NICE National Institute for Health and Care Excellence

Professional Expert Questionnaire

Technology/Procedure name & indication: **IP1507/2 Balloon cryoablation for Barrett's oesophagus or squamous dysplasia of the oesophagus**

Your information

Name:	Charles Gordon
Job title:	Consultant gastroenterologist
Organisation:	University hospitals Dorset
Email address:	[redacted]
Professional organisation or society membership/affiliation:	FRCP (London), member of British Society of gastroenterology
Nominated/ratified by (if applicable):	Click here to enter text.
Registration number (e.g. GMC, NMC, HCPC)	4256001

How NICE will use this information:

The information that you provide on this form will be used to develop guidance on this procedure.

☐ **YES** Please tick this box if you would like to receive information about other NICE topics.

Your advice and views represent your individual opinion and not that of your employer, professional society or a consensus view. Your name, job title, organisation and your responses, along with your declared interests will also be published online on the NICE website as part of public

consultation on the draft guidance, except in circumstances but not limited to, where comments are considered voluminous, or publication would be unlawful or inappropriate.

For more information about how we process your data please see our privacy notice.

☐ **YES** I give my consent for the information in this questionnaire to be used and may be published on the NICE website as outlined above. If consent is NOT given, please state reasons below:

Click here to enter text.

Please answer the following questions as fully as possible to provide further information about the procedure/technology and/or your experience.

1	Please describe your level of experience with the procedure/technology, for example: Are you familiar with the procedure/technology? Have you used it or are you currently using it? – Do you know how widely this procedure/technology is used in the NHS or what is the likely speed of uptake? – Is this procedure/technology performed/used by clinicians in specialities other than your own? – If your specialty is involved in patient selection or referral to another specialty for this procedure/technology, please indicate your experience with it.	I have been delivering endoscopic therapy to Barrett's oesophagus (and squamous dysplasia of the oesophagus) for 15 years. We are now using cryotherapy for Barrett's oesophagus and hence are very familiar with the indications, contraindications, and the kit itself and how to use it. As far as I am aware cryotherapy is used in a fairly small number of expert centres in the UK, and hopefully these are all part of the cryotherapy registry. Uptake has been (and I feel will be) somewhat slow. Radiofrequency ablation and endoscopic resection are very well established treatment modalities for Barrett's, and whereas cryotherapy definitely has a place in the treatment algorithm for specific indications it is a more technically demanding treatment modality. Applications outside this indication would include topical (dermatological), for cancer ablations (via a specialised delivery device), treatment of aberrant electrical pathways in the heart. I would not refer to another speciality for cryotherapy outside this indication Of note–my experience in Endo-therapy or relates to Barrett's dysplasia and early cancers. Like most UK gastroenterologist I have little experience in the management of early squamous cancers and squamous dysplasia in the oesophagus

2	– Please indicate your research experience relating to this procedure (please choose one or more if relevant):	I have not instigated or performed any clinical trials with cryotherapy in the context of Barrett's or squamous dysplasia in the oesophagus. However we are as a unit contributing to a national registry (run out of University College's London hospitals) looking at use of cryotherapy in Barrett's and squamous dysplasia of the oesophagus.
3	Does the title adequately reflect the procedure?	Yes I believe it does
	Is the proposed indication appropriate? If not, please explain.	Yes indications are broadly accurate (although I would argue that it is only indicated for the treatment of low and high-grade dysplasia in Barrett's oesophagus, not all Barrett's oesophagus)
	Does this have a multi-indication?	It could be more accurately described as being used for ablation of mucosal lesions in the oesophagus (which would include Barrett's oesophagus with low and high-grade dysplasia, and mucosal squamous dysplasia)
	How innovative is this procedure/technology, compared to the current standard of care? Is it a minor variation or a novel approach/concept/design?	It is broadly in line with very established treatments that are the current standard of care. For ablation of Barrett's oesophagus the standard of care would be radiofrequency ablation; this uses a thermal injury to ablate the mucosa. Cryotherapy achieves the same endpoint, but via a cryo injury rather than a thermal injury. In this respect it is a variation on the current standards of care, using an approach that is well-established and validated in the ablation of abnormal tissue in other medical specialties.
	Which of the following best describes the procedure (please choose one):	A minor variation on an existing procedure, which is unlikely to alter the procedure’s safety and efficacy.

4	Does this procedure/technology have the potential to replace current standard care or would it be used as an addition to existing standard care?	I would see this as an adjunct, rather than as a replacement. Current standard of care (radiofrequency ablation) is well-established, safe and very reproducible in its clinical effect. However it has some limitations specifically around oesophageal morphology (in a very tortuous oesophagus it can be difficult to use); in addition it can cause significant pain in a subgroup of patients. Cryotherapy is very useful in both the settings as the balloon is quite pliable (and therefore easier to use in areas that the radiofrequency ablation catheters would struggle to access; it also has a definite advantage in terms of pain. Lastly the current published data shows that it is at least non inferior to radiofrequency ablation in the primary endpoint of ablating particularly Barrett's dysplasia. Having said all of that it is a more technically challenging procedure (currently–catheter modifications are being developed) and thus I cannot see it replacing the current standard of care at this moment in time. All of this causes notwithstanding the health economic data which I have not seen yet.
5	Have there been any substantial modifications to the procedure technique or, if applicable, to devices involved in the procedure Has the evidence base on the efficacy and safety of this procedure changed substantially since publication of the guidance?	Not in the time that I have been using it I would refer to 2 meta-analysis (both published 2024) which incorporate all the available published data sets for cryotherapy especially versus radiofrequency ablation, demonstrating that with primary points (complete eradication dysplasia, complete eradication intestinal metaplasia) cryotherapy is at least noninferior, and has a similar safety profile.

Current management

6	Please describe the current standard of care that is used in the NHS.	For dysplasia in Barrett's oesophagus the standard of care would be – Referral to expert Centre – Reassessment and endoscopic resection of any visible lesions – Followed by ablative therapy to remaining nondysplastic Barrett's. For most patients this would be radiofrequency ablation in the first instance, with or without the use of argon plasma coagulation depending on local availability and expertise – As far as I know photodynamic therapy is no longer used – And in a number of centres cryotherapy does fit into this treatment algorithm especially for the indications described above

		For the management of squamous dysplasia the pathways are much less well-defined however they should be broadly the same – Referral to expert Centre – Reassessment and endoscopic resection of any visible lesions (although this does require more expertise in lesion recognition and endoscopic techniques–squamous dysplasia can often require endoscopic submucosal dissection which is not widely available in the UK) – And currently the role of mucosal ablative therapies (either thermal or cryoablation) is not very well understood established (squamous dysplasia in the oesophagus is an entirely different clinical entity to dysplasia in Barrett's oesophagus).
7	Are you aware of any other competing or alternative procedure/technology available to the NHS which have a similar function/mode of action to this? If so, how do these differ from the procedure/technology described in the briefing?	I am not aware of any other cryoablation therapies for oesophageal mucosal lesions available in the UK (there is a cryotherapy spray device which I believe may be in use in the United States, but as far as I am aware it is not available in the UK)

Potential patient benefits and impact on the health system

8	What do you consider to be the potential benefits to patients from using this procedure/technology?	From an efficacy point of view the data does show that it is at least noninferior in achieving primary endpoints (complete resolution of dysplasia) as current standard of care (radiofrequency ablation). I would argue that its main limitation currently is ease of use compared to radiofrequency ablation which I think makes it unlikely (currently) to replace radiofrequency ablation as first-line. However it does have advantages in specific clinical scenarios (answered in question 9). I do not have sight or knowledge of the health economic/cost analysis
9	Are there any groups of patients who would particularly benefit from using this procedure/technology?	1. Patients who have tortuous/morphologically difficult oesophagus where the compliant balloon allows access 2. Patients who have had significant pain with radiofrequency ablation–data would suggest that cryotherapy is less painful (although meta-analysis would show similar rates), 3. Patients who have not responded to thermal ablation
10	Does this procedure/technology have the potential to change the current pathway or clinical outcomes to benefit the healthcare system? Could it lead, for example, to improved outcomes, fewer hospital visits or less invasive treatment?	If the issues around ease of use and reproducibility can be addressed then potentially there is no reason it would not become first-line treatment of based on all other factors including health economics. However even if it is not first-line treatment it does have a role. There are patients who cannot tolerate radiofrequency ablation because of pain; there patients who failed to respond to radiofrequency ablation; there are patients whose torturous oesophagus makes radiofrequency ablation very difficult to apply effectively. In all of these cryotherapy is an alternative pathway and given that the endpoint of this therapy is ablation of abnormal tissue (and with that ablation of the risk of developing cancer)
11	What clinical facilities (or changes to existing facilities) are needed to do this procedure/technology safely?	Very little. This therapy is delivered in an endoscopy unit. In terms of kit and facilities the impact is minimal–some units may need to purchase additional endoscopes as the scope needs to have a wider working channel; in addition there needs to be the investment in the cryotherapy kit but again this is fairly minimal
12	Is any specific training needed in order to use the procedure/technology with respect to efficacy or safety?	There is a learning curve in terms of the endoscopist; however the technical aspects of using the kit is very straightforward and only requires minimal training

Safety and efficacy of the procedure/technology

13	What are the potential harms of the procedure/technology? Please list any adverse events and potential risks (even if uncommon) and, if possible, estimate their incidence: Adverse events reported in the literature (if possible, please cite literature) Anecdotal adverse events (known from experience) Theoretical adverse events	Pain–no data, anecdotally less than RFA Bleeding–no data Stricture formation leading to dysphagia 6% Oesophagitis–no data Superficial mucosal injury–no data Perforation - theoretical Overall adverse event risk is around 14% which is comparable to radiofrequency ablation, but subgroup analysis not very clear beyond the risk of stricture formation being around 6%. *Efficacy and Safety of Cryoablation in Barrett's Esophagus and Comparison with Radiofrequency Ablation: A Meta-Analysis. Cancers (Basel). 2024 Aug 23;16(17):2937* *Cryotherapy versus radiofrequency ablation in the treatment of dysplastic Barrett's esophagus with or without early esophageal neoplasia: a systematic review and meta-analysis Clin Endosc 2024;57:181-190* Perforation would be a theoretical adverse event, as it is for any endoscopic upper GI procedure
14	Please list the key efficacy outcomes for this procedure/technology?	Complete eradication dysplasia 84%. Complete eradication Intestinal Metaplasia 64% Barrett's recurrence 8.3% And meta-analysis shows that there is no significant difference in outcome between radiofrequency ablation and cryoablation
15	Please list any uncertainties or concerns about the efficacy and safety of this procedure/?	Compared to radiofrequency ablation we lack the long-term (10 years or more) follow-up data

16	Is there controversy, or important uncertainty, about any aspect of the procedure/technology?	Not that I am aware of.
17	If it is safe and efficacious, in your opinion, will this procedure be carried out in (please choose one):	Most or all district general hospitals. The options presented here are too few! It would be safe and efficacious in any centre delivering advanced Endo-therapy for the management of Barrett's dysplasia and early cancer. This is not "most or all district general hospitals" but it is certainly many more than 10. Currently I would estimate that they are 30+ hospitals in the UK delivering radiofrequency ablation for the management of Barrett's, and it can and would be safely delivered in all of these in an integrated pathway.

Abstracts and ongoing studies

18	Please list any abstracts or conference proceedings that you are aware of that have been recently presented / published on this procedure/technology (this can include your own work). Please note that NICE will do a comprehensive literature search; we are only asking you for any very recent abstracts or conference proceedings which might not be found using standard literature searches. You do not need to supply a comprehensive reference list but it will help us if you list any that you think are particularly important.	

19	Are there any major trials or registries of this procedure/technology currently in progress? If so, please list.	**Protocol title**	A Multicentre International Research Database Registry Evaluating the Focal C2 CryoBalloon Ablation System for Barrett's Oesophagus-related Neoplasia and Oesophageal Squamous Cell Neoplasia
		Short title	C2 CryoBalloon Ablation International Research Database Registry
		Version and date of protocol	Version 3.0, 14/07/2021
		Sponsor	University College London Hospitals NHS Foundation Trust
20	Please list any other data (published and/or unpublished) that you would like to share.		

Other considerations

21	Approximately how many people each year would be eligible for an intervention with this procedure/technology, (give either as an estimated number, or a proportion of the target population)?	I do not have this data to hand
22	Please suggest potential audit criteria for this procedure/technology. If known, please describe: – Beneficial outcome measures. These should include short- and long-term clinical outcomes, quality-of-life measures and patient-related outcomes. Please suggest the most appropriate method of measurement for each and the timescales over which these should be measured.	Beneficial outcome measures: Complete eradication dysplasia at end of protocol Complete eradication intestinal metaplasia at end of protocol Barrett's recurrence at follow-up gastroscopy Progression to cancer

	– Adverse outcome measures. These should include early and late complications. Please state the post procedure timescales over which these should be measured:	Adverse outcome measures: Procedure related adverse events (i.e. at time of procedure) Adverse events within 30 days of procedure (pain, dysphagia, stricture formation) – And need for dilatation Adverse events after 30 days

Further comments

23	If you have any further comments (e.g. issues with usability or implementation, the need for further research), please describe.	

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Declarations of interests

Please state any potential conflicts of interest relevant to the procedure/technology (or competitor technologies) on which you are providing advice, or any involvements in disputes or complaints, in the previous **12 months** or likely to exist in the future. Please use the NICE policy on declaring and managing interests as a guide when declaring any interests. Further advice can be obtained from the NICE team.

Type of interest *	Description of interest	Relevant dates	
		Interest arose	Interest ceased
Choose an item.			
Choose an item.			
Choose an item.			

☐ **YES** I confirm that the information provided above is complete and correct. I acknowledge that any changes in these declarations during the course of my work with NICE, must be notified to NICE as soon as practicable and no later than 28 days after the interest arises. I am aware that if I do not make full, accurate and timely declarations then my advice may be excluded from being considered by the NICE committee.

Please note, all declarations of interest will be made publicly available on the NICE website.

Print name:	**Charles Gordon**
Dated:	**23rd March 2025.**

NICE National Institute for Health and Care Excellence

Professional Expert Questionnaire

Technology/Procedure name & indication: **IP1507/2 Balloon cryoablation for Barrett's oesophagus or squamous dysplasia of the oesophagus**

Your information

Name:	Pradeep Bhandari
Job title:	Consultant Gastroenterologist
Organisation:	Portsmouth Hospitals University NHS Trust
Email address:	[redacted]
Professional organisation or society membership/affiliation:	Vice President of British Society of Gastroenterology
Nominated/ratified by (if applicable):	NA
Registration number (e.g. GMC, NMC, HCPC)	GMC: 4466499

How NICE will use this information:

The information that you provide on this form will be used to develop guidance on this procedure.

Y☐ Please tick this box if you would like to receive information about other NICE topics.

Your advice and views represent your individual opinion and not that of your employer, professional society or a consensus view. Your name, job title, organisation and your responses, along with your declared interests will also be published online on the NICE website as part of public

consultation on the draft guidance, except in circumstances but not limited to, where comments are considered voluminous, or publication would be unlawful or inappropriate.

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Y☐ I give my consent for the information in this questionnaire to be used and may be published on the NICE website as outlined above. If consent is NOT given, please state reasons below:

Click here to enter text.

Please answer the following questions as fully as possible to provide further information about the procedure/technology and/or your experience.

1	Please describe your level of experience with the procedure/technology, for example: Are you familiar with the procedure/technology? Have you used it or are you currently using it? – Do you know how widely this procedure/technology is used in the NHS or what is the likely speed of uptake? – Is this procedure/technology performed/used by clinicians in specialities other than your own?	I am a clinician who routinely treats Barrett's and Squamous neoplasia of the oesophagus and I regularly use resection and ablation techniques for treatment in my practice. I am well versed with cryoablation and have used it for treatment in my patients. I have use this technology in my practice. The technology was developed and evaluated for treatment of Barrett's neopalsia and not for squamous. The use of this technology is not widespread in NHS and is being used in the setting of Barrett's in limited centres as a part of research or registry based studies. This is not being used in any other speciality. It is our Gastroenetrology speciality that identifies these patients and treats them using this or other technologies.

	– If your specialty is involved in patient selection or referral to another specialty for this procedure/technology, please indicate your experience with it.	
2	– 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 clinical evaluation of this technology in a selection of our patients. Other (please comment)
3	Does the title adequately reflect the procedure? Is the proposed indication appropriate? If not, please explain. Does this have a multi-indication? How innovative is this procedure/technology, compared to the current standard of care? Is it a minor variation or a novel approach/concept/design? Which of the following best describes the procedure (please choose one):	Yes Abaltion of Squamous neoplasia is not appropriate as even superficial neoplasia can carry significant risk of lymph node metastasis in contrast to Barrett's neoplasia. Therefore all national and international guidelines recommend resection of squamous neoplasia and not ablation. No Innovative approach to ablation Definitely novel and of uncertain safety and efficacy.

4	Does this procedure/technology have the potential to replace current standard care or would it be used as an addition to existing standard care?	In addition
5	Have there been any substantial modifications to the procedure technique or, if applicable, to devices involved in the procedure? Has the evidence base on the efficacy and safety of this procedure changed substantially since publication of the guidance?	No No

Current management

6	Please describe the current standard of care that is used in the NHS.	Endoscopic resection of Squamous neopalsia
7	Are you aware of any other competing or alternative procedure/technology available to the NHS which have a similar function/mode of action to this? If so, how do these differ from the procedure/technology described in the briefing?	Radiofrequency ablation and Argon Plasma coagulation. These two techniques are hot ablation techniques whereas Cryo is a cold ablation technique.

Potential patient benefits and impact on the health system

8	What do you consider to be the potential benefits to patients from using this procedure/technology?	Unknown
9	Are there any groups of patients who would particularly benefit from using this procedure/technology?	No
10	Does this procedure/technology have the potential to change the current pathway or clinical outcomes to benefit the healthcare system? Could it lead, for example, to improved outcomes, fewer hospital visits or less invasive treatment?	No
11	What clinical facilities (or changes to existing facilities) are needed to do this procedure/technology safely?	None
12	Is any specific training needed in order to use the procedure/technology with respect to efficacy or safety?	Yes

Safety and efficacy of the procedure/technology

13	What are the potential harms of the procedure/technology? Please list any adverse events and potential risks (even if uncommon) and, if possible, estimate their incidence:	Unknown outcome and high potential for mistakes in patient selection resulting in inadequate treatment. Perforation, strictures, pain and recurrence

	Adverse events reported in the literature (if possible, please cite literature) Anecdotal adverse events (known from experience) Theoretical adverse events	
14	Please list the key efficacy outcomes for this procedure/technology?	Complete eradication of all grades on neoplasia, lack of recurrence at 1 and 3 years
15	Please list any uncertainties or concerns about the efficacy and safety of this procedure/?	Wrong indication
16	Is there controversy, or important uncertainty, about any aspect of the procedure/technology?	Not about the technology but use in squamous neoplasia is not recommended.
17	If it is safe and efficacious, in your opinion, will this procedure be carried out in (please choose one):	Fewer than 10 specialist centres in the UK.

Abstracts and ongoing studies

18	Please list any abstracts or conference proceedings that you are aware of that have been recently presented / published on this procedure/technology (this can include your own work). Please note that NICE will do a comprehensive literature search; we are only asking you for any very recent abstracts or conference proceedings which might not be found using standard literature searches. You do not need to supply a comprehensive reference list but it will help	

	us if you list any that you think are particularly important.	
19	Are there any major trials or registries of this procedure/technology currently in progress? If so, please list.	Pentax Cryo Registry
20	Please list any other data (published and/or unpublished) that you would like to share.	

Other considerations

21	Approximately how many people each year would be eligible for an intervention with this procedure/technology, (give either as an estimated number, or a proportion of the target population)?	20-30
22	Please suggest potential audit criteria for this procedure/technology. If known, please describe: − Beneficial outcome measures. These should include short- and long-term clinical outcomes, quality-of-life measures and patient-related outcomes. Please suggest the most appropriate method of measurement for each and the timescales over which these should be measured. − Adverse outcome measures. These should include early and late complications. Please state the post procedure timescales over which these should be measured:	Beneficial outcome measures: Complete eradication of all grades of neoplasia and lack of recurrence Adverse outcome measures: stricture, perforation and pain

Further comments

23	If you have any further comments (e.g. issues with usability or implementation, the need for further research), please describe.	None

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Declarations of interests

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Type of interest *	Description of interest	Relevant dates	
		Interest arose	Interest ceased
Choose an item.	Regularly using RFA and APC ablation intretament of Barrett's neopalsia		
Choose an item.			
Choose an item.			

Y☐ I confirm that the information provided above is complete and correct. I acknowledge that any changes in these declarations during the course of my work with NICE, must be notified to NICE as soon as practicable and no later than 28 days after the interest arises. I am aware that if I do not make full, accurate and timely declarations then my advice may be excluded from being considered by the NICE committee.

Please note, all declarations of interest will be made publicly available on the NICE website.

Print name:	**Prof Pradeep Bhandari**
Dated:	**22/03/2025**

NICE National Institute for Health and Care Excellence

Professional Expert Questionnaire

Technology/Procedure name & indication: **IP1507/2 Balloon cryoablation for Barrett's oesorephagus**

Your information

Name:	Rehan Haidry
Job title:	Consultant Gastroenterologist
Organisation:	Cleveland Clinic London
Email address:	[redacted]
Professional organisation or society membership/affiliation:	British Society of Gastroenterology
Nominated/ratified by (if applicable):	British Society of Gastroenterology
Registration number (e.g. GMC, NMC, HCPC)	6028603

How NICE will use this information:

The information that you provide on this form will be used to develop guidance on this procedure.

☐ Please tick this box if you would like to receive information about other NICE topics.

Your advice and views represent your individual opinion and not that of your employer, professional society or a consensus view. Your name, job title, organisation and your responses, along with your declared interests will also be published online on the NICE website as part of public consultation on the draft guidance, except in circumstances but not limited to, where comments are considered voluminous, or publication would be unlawful or inappropriate.

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Click here to enter text.

Please answer the following questions as fully as possible to provide further information about the procedure/technology and/or your experience.

1	Please describe your level of experience with the procedure/technology, for example: Are you familiar with the procedure/technology? Have you used it or are you currently using it? – Do you know how widely this procedure/technology is used in the NHS or what is the likely speed of uptake? – Is this procedure/technology performed/used by clinicians in specialities other than your own? – If your specialty is involved in patient selection or referral to another specialty for this procedure/technology, please indicate your experience with it.	I have a good knowledge of the device, its risk/benefit and potential role of balloon cryoablation for Barrett's oesophagus ablation. I have been involved in the initial implementation in the clinical setting as well as evaluation of safety and efficacy of balloon cryoablation in the context of multicentre international studies. As such, I have been pioneering this technology in the context of academic studies and performing balloon cryoablation since then. I currently use the device frequently in my daily practice. Balloon cryoablation is not widely used in the NHS, at present, it has been predominantly performed in tertiary academic centres by advanced upper GI interventional endoscopists. Yes, gastroenterologists play a crucial role in all the stages of the management of Barrett's oesophagus including its endoscopic diagnosis and treatment.

2	– 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 published this research.** I have had no involvement in research on this procedure. Other (please comment) I have been actively involved in balloon cryoablation research, evaluating safety and efficacy in the context of international multicentre study, I have published those results and acted as a primary supervisor to doctoral student studying Barrett's treatment and mucosal cryoablation. I am also actively involved in the development of devices to evaluate mucosal cryoablation of other portions of the gastrointestinal tract.
3	Does the title adequately reflect the procedure? How innovative is this procedure/technology, compared to the current standard of care? Is it a minor variation or a novel approach/concept/design? Which of the following best describes the procedure (please choose one):	The title describes the procedure adequately. Performing cold mucosal ablation using a cryogenic agent delivered in a self-contained balloon system is a novel and unique approach. This is a though-the-scope, self-inflating, self-sizing balloon catheter, which is attached to a controller that regulates a flow of nitrous oxide into the balloon to freeze the oesophageal mucosa. 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.**

4	Does this procedure/technology have the potential to replace current standard care or would it be used as an addition to existing standard care?	This procedure is a valid addition to existing tools available for Barrett's mucosa ablation. This technique does not require energy generation and might be particularly suited to treat segments of BO in patients that have strictures which cannot be traversed with an RFA catheter.
5	Have there been any substantial modifications to the procedure technique or, if applicable, to devices involved in the procedure? Has the evidence base on the efficacy and safety of this procedure changed substantially since publication of the guidance?	Additional studies have been published evaluating the possibility to mitigate the risk of complication: *Comparison of focal cryoballoon ablation with 10- and 8-second doses for treatment of Barrett's esophagus-related neoplasia: results from a prospective European multicenter study (with video). Charlotte N Frederiks, Anouk Overwater, Lorenza Alvarez Herrero, Alaa Alkhalaf, Ed Schenk, Alessandro Repici, Jacques J G H M Bergman, Roos E Pouw, Raf Bisschops, Rehan J Haidry, Torsten Beyna, Horst Neuhaus, Bas L A M Weusten - Gastrointest Endosc. 2022*

Current management

6	Please describe the current standard of care that is used in the NHS.	Current standard of care for treatment of dysplastic Barrett's oesophagus is endoscopic mucosal resection or mucosal ablation. Mucosal ablation is performed using radiofrequency ablation (RFA) or Argon plasma coagulation (APC).
7	Are you aware of any other competing or alternative procedure/technology available to the NHS which have a similar function/mode of action to this? If so, how do these differ from the procedure/technology described in the briefing?	Yes, RFA and APC have been widely used in clinical practice. These technologies do require electrical generator and radiofrequency catheter. Whereas the cryoballoon system can be portable and it does not require additional dedicated equipment.

Potential patient benefits and impact on the health system

8	What do you consider to be the potential benefits to patients from using this procedure/technology?	Balloon cryoablation might not require multiple intubations to complete the mucosal ablation and result in a quicker and more operator friendly procedure. In addition, focal cryoablation might present less postprocedural pain compared to RFA. *Focal cryoballoon versus radiofrequency ablation of dysplastic Barrett's esophagus: impact on treatment response and postprocedural pain. Sanne N van Munster, Anouk Overwater, Rehan Haidry, Raf Bisschops, Jacques J G H M Bergman, Bas L A M Weusten - Gastrointest Endosc. 2018*
9	Are there any groups of patients who would particularly benefit from using this procedure/technology?	1. Patients that present oesophageal stricture which cannot be traversed with an over-the-scope RFA catheter. 2. Patient that failed other ablative techniques. *Cryoballoon ablation for treatment of patients with refractory esophageal neoplasia after first line endoscopic eradication therapy. Durayd Alzoubaidi, Mohamed Hussein, Vinay Sehgal, Christwishes Makahamadze, Cormac G Magee, Martin Everson, David Graham, Rami Sweis, Matthew Banks, Sarmed S Sami, Marco Novelli, Laurence Lovat, Rehan Haidry - Endosc Int Open. 2020*
10	Does this procedure/technology have the potential to change the current pathway or clinical outcomes to benefit the healthcare system? Could it lead, for example, to improved outcomes, fewer hospital visits or less invasive treatment?	Yes, this is through-the-scope device that might reduce the reduce the need for multiple and repeated intubations compared to over-the-scope or side-to-scope RFA catheters. This might result in a quicker procedure.
11	What clinical facilities (or changes to existing facilities) are needed to do this procedure/technology safely?	The procedure can be performed within an endoscopic unit that can perform advanced endoscopic procedures under deep sedation these are usually commonly practice in tertiary hospitals. The balloon cryoablation can be performed with any compatible gastroscope that has an operating channel of 3.7 mm. Additional dedicated training will be needed to operate the device.

12	Is any specific training needed in order to use the procedure/technology with respect to efficacy or safety?	Endoscopists who perform Barrett's treatment and advanced endoscopist procedures would need to undertake training with the device. Proficiency would be expected after 1-3 procedures to then work independently. The adverse events that can occur in relation to the procedure are the same as those with any advanced endoscopist procedure, so endoscopists would already be trained on how to deal with these scenarios.

Safety and efficacy of the procedure/technology

13	What are the potential harms of the procedure/technology? Please list any adverse events and potential risks (even if uncommon) and, if possible, estimate their incidence: Adverse events reported in the literature (if possible, please cite literature) Anecdotal adverse events (known from experience) Theoretical adverse events	As all endoscopic procedure ablating the oesophageal mucosa the risks consist of perforation, bleeding and stricture. A recent retrospective analysis comparing the outcome of three hundred eleven patients showed comparable histologic outcomes of balloon cryoablation and RFA for dysplastic Barrett's oesophagus. The stricture rate of the balloon cryoablation group appeared higher compared with the RFA group (10.4% vs 4.4%, P=0.04). *Comparative outcomes of radiofrequency ablation and cryoballoon ablation in dysplastic Barrett's esophagus: a propensity score-matched cohort study. Siddharth Agarwal, Mohammad Alshelleh, Jamie Scott, Lovekirat Dhaliwal, D Chamil Codipilly, Ross Dierkhising, Cadman L Leggett, Kenneth K Wang, Fouad A Otaki, Arvind J Trindade, Prasad G Iyer - Gastrointest Endosc. 2022* Additional studies have been addressing the possibility of reducing the stricture rate decreasing the dose of the cryogen used to ablate the mucosa. *Comparison of focal cryoballoon ablation with 10- and 8-second doses for treatment of Barrett's esophagus-related neoplasia: results from a prospective European multicenter study (with video). Charlotte N Frederiks, Anouk Overwater, Lorenza Alvarez Herrero, Alaa Alkhalaf, Ed Schenk, Alessandro Repici, Jacques J G H M Bergman, Roos E Pouw, Raf Bisschops, Rehan J Haidry, Torsten Beyna, Horst Neuhaus, Bas L A M Weusten - Gastrointest Endosc. 2022*
14	Please list the key efficacy outcomes for this procedure/technology?	1. Eradication of Barrett's dysplasia 2. Eradication of oesophageal intestinal metaplasia

15	Please list any uncertainties or concerns about the efficacy and safety of this procedure/?	It remains unclear if reducing the time of exposure to the cryogenic agent will result in a reduced rate of stricture.
16	Is there controversy, or important uncertainty, about any aspect of the procedure/technology?	The rate of stricture for this technology remains to be determined in la
17	If it is safe and efficacious, in your opinion, will this procedure be carried out in (please 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.

Abstracts and ongoing studies

18	Please list any abstracts or conference proceedings that you are aware of that have been recently presented / published on this procedure/technology (this can include your own work). Please note that NICE will do a comprehensive literature search; we are only asking you for any very recent abstracts or conference proceedings which might not be found using standard literature searches. You do not need to supply a comprehensive reference list but it will help us if you list any that you think are particularly important.	n/a
19	Are there any major trials or registries of this procedure/technology currently in progress? If so, please list.	Results form the EURO-COLDPLAY are awaited

20	Please list any other data (published and/or unpublished) that you would like to share.	n/a

Other considerations

21	Approximately how many people each year would be eligible for an intervention with this procedure/technology, (give either as an estimated number, or a proportion of the target population)?	10% of patient treated for Barrett's oesophagus
22	Please suggest potential audit criteria for this procedure/technology. If known, please describe: – Beneficial outcome measures. These should include short- and long-term clinical outcomes, quality-of-life measures and patient-related outcomes. Please suggest the most appropriate method of measurement for each and the timescales over which these should be measured. – Adverse outcome measures. These should include early and late complications. Please state the post procedure timescales over which these should be measured:	Beneficial outcome measures: Percentage of patients with baseline Barrett's dysplasia who have complete eradication of all dysplasia at 6-12 months after ablation. Percentage of subjects with complete eradication of all oesophageal intestinal metaplasia at 6-12 months after ablation. Adverse outcome measures: Incidence of serious adverse event related to Cryoballoon therapy. Incidence of perforation. Incidence of chest pain/discomfort following the procedure. Incidence of oesophageal stricture at 12 months after ablation.

Further comments

23	If you have any further comments (e.g. issues with usability or implementation, the need for further research), please describe.	n/a

Declarations of interests

Please state any potential conflicts of interest relevant to the procedure/technology (or competitor technologies) on which you are providing advice, or any involvements in disputes or complaints, in the previous **12 months** or likely to exist in the future. Please use the NICE policy on declaring and managing interests as a guide when declaring any interests. Further advice can be obtained from the NICE team.

Type of interest *	Description of interest	Relevant dates	
		Interest arose	Interest ceased
Choose an item.			
Choose an item.			
Choose an item.			

☐ I confirm that the information provided above is complete and correct. I acknowledge that any changes in these declarations during the course of my work with NICE, must be notified to NICE as soon as practicable and no later than 28 days after the interest arises. I am aware that if I do not make full, accurate and timely declarations then my advice may be excluded from being considered by the NICE committee.

Please note, all declarations of interest will be made publicly available on the NICE website.

Print name:	**Click here to enter text.**
Dated:	**Click here to enter text.**

NICE National Institute for Health and Care Excellence

Professional Expert Questionnaire

Technology/Procedure name & indication: **IP1507/2 Balloon cryoablation for Barrett's oesophagus or squamous dysplasia of the oesophagus**

Your information

Name:	Dr Vinay Sehgal
Job title:	Consultant Gastroenterologist
Organisation:	University College London Hospital
Email address:	[redacted]
Professional organisation or society membership/affiliation:	University College London Hospital, British Society of Gastroenterology (BSG)
Nominated/ratified by (if applicable):	Click here to enter text.
Registration number (e.g. GMC, NMC, HCPC)	GMC: 6163659

How NICE will use this information:

The information that you provide on this form will be used to develop guidance on this procedure.

☐ Please tick this box if you would like to receive information about other NICE topics.

Your advice and views represent your individual opinion and not that of your employer, professional society or a consensus view. Your name, job title, organisation and your responses, along with your declared interests will also be published online on the NICE website as part of public

consultation on the draft guidance, except in circumstances but not limited to, where comments are considered voluminous, or publication would be unlawful or inappropriate.

For more information about how we process your data please see our privacy notice.

☒ I give my consent for the information in this questionnaire to be used and may be published on the NICE website as outlined above. If consent is NOT given, please state reasons below:

Click here to enter text.

Please answer the following questions as fully as possible to provide further information about the procedure/technology and/or your experience.

1	Please describe your level of experience with the procedure/technology, for example: Are you familiar with the procedure/technology? Have you used it or are you currently using it? − Do you know how widely this procedure/technology is used in the NHS or what is the likely speed of uptake? − Is this procedure/technology performed/used by clinicians in specialities other than your own? − If your specialty is involved in patient selection or referral to another specialty for this	I use CryoBalloon Ablation (CbFA) in my regular clinical practice to treat patients with Barretts'-related dysplasia. I use it for patients with a Barrett's segment of no longer than 5cm to reduce the risk of cancer development or dysplasia recurrence. This is based on the findings from the multi-centre European study which I was a co-investigator entitled the EURO-COLDPLAY study. I am very familiar with the technology and run hands-on training approximately 2-3 times per year at UCLH and am also invited to attend various courses to train other professionals with this technology. I am the lead investigator for a UK registry to collect real-world outcomes for patients treated with CbFA. At present we have 5 centres (UCLH, Manchester, Bournemouth, Southampton and Birmingham) who have joined the registry. We also have further sites joining including Darlington, Cambridge and Nottingham. My research team regularly present the data from this registry at various national and international meetings.

	procedure/technology, please indicate your experience with it.	
2	– 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 published this research. Other (please comment): I am the lead investigator for a UK registry to collect real-world outcomes for patients treated with CbFA. At present we have 5 centres (UCLH, Manchester, Bournemouth, Southampton and Birmingham) who have joined the registry. We also have further sites joining including Darlington, Cambridge and Nottingham. My research team regularly present the data from this registry at various national and international meetings.
3	Does the title adequately reflect the procedure? Is the proposed indication appropriate? If not, please explain. Does this have a multi-indication? How innovative is this procedure/technology, compared to the current standard of care? Is it a minor variation or a novel approach/concept/design?	There is far more data on CbFA in Barrett's so I would presently only focus in this space which is also more clinically relevant in the UK. It can also be used for refractory Barrett's which has otherwise not responded to other heat-based ablation modalities including RFA and APC. CbFA is completely different to other heat-based ablative strategies based on the mechanism of cell injury (intracellular ice formation, apoptosis, tissue ischaemia and preservation of extracellular matrix) with proven advantages including less pain or dysphagia and similar effectiveness to other treatments such as RFA.

	Which of the following best describes the procedure (please choose one):	Established practice and no longer new.
4	Does this procedure/technology have the potential to replace current standard care or would it be used as an addition to existing standard care?	Addition to existing standard of care
5	Have there been any substantial modifications to the procedure technique or, if applicable, to devices involved in the procedure? Has the evidence base on the efficacy and safety of this procedure changed substantially since publication of the guidance?	The device and controller have not changed in the past 5 years. The dose has been reduced from 10 seconds to 8 seconds only. The EURO-COLDPLAY study (awaiting publication but presented internationally in abstract format) has showing eradication of dysplasia is almost 100% of cases with a stricture rate of approximately 12% with no serious adverse events.

Current management

6	Please describe the current standard of care that is used in the NHS.	Standard of care for select cases at some centres but mostly as an additional treatment to RFA in refractory cases.
7	Are you aware of any other competing or alternative procedure/technology available to the NHS which have a similar function/mode of action to this? If so, how do these differ from the procedure/technology described in the briefing?	No

Potential patient benefits and impact on the health system

8	What do you consider to be the potential benefits to patients from using this procedure/technology?	Less pain, dysphagia and no requirement to remove and replace scope during the procedure. Mechanism of action is very appealing.
9	Are there any groups of patients who would particularly benefit from using this procedure/technology?	Those with abnormal anatomy in whom it may be difficult to intubate and extubate repeatedly. Those with disease refractory to RFA. Those with a low pain threshold.
10	Does this procedure/technology have the potential to change the current pathway or clinical outcomes to benefit the healthcare system? Could it lead, for example, to improved outcomes, fewer hospital visits or less invasive treatment?	Yes – less pain and dysphagia with reduced need for post-operative analgesia.
11	What clinical facilities (or changes to existing facilities) are needed to do this procedure/technology safely?	Endoscopy suite
12	Is any specific training needed in order to use the procedure/technology with respect to efficacy or safety?	Yes – specific hands-on training with the device and controller are needed.

Safety and efficacy of the procedure/technology

13	What are the potential harms of the procedure/technology? Please list any adverse events and potential risks (even if uncommon) and, if possible, estimate their incidence:	Stricture rate of approximately 12%. Bleeding, perforation (<1%) Less pain, dysphagia and no requirement to remove and replace scope during the procedure. Mechanism of action is very appealing.

	Adverse events reported in the literature (if possible, please cite literature) Anecdotal adverse events (known from experience) Theoretical adverse events	
14	Please list the key efficacy outcomes for this procedure/technology?	Complete eradication of dysplasia (CE-D) – 100% Complete eradication of IM (CE-IM) – 97% Stricture rate: 12%
15	Please list any uncertainties or concerns about the efficacy and safety of this procedure/?	Which patients should be treated with CbFA remains unclear.
16	Is there controversy, or important uncertainty, about any aspect of the procedure/technology?	
17	If it is safe and efficacious, in your opinion, will this procedure be carried out in (please choose one):	A minority of hospitals, but at least 10 in the UK.

Abstracts and ongoing studies

18	Please list any abstracts or conference proceedings that you are aware of that have been recently presented / published on this procedure/technology (this can include your own work). Please note that NICE will do a comprehensive literature search; we are only asking you for any very recent abstracts or conference proceedings which might not be found using standard literature	**Comparison of focal cryoballoon ablation with 10- and 8-second doses for treatment of Barrett's esophagus-related neoplasia: results from a prospective European multicenter study** *Fredericks, Gastrointest Endosc. 2022 Nov;96(5):743-751.e4.* Presentations of the EURO-COLDPLAY registry in abstract format with oral presentations at UEG 2024 and DDW 2024.

	searches. You do not need to supply a comprehensive reference list but it will help us if you list any that you think are particularly important.	
19	Are there any major trials or registries of this procedure/technology currently in progress? If so, please list.	UK Cryoballoon Ablation Registry which I am PI for
20	Please list any other data (published and/or unpublished) that you would like to share.	

Other considerations

21	Approximately how many people each year would be eligible for an intervention with this procedure/technology, (give either as an estimated number, or a proportion of the target population)?	Based on the UK CbFA registry, we expect approximately 75-80 patients per year to be treated.
22	Please suggest potential audit criteria for this procedure/technology. If known, please describe: – Beneficial outcome measures. These should include short- and long-term clinical outcomes, quality-of-life measures and patient-related outcomes. Please suggest the most appropriate method of measurement for each and the timescales over which these should be measured. – Adverse outcome measures. These should include early and late complications. Please state the post procedure timescales over which these should be measured:	Beneficial outcome measures: Complete eradication of dysplasia, complete eradication of intestinal metaplasia, number of treatment sessions required to eradicate all Barrett's, surface regression between treatment sessions Adverse outcome measures: Stricture rate Bleeding or perforation Device malfunction

Further comments

23	If you have any further comments (e.g. issues with usability or implementation, the need for further research), please describe.	

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Declarations of interests

Please state any potential conflicts of interest relevant to the procedure/technology (or competitor technologies) on which you are providing advice, or any involvements in disputes or complaints, in the previous **12 months** or likely to exist in the future. Please use the NICE policy on declaring and managing interests as a guide when declaring any interests. Further advice can be obtained from the NICE team.

Type of interest *	Description of interest	Relevant dates	
		Interest arose	Interest ceased
Non-financial professional	I am the PI for the UK Multi-centre Cryoballoon Ablation Registry		
Choose an item.			
Choose an item.			

☒ I confirm that the information provided above is complete and correct. I acknowledge that any changes in these declarations during the course of my work with NICE, must be notified to NICE as soon as practicable and no later than 28 days after the interest arises. I am aware that if I do not make full, accurate and timely declarations then my advice may be excluded from being considered by the NICE committee.

Please note, all declarations of interest will be made publicly available on the NICE website.

Print name:	**VINAY SEHGAL**
Dated:	**26/03/2025**