4 attacks a week, lasting hours at a time, whilst taking drugs, could have an ablation and then only get 2 minutes of AF every 3 months off drugs and still be classed a failure by the research consensus, even though they are very happy with the result and it is a “clinical success”

4.4 What training and facilities are needed to do this procedure safely?

Observe cases then company support. Proctoring for first few cases is advised but not mandatory for experience operators used to using balloon technologies (e.g the cryoballoon)

4.5 Are there any major trials or registries of this procedure currently in progress? If so, please list.

4.6 Are you aware of any abstracts that have been *recently* presented/ published on this procedure that may not be listed in a standard literature search, for example PUBMED? (This can include your own work). If yes, please list.
Please note that NICE will do a literature search: we are only asking you for any very recent or potentially obscure abstracts and papers. Please do not feel the need to supply a comprehensive reference list (but you may list any that you think are particularly important if you wish).

No – everything should be available via Medline. Double check by visiting the Cardiofocus website. http://www.cardiofocus.com/clinical_us.html#

4.7 Is there controversy, or important uncertainty, about any aspect of the way in which this procedure is currently being done or disseminated?

No

5 Audit Criteria

Please suggest a minimum dataset of criteria by which this procedure could be audited.

5.1 Outcome measures of benefit (including commonly used clinical outcomes, both short and long - term; and quality-of-life measures):

Freedom from atrial fibrillation. Freedom from atrial arrhythmias. Freedom from atrial arrhythmias off antiarrhythmic drug therapy. Single procedure success rate. Multiple procedure success rate. Improvement in QOL

5.2 Adverse outcomes (including potential early and late complications):

See Table 3 in point 4.1 above

6 Trajectory of the procedure

6.1 In your opinion, how quickly do you think use of this procedure will spread?

There are lots of competing technologies. I don't think this will spread fast unless subsequent studies show it to be superior to standard RF catheter ablation

6.2 This procedure, if safe and efficacious, is likely to be carried out in (choose one):

☐ Most or all district general hospitals.

☐ A minority of hospitals, but at least 10 in the UK.

☒ Fewer than 10 specialist centres in the UK.

☐ Cannot predict at present.

Comments:

AF ablation is still the preserve of tertiary referral hospitals and a few large DGHs. There are a variety of competing technologies which are already established and are probably cheaper

6.3 The potential impact of this procedure on the NHS, in terms of numbers of patients eligible for treatment and use of resources, is:

☐ Major.

☐ Moderate.

☒ Minor.

Comments:
AF ablation continues to expand and grow, but that is independent of the technology used

7 Other information

7.1 Is there any other information about this procedure that might assist NICE in assessing the possible need to investigate its use?

No

8 Data protection and conflicts of interest

8. Data protection, freedom of information and conflicts of interest

8.1 Data Protection

The information you submit on this form will be retained and used by the NICE and its advisers for the purpose of developing its guidance and may be passed to other approved third parties. Your name and specialist society will be published in NICE publications and on the NICE website. The specialist advice questionnaire will be published in accordance with our guidance development processes and a copy will be sent to the nominating Specialist Society. Please avoid identifying any individual in your comments.

☑ I have read and understood this statement and accept that personal information sent to us will be retained and used for the purposes and in the manner specified above and in accordance with the Data Protection Act 1998.

8.2 Declarations of interest by Specialist Advisers advising the NICE Interventional Procedures Advisory Committee

Nothing in your submission shall restrict any disclosure of information by NICE that is required by law (including in particular, but without limitation, the Freedom of Information Act 2000).

Please submit a conflicts of interest declaration form listing any potential conflicts of interest including any involvement you may have in disputes or complaints relating to this procedure.

Please use the "Conflicts of Interest for Specialist Advisers" policy as a guide when declaring any conflicts of interest. Specialist Advisers should seek advice if needed from the Associate Director – Interventional Procedures.

Do you or a member of your family[1] have a **personal pecuniary** interest? The main examples are as follows:

[1] 'Family members' refers to a spouse or partner living in the same residence as the member or employee, children for whom the member or employee is legally responsible, and adults for whom the member or employee is legally responsible (for example, an adult whose full power of attorney is held by the individual).

Consultancies or directorships attracting regular or occasional payments in cash or kind	☐	**YES**
	☒	**NO**
Fee-paid work – any work commissioned by the healthcare industry **– this includes income earned in the course of private practice**	☐	**YES**
	☒	**NO**
Shareholdings – any shareholding, or other beneficial interest, in shares of the healthcare industry	☐	**YES**
	☒	**NO**
Expenses and hospitality – any expenses provided by a healthcare industry company beyond those reasonably required for accommodation, meals and travel to attend meetings and conferences	☐	**YES**
	☒	**NO**
Investments – any funds that include investments in the healthcare industry	☐	**YES**
	☐	**NO**
Do you have a **personal non-pecuniary** interest – for example have you made a public statement about the topic or do you hold an office in a professional organisation or advocacy group with a direct interest in the topic?	☐	**YES**
	☒	**NO**

Do you have a **non-personal** interest? The main examples are as follows:

Fellowships endowed by the healthcare industry	☐	**YES**
	☒	**NO**
Support by the healthcare industry or NICE that benefits his/her position or department, eg grants, sponsorship of posts	☐	**YES**
	☒	**NO**

If you have answered YES to any of the above statements, please describe the nature of the conflict(s) below.

Comments:
I have no conflicts of interest for this particular procedure (Percutaneous endoscopic catheter laser balloon pulmonary vein isolation for atrial fibrillation). In the broader field of catheter ablation of arrhythmias, using other technologies, I have received research grants and fee-paid work

Thank you very much for your help.

Dr Tom Clutton-Brock, Interventional Procedures Advisory Committee Chair

Professor Carole Longson, Director, Centre for Health Technology Evaluation.

Jan 2016

Conflicts of Interest for Specialist Advisers

1 Declarations of interest by Specialist Advisers advising the NICE Interventional Procedures Advisory Committee

1.1 Any conflicts of interest set out below should be declared on the questionnaire the Specialist Adviser completes for the procedure.

1.2 Specialist Advisers should seek advice if required from the Associate Director – Interventional Procedures.

2 Personal pecuniary interests

2.1 A personal pecuniary interest involves a current personal payment to a Specialist Adviser, which may either relate to the manufacturer or owner of a product or service being evaluated, in which case it is regarded as **'specific'** or to the industry or sector from which the product or service comes, in which case it is regarded as **'non-specific'**. The main examples are as follows.

2.1.1 **Consultancies** – any consultancy, directorship, position in or work for the healthcare industry that attracts regular or occasional payments in cash or kind (this includes both those which have been undertaken in the 12 months preceding the point at which the declaration is made and which are planned but have not taken place).

2.1.2 **Fee-paid work** – any work commissioned by the healthcare industry for which the member is paid in cash or in kind (this includes both those which have been undertaken in the 12 months preceding the point at which the declaration is made and which are planned but have not taken place).

2.1.3 **Shareholdings** – any shareholding, or other beneficial interest, in shares of the healthcare industry that are either held by the individual or for which the individual has legal responsibility (for example, children, or relatives whose full Power of Attorney is held by the individual). This does not include shareholdings through unit trusts, pensions funds, or other similar arrangements where the member has no influence on financial management.

2.1.4 **Expenses and hospitality** – any expenses provided by a healthcare industry company beyond that reasonably required for accommodation, meals and travel to attend meetings and conferences (this includes both those which have been undertaken in the 12 months preceding the point at which the declaration is made and which are planned but have not taken place.

2.1.5 **Investments** – any funds which include investments in the healthcare industry that are held in a portfolio over which individuals have the ability to instruct the fund manager as to the composition of the fund.

2.2 No personal interest exists in the case of:

2.2.1 assets over which individuals have no financial control (for example, wide portfolio unit trusts and occupational pension funds) and where the fund manager has full discretion as to its composition (for example, the Universities Superannuation Scheme)

2.2.2 accrued pension rights from earlier employment in the healthcare industry.

3 **Personal family interest**

3.1 This relates to the personal interests of a family member and involves a **current payment** to the family member of the Specialist Adviser. The interest may relate to the manufacturer or owner of a product or service being evaluated, in which case it is regarded as '**specific**', or to the industry or sector from which the product or service comes, in which case it is regarded as '**non-specific**'. The main examples include the following.

3.1.1 Any consultancy, directorship, position in or work for a healthcare industry that attracts regular or occasional payments in cash or in kind.

3.1.2 Any fee-paid work commissioned by a healthcare industry for which the member is paid in cash or in kind.

3.1.3 Any shareholdings, or other beneficial interests, in a healthcare industry which are either held by the family member or for which an individual covered by this Code has legal responsibility (for example, children, or adults whose full Power of Attorney is held by the individual).

3.1.4 Expenses and hospitality provided by a healthcare industry company (except where they are provided to a general class of people such as attendees at an open conference)

3.1.5 Funds which include investments in the healthcare industry that are held in a portfolio over which individuals have the ability to instruct the fund manager as to the composition of the fund.

3.2 No personal family interest exists in the case of:

3.2.1 assets over which individuals have no financial control (for example, wide portfolio unit trusts and occupational pension funds) and where the fund manager has full discretion as to its composition (for example, the Universities Superannuation Scheme)

3.2.2 accrued pension rights from earlier employment in the healthcare industry.

4 **Personal non-pecuniary interests**

These might include, but are not limited to:

4.1 a clear opinion, reached as the conclusion of a research project, about the clinical and/or cost effectiveness of an intervention under review

4.2 a public statement in which an individual covered by this Code has expressed a clear opinion about the matter under consideration, which could reasonably be interpreted as prejudicial to an objective interpretation of the evidence

4.3 holding office in a professional organisation or advocacy group with a direct interest in the matter under consideration

4.4 other reputational risks in relation to an intervention under review.

5 Non-personal interests

5.1 A non-personal interest involves payment that benefits a department or organisation for which a Specialist Advisor is responsible, but that is not received by the Specialist Advisor personally. This may either relate to the product or service being evaluated, in which case it is regarded as **'specific,'** or to the manufacturer or owner of the product or service, but is unrelated to the matter under consideration, in which case it is regarded as **'non-specific'**. The main examples are as follows.

5.1.1 **Fellowships** – the holding of a fellowship endowed by the healthcare industry.

5.1.2 **Support by the healthcare industry or NICE** – any payment, or other support by the healthcare industry or by NICE that does not convey any pecuniary or material benefit to a member personally but that does benefit his/her position or department. For example:

- a grant from a company for the running of a unit or department for which a Specialist Advisor is responsible
- a grant, fellowship or other payment to sponsor a post or member of staff in the unit for which a Specialist Adviser is responsible. This does not include financial assistance for students
- the commissioning of research or other work by, or advice from, staff who work in a unit for which the specialist advisor is responsible
- one or more contracts with, or grants from, NICE.

5.2 Specialist Advisers are under no obligation to seek out knowledge of work done for, or on behalf of, the healthcare industry within departments for which they are responsible if they would not normally expect to be informed.

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Interventional Procedures Programme

Specialist Adviser questionnaire

Before completing this questionnaire, please read Conflicts of Interest for Specialist Advisers. Certain conflicts exclude you from offering advice, however, please return the questionnaire to us incomplete for our records.

Please respond in the boxes provided.

Please complete and return to: Sally.Jones@nice.or.uk or Hawra.Abugulal@nice.org.uk

Procedure Name:	Percutaneous endoscopic catheter laser balloon pulmonary vein isolation for atrial fibrillation
Name of Specialist Advisor:	Dr Gall
Specialist Society:	British Heart Rhythm Society

1 Do you have adequate knowledge of this procedure to provide advice?

☒ Yes.

☐ No – please return the form/answer no more questions.

1.1 Does the title used above describe the procedure adequately?

☒ Yes.

☐ No. If no, please enter any other titles below.

Comments:

2 Your involvement in the procedure

2.1 Is this procedure relevant to your specialty?

☒ Yes.

☐ Is there any kind of inter-specialty controversy over the procedure?

☒ No. If no, then answer no more questions, but please give any information you can about who is likely to be doing the procedure.

Comments:

There is no specific controversy that I am aware of and the procedure of pulmonary vein isolation is routinely performed. There are different technologies available for this – the most frequently used is radiofrequency energy followed by cryo (freezing) energy. Laser energy is not widely used at the present time as it is a relatively new technology compared to the others which have been available longer. The end point of the procedure (pulmonary vein isolation) is the same for all technologies.

The next 2 questions are about whether you carry out the procedure, or refer patients for it. If you are in a specialty that normally carries out the procedure please answer question 2.2.1. If you are in a specialty that normally selects or refers patients for the procedure, please answer question 2.2.2.

2.2.1 If you are in a specialty that does this procedure, please indicate your experience with it:

☐ I have never done this procedure.

☐ I have done this procedure at least once.

☒ I do this procedure regularly.

Comments:

I perform the procedure on a regular basis and have the most experience in the UK, and one of the highest worldwide experience having performed almost 200 cases. I have presented my results in abstract form at international meetings.

2.2.2 If your specialty is involved in patient selection or referral to another specialty for this procedure, please indicate your experience with it.

☐ I have never taken part in the selection or referral of a patient for this procedure.

☐ I have taken part in patient selection or referred a patient for this procedure at least once.

☐ I take part in patient selection or refer patients for this procedure regularly.

Comments:

2.3 Please indicate your research experience relating to this procedure (please choose one or more if relevant):

☒ I have done bibliographic research on this procedure.

☐ I have done research on this procedure in laboratory settings (e.g. device-related research).

☐ I have done clinical research on this procedure involving patients or healthy volunteers.

☐ I have had no involvement in research on this procedure.

☐ Other (please comment)

Comments:

There are several studies which have deemed this procedure safe and effective. This has been something that I have seen reflected in my own experience with the procedure.

There is an increasing evidence base that laser energy may be better at achieving longer lasting pulmonary vein isolation which may reduce the potential for redo procedures compared to other technologies. Further specific research to compare it against other technologies is required and this is something I am looking to address with a future research project.

3 Status of the procedure

3.1 Which of the following best describes the procedure (choose one):

☐ Established practice and no longer new.

☒ A minor variation on an existing procedure, which is unlikely to alter the procedure's safety and efficacy.

☐ Definitely novel and of uncertain safety and efficacy.

☐ The first in a new class of procedure.

Comments:

The procedure of pulmonary vein isolation is now very established as the key to successful ablation of atrial fibrillation. The use of laser technology to do this has several potential advantages over existing technology and data published to date would suggest that this is safe and may be more effective than other technologies.

3.2 What would be the comparator (standard practice) to this procedure?

Pulmonary vein isolation but using other technology (radiofrequency energy or cryo energy as mentioned above.)

3.3 Please estimate the proportion of doctors in your specialty who are doing this procedure (choose one):

☐ More than 50% of specialists engaged in this area of work.

☐ 10% to 50% of specialists engaged in this area of work.

☒ Fewer than 10% of specialists engaged in this area of work.

☐ Cannot give an estimate.

Comments:

Although few specialists engaged in ablation for atrial fibrillation use this laser technology, all specialists performing AF ablation undertake pulmonary vein isolation.

4 Safety and efficacy

4.1 What is the potential harm of the procedure?

Please list adverse events and major risks (even if uncommon) and, if possible, estimate their incidence, as follows:

1. Adverse events reported in the literature (if possible please cite literature)

All pulmonary vein isolation is associated with the potential for the following adverse events and the same is true for this technology

Fairly common – minor bleeding or bruising at femoral cannulation site

Approximately 1% or less – significant haematoma, vascular injury (at femoral access site), cardiac tamponade, thromboembolism (including stroke and myocardial infarction), Approximately 2-3% phrenic nerve palsy (usually temporary),

Very rare - atrial- oesophageal fistula, death

2. Anecdotal adverse events (known from experience)

Cardiac tamponade (0.5%), femoral pseudoaneurysm (successfully treated) (1%), catheter failure requiring minor surgical procedure to safely remove from femoral vein (single case), temporary phrenic nerve palsy – approximately 2.5%

3. Theoretical adverse events

As above in 1

4.2 What are the key efficacy outcomes for this procedure?

The key outcomes for this procedure are the ability to achieve durable pulmonary vein isolation. There are several published studies that would suggest that this is achieved and may be better than other technologies available. Head to head studies are required. These results have been reflected in my own experience of the procedure.

4.3 Are there uncertainties or concerns about the *efficacy* of this procedure? If so, what are they?

Not that I am aware of.

4.4 What training and facilities are needed to do this procedure safely?

Pulmonary vein isolation requires a cardiac catheter lab equipped for AF ablation with suitably experienced staff. Laser balloon pulmonary vein isolation requires that the operator has had training in laser protection and also specifically in this technique although the learning curve is not particularly onerous.

4.5 Are there any major trials or registries of this procedure currently in progress? If so, please list.

4.6 Are you aware of any abstracts that have been *recently* presented/ published on this procedure that may not be listed in a standard literature search, for example PUBMED? (This can include your own work). If yes, please list.
Please note that NICE will do a literature search: we are only asking you for any very recent or potentially obscure abstracts and papers. Please do not feel the need to supply a comprehensive reference list (but you may list any that you think are particularly important if you wish).

4.7 Is there controversy, or important uncertainty, about any aspect of the way in which this procedure is currently being done or disseminated?

Not to my knowledge.

5 Audit Criteria
Please suggest a minimum dataset of criteria by which this procedure could be audited.

5.1 Outcome measures of benefit (including commonly used clinical outcomes, both short and long - term; and quality-of-life measures):

Benefit is freedom from atrial fibrillation and improvement in symptoms of atrial fibrillation. This is usually measured by periodic prolonged ECG monitoring and assessment of patients symptoms. Usually this is done after 3 months (required blanking period for all pulmonary vein isolation procedures) and up to at least 1 year post procedure. Quality of life questionnaires are available (specific to AF and general). And could be useful in assessing benefit.

5.2 Adverse outcomes (including potential early and late complications):

These should be audited in each unit performing the procedure (pulmonary vein isolation) and submitted to CCAD.

6 Trajectory of the procedure

6.1 In your opinion, how quickly do you think use of this procedure will spread?

Pulmonary vein isolation is already an established and accepted technique. I would expect the laser balloon usage to increase steadily especially if head to head studies confirm superiority over existing technologies as this may make it significantly beneficial in terms of clinical outcomes and cost effectiveness (reduced need for redo procedures)

6.2 This procedure, if safe and efficacious, is likely to be carried out in (choose one):

☐ Most or all district general hospitals.

☒ A minority of hospitals, but at least 10 in the UK.

☐ Fewer than 10 specialist centres in the UK.

☐ Cannot predict at present.

Comments:

Currently pulmonary vein isolation is performed only in specialist tertiary centres within the UK that have cath lab facilities to allow these procedires to be performed.

6.3 The potential impact of this procedure on the NHS, in terms of numbers of patients eligible for treatment and use of resources, is:

☒ Major.

☐ Moderate.

☐ Minor.

Comments:

AF is a very common condition and the number of patients benefitting from pulmonary vein isolation has increased significantly over the last few years and is stil increasing. Current technology is associated with a significant risk of a redo procedure being required to achieve the best clinical outcomes. Laser balloon ablation may reduce this redo rate in which case it may be both clinically and economically advantageous.

7 Other information

7.1 Is there any other information about this procedure that might assist NICE in assessing the possible need to investigate its use?

8 Data protection and conflicts of interest

8. Data protection, freedom of information and conflicts of interest

8.1 Data Protection

The information you submit on this form will be retained and used by the NICE and its advisers for the purpose of developing its guidance and may be passed to other approved third parties. Your name and specialist society will be published in NICE publications and on the NICE website. The specialist advice questionnaire will be published in accordance with our guidance development processes and a copy will be sent to the nominating Specialist Society. Please avoid identifying any individual in your comments.

☑ I have read and understood this statement and accept that personal information sent to us will be retained and used for the purposes and in the manner specified above and in accordance with the Data Protection Act 1998.

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Nothing in your submission shall restrict any disclosure of information by NICE that is required by law (including in particular, but without limitation, the Freedom of Information Act 2000).

Please submit a conflicts of interest declaration form listing any potential conflicts of interest including any involvement you may have in disputes or complaints relating to this procedure.

Please use the "Conflicts of Interest for Specialist Advisers" policy as a guide when declaring any conflicts of interest. Specialist Advisers should seek advice if needed from the Associate Director – Interventional Procedures.

Do you or a member of your family[1] have a **personal pecuniary** interest? The main examples are as follows:

Consultancies or directorships attracting regular or occasional payments in cash or kind	☐	**YES**
	☒	**NO**
Fee-paid work – any work commissioned by the healthcare industry **– this includes income earned in the course of private practice**	☒	**YES**
	☐	**NO**
Shareholdings – any shareholding, or other beneficial interest, in shares	☐	**YES**

[1] 'Family members' refers to a spouse or partner living in the same residence as the member or employee, children for whom the member or employee is legally responsible, and adults for whom the member or employee is legally responsible (for example, an adult whose full power of attorney is held by the individual).

of the healthcare industry	☒	**NO**
Expenses and hospitality – any expenses provided by a healthcare industry company beyond those reasonably required for accommodation, meals and travel to attend meetings and conferences	☐	**YES**
	☒	**NO**
Investments – any funds that include investments in the healthcare industry	☐	**YES**
	☒	**NO**
Do you have a **personal non-pecuniary** interest – for example have you made a public statement about the topic or do you hold an office in a professional organisation or advocacy group with a direct interest in the topic?	☒	**YES**
	☐	**NO**

Do you have a **non-personal** interest? The main examples are as follows:

Fellowships endowed by the healthcare industry	☐	**YES**
	☒	**NO**
Support by the healthcare industry or NICE that benefits his/her position or department, eg grants, sponsorship of posts	☒	**YES**
	☐	**NO**

If you have answered YES to any of the above statements, please describe the nature of the conflict(s) below.

Comments:

I have performed proctoring for other consultants wishing to learn this procedure. I have been paid by Cardiofocus for this service (these are occasional payments relating specifically to the proctoring provided and are not regular payments.) Note – I was not sure which category this would fall into above (consultancy or fee paid work so I have checked fee paid work. Please advise if this is incorrect).

I have received sponsorship in the form of travel and accommodation from Cardiofocus to allow me to attend educational conferences. As this was to attend conferences I have ticked no in the box above.

I have ticked yes in the personal non-pecuniary interest as I have presented my personal results at international conferences. Again I was not clear whether I should have included this but wanted to be sure. I would be happy to discuss this if required.

Thank you very much for your help.

Dr Tom Clutton-Brock, Interventional Procedures Advisory Committee Chair

Professor Carole Longson, Director, Centre for Health Technology Evaluation.

Jan 2016

Conflicts of Interest for Specialist Advisers

1 Declarations of interest by Specialist Advisers advising the NICE Interventional Procedures Advisory Committee

1.1 Any conflicts of interest set out below should be declared on the questionnaire the Specialist Adviser completes for the procedure.

1.2 Specialist Advisers should seek advice if required from the Associate Director – Interventional Procedures.

2 Personal pecuniary interests

2.1 A personal pecuniary interest involves a current personal payment to a Specialist Adviser, which may either relate to the manufacturer or owner of a product or service being evaluated, in which case it is regarded as **'specific'** or to the industry or sector from which the product or service comes, in which case it is regarded as **'non-specific'**. The main examples are as follows.

2.1.1 **Consultancies** – any consultancy, directorship, position in or work for the healthcare industry that attracts regular or occasional payments in cash or kind (this includes both those which have been undertaken in the 12 months preceding the point at which the declaration is made and which are planned but have not taken place).

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2.1.5 **Investments** – any funds which include investments in the healthcare industry that are held in a portfolio over which individuals have the ability to instruct the fund manager as to the composition of the fund.

2.2 No personal interest exists in the case of:

2.2.1 assets over which individuals have no financial control (for example, wide portfolio unit trusts and occupational pension funds) and where the fund manager has full discretion as to its composition (for example, the Universities Superannuation Scheme)

2.2.2 accrued pension rights from earlier employment in the healthcare industry.

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3.1 This relates to the personal interests of a family member and involves a **current payment** to the family member of the Specialist Adviser. The interest may relate to the manufacturer or owner of a product or service being evaluated, in which case it is regarded as '**specific**', or to the industry or sector from which the product or service comes, in which case it is regarded as '**non-specific**'. The main examples include the following.

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3.1.2 Any fee-paid work commissioned by a healthcare industry for which the member is paid in cash or in kind.

3.1.3 Any shareholdings, or other beneficial interests, in a healthcare industry which are either held by the family member or for which an individual covered by this Code has legal responsibility (for example, children, or adults whose full Power of Attorney is held by the individual).

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These might include, but are not limited to:

4.1 a clear opinion, reached as the conclusion of a research project, about the clinical and/or cost effectiveness of an intervention under review

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4.3 holding office in a professional organisation or advocacy group with a direct interest in the matter under consideration

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- a grant from a company for the running of a unit or department for which a Specialist Advisor is responsible
- a grant, fellowship or other payment to sponsor a post or member of staff in the unit for which a Specialist Adviser is responsible. This does not include financial assistance for students
- the commissioning of research or other work by, or advice from, staff who work in a unit for which the specialist advisor is responsible
- one or more contracts with, or grants from, NICE.

5.2 Specialist Advisers are under no obligation to seek out knowledge of work done for, or on behalf of, the healthcare industry within departments for which they are responsible if they would not normally expect to be informed.

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Interventional Procedures Programme

Specialist Adviser questionnaire

Before completing this questionnaire, please read Conflicts of Interest for Specialist Advisers. Certain conflicts exclude you from offering advice, however, please return the questionnaire to us incomplete for our records.

Please respond in the boxes provided.

Please complete and return to: Sally.Jones@nice.or.uk or Hawra.Abugulal@nice.org.uk

Procedure Name:	Percutaneous endoscopic catheter laser balloon pulmonary vein isolation for atrial fibrillation
Name of Specialist Advisor:	Dr Murgatroyd
Specialist Society:	British Heart Rhythm Society

1 Do you have adequate knowledge of this procedure to provide advice?

☒ Yes.

☐ No – please return the form/answer no more questions.

1.1 Does the title used above describe the procedure adequately?

☒ Yes.

☐ No. If no, please enter any other titles below.

Comments:

2 Your involvement in the procedure

2.1 Is this procedure relevant to your specialty?

☒ Yes.

☐ Is there any kind of inter-specialty controversy over the procedure?

☐ No. If no, then answer no more questions, but please give any information you can about who is likely to be doing the procedure.

Comments:

The next 2 questions are about whether you carry out the procedure, or refer patients for it. If you are in a specialty that normally carries out the procedure please answer question 2.2.1. If you are in a specialty that normally selects or refers patients for the procedure, please answer question 2.2.2.

2.2.1 If you are in a specialty that does this procedure, please indicate your experience with it:

☐ I have never done this procedure.

☐ I have done this procedure at least once.

☐ I do this procedure regularly.

Comments:

Very few centres in the UK have done this procedure; of those that have, most seem to have stopped. To my knowledge only one centre (Blackpool) is performing this procedure regularly, though I understand a second (Bart's) may be considering running a randomized trial versus cryo balloon ablation.

2.2.2 If your specialty is involved in patient selection or referral to another specialty for this procedure, please indicate your experience with it.

☐ I have never taken part in the selection or referral of a patient for this procedure.

☐ I have taken part in patient selection or referred a patient for this procedure at least once.

☐ I take part in patient selection or refer patients for this procedure regularly.

Comments:

While I manage large numbers of patients who could be considered for this procedure, they undergo radiofrequency ablation or cryo balloon ablation instead.

2.3 Please indicate your research experience relating to this procedure (please choose one or more if relevant):

☐ I have done bibliographic research on this procedure.

☐ I have done research on this procedure in laboratory settings (e.g. device-related research).

☐ I have done clinical research on this procedure involving patients or healthy volunteers.

☐ I have had no involvement in research on this procedure.

☐ Other (please comment)

Comments:

3 Status of the procedure

3.1 Which of the following best describes the procedure (choose one):

☐ Established practice and no longer new.

☐ A minor variation on an existing procedure, which is unlikely to alter the procedure's safety and efficacy.

▯ Definitely novel and of uncertain safety and efficacy.

☐ The first in a new class of procedure.

Comments:

Experience with this technology is limited in terms of safety and efficacy

3.2 What would be the comparator (standard practice) to this procedure?

Two established techniques: irrigated radiofrequency catheter ablation for AF, and cryo balloon ablation for AF.

3.3 Please estimate the proportion of doctors in your specialty who are doing this procedure (choose one):

☐ More than 50% of specialists engaged in this area of work.

☐ 10% to 50% of specialists engaged in this area of work.

▯ Fewer than 10% of specialists engaged in this area of work.

☐ Cannot give an estimate.

Comments:

4 Safety and efficacy

4.1 What is the potential harm of the procedure?

Please list adverse events and major risks (even if uncommon) and, if possible, estimate their incidence, as follows:

1. Adverse events reported in the literature (if possible please cite literature)

Phrenic nerve palsy, cardiac tamponade, stroke

Main reference is Dukkipati 2015 J Am Coll Cardiol and J Cardiovasc Electrophysiol.

2. Anecdotal adverse events (known from experience)

3.

In addition to above: pulmonary vein stenosis; myocardial infarction; atrio-oesophageal fistula (which is almost always fatal).

4.2 What are the key efficacy outcomes for this procedure?

Clinical: freedom from atrial fibrillation, improvement in quality of life. Scientific: persistent isolation of pulmonary veins.

4.3 Are there uncertainties or concerns about the *efficacy* of this procedure? If so, what are they?

From small and large studies the procedure appears to be of comparable efficacy to competing technologies (irrigated radiofrequency and cryo balloon ablation)

4.4 What training and facilities are needed to do this procedure safely?

The procedure should be undertaken by operators familiar with complex catheter ablation procedures, and with conventional methods of catheter ablation for atrial fibrillation, including trans-septal puncture. General anaesthesia should be available, and oesophageal temperature monitoring may be necessary to minimise the risk of damage. Expertise in emergency pericardiocentesis is mandatory, and centres should have onsite cardiac surgery or an established pathway for very rapid transfer for surgery.

4.5 Are there any major trials or registries of this procedure currently in progress? If so, please list.

Two studies in Germany looking at efficacy in persistent atrial fibrillation: one comparing with efficacy in paroxysmal AF; the other randomized versus radiofrequency ablation in persistent AF. These have clinicaltrials.gov IDs NCT01863472 and NCT02234102, respectively.

4.6 Are you aware of any abstracts that have been *recently* presented/ published on this procedure that may not be listed in a standard literature

search, for example PUBMED? (This can include your own work). If yes, please list.
Please note that NICE will do a literature search: we are only asking you for any very recent or potentially obscure abstracts and papers. Please do not feel the need to supply a comprehensive reference list (but you may list any that you think are particularly important if you wish).

Not aware of any significant studies ongoing that will add significantly to the two papers published by Dukkipati in 2015 (J Am Coll Cardiol and J Cardiovasc Electrophysiol), Kuck's multicentre uncontrolled study (J Cardiovasc Electrophysiol 2013)

4.7 Is there controversy, or important uncertainty, about any aspect of the way in which this procedure is currently being done or disseminated?

Not to my knowledge

5 Audit Criteria

Please suggest a minimum dataset of criteria by which this procedure could be audited.

5.1 Outcome measures of benefit (including commonly used clinical outcomes, both short and long - term; and quality-of-life measures):

1. ***Recurrence of documented atrial fibrillation (based on prolonged ambulatory monitoring at 3, 6, 12 months.***
2. ***Patient-reported outcome measures preoperatively and at 12 months***
3. ***Requirement for hospitalization and cardioversion***
4. ***Antiarrhythmic drugs***

5.2 Adverse outcomes (including potential early and late complications):

5. ***Early (peri-procedure): stroke, cardiac tamponade, vascular access complications, pericarditis, death***
6. ***Late (up to 1 year): phrenic nerve palsy/diaphragmatic paralysis, atrio-oesophageal fistula, stroke, heart attack, death***

6 Trajectory of the procedure

6.1 In your opinion, how quickly do you think use of this procedure will spread?

Two other techniques aiming to achieve the same goal (irrigated radiofrequency catheter ablation and cryo balloon ablation) are now established. The latter is becoming increasingly dominant for simple cases and the former for more complex cases, redo procedures, and those where other ablation is needed. To date there seems to be no evidence that laser balloon ablation offers any advantage in terms of efficacy, safety, or simplicity/procedure duration/cost etc. After an initial flurry of interest, the number of centres undertaking laser balloon ablation for AF seems to be decreasing. Unless further studies or refinements of the technologies change this, to establish a definite advantage or "niche" indication, laser balloon ablation might not become a major modality for AF ablation.

6.2 This procedure, if safe and efficacious, is likely to be carried out in (choose one):

☐ Most or all district general hospitals.

☐ A minority of hospitals, but at least 10 in the UK.

▯ Fewer than 10 specialist centres in the UK.

☐ Cannot predict at present.

Comments:

This is largely because of the timeline compared with competing technologies – cryo balloon ablation achieves the same goal as the laser balloon and is likely to be used at most AF ablation centres (>50 in UK). This might change if the procedure becomes advantageous in terms of safety/efficacy/cost, but otherwise I see no reason why centres would switch

6.3 The potential impact of this procedure on the NHS, in terms of numbers of patients eligible for treatment and use of resources, is:

☐ Major.

☐ Moderate.

▯ Minor.

Comments:
Even if this were to become an established treatment in large numbers of patients, it would be a substitute for other technologies (radiofrequency and Cryoablation) in the same group of patients. This would not be a new indication and a new group of patients.

7 Other information

7.1 Is there any other information about this procedure that might assist NICE in assessing the possible need to investigate its use?

8 Data protection and conflicts of interest

8. Data protection, freedom of information and conflicts of interest

8.1 Data Protection

The information you submit on this form will be retained and used by the NICE and its advisers for the purpose of developing its guidance and may be passed to other

approved third parties. Your name and specialist society will be published in NICE publications and on the NICE website. The specialist advice questionnaire will be published in accordance with our guidance development processes and a copy will be sent to the nominating Specialist Society. Please avoid identifying any individual in your comments.

☐ I have read and understood this statement and accept that personal information sent to us will be retained and used for the purposes and in the manner specified above and in accordance with the Data Protection Act 1998.

8.2 Declarations of interest by Specialist Advisers advising the NICE Interventional Procedures Advisory Committee

Nothing in your submission shall restrict any disclosure of information by NICE that is required by law (including in particular, but without limitation, the Freedom of Information Act 2000).

Please submit a conflicts of interest declaration form listing any potential conflicts of interest including any involvement you may have in disputes or complaints relating to this procedure.

Please use the "Conflicts of Interest for Specialist Advisers" policy as a guide when declaring any conflicts of interest. Specialist Advisers should seek advice if needed from the Associate Director – Interventional Procedures.

Do you or a member of your family[1] have a **personal pecuniary** interest? The main examples are as follows:

Consultancies or directorships attracting regular or occasional payments in cash or kind	☐	**YES**
	☐	**NO**
Fee-paid work – any work commissioned by the healthcare industry **– this includes income earned in the course of private practice**	☐	**YES**
	☐	**NO**
Shareholdings – any shareholding, or other beneficial interest, in shares of the healthcare industry	☐	**YES**
	☐	**NO**
Expenses and hospitality – any expenses provided by a healthcare industry company beyond those reasonably required for accommodation, meals and travel to attend meetings and conferences	☐	**YES**
	☐	**NO**
Investments – any funds that include investments in the healthcare industry	☐	**YES**
	☐	**NO**

[1] 'Family members' refers to a spouse or partner living in the same residence as the member or employee, children for whom the member or employee is legally responsible, and adults for whom the member or employee is legally responsible (for example, an adult whose full power of attorney is held by the individual).

Do you have a **personal non-pecuniary** interest – for example have you made a public statement about the topic or do you hold an office in a professional organisation or advocacy group with a direct interest in the topic?	☐	**YES**
	▯	**NO**
Do you have a **non-personal** interest? The main examples are as follows:		
Fellowships endowed by the healthcare industry	☐	**YES**
	▯	**NO**
Support by the healthcare industry or NICE that benefits his/her position or department, eg grants, sponsorship of posts	☐	**YES**
	▯	**NO**

If you have answered YES to any of the above statements, please describe the nature of the conflict(s) below.

Comments:

1. *I have no financial or other interest to declare with the manufacturer of this technology (CardioFocus) or its main competitor (Medtronic, Inc, who manufacture the CryoCatheter balloon technology).*
2. *However, I periodically undertake paid consultancy for Boston Scientific, Inc, and St Jude Medical, Inc. This includes preclinical evaluation (and GLP studies for FDA submission), of catheters and mapping systems that are used for a variety of catheter ablation procedures including AF ablation.*
3. *I also occasionally teach and speak at national international meetings about these technologies – sometimes these activities attract honoraria.*

Thank you very much for your help.

Dr Tom Clutton-Brock, Interventional Procedures Advisory Committee Chair

Professor Carole Longson, Director, Centre for Health Technology Evaluation.

Jan 2016

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