National Institute for Health and Care Excellence

External Assessment Centre correspondence

The XprESS Multi-Sinus Dilation System

The purpose of this table is to show where the External Assessment Centre relied in their assessment of the topic on information or evidence not included in the sponsors' original submission. This is normally where the External Assessment Centre:

a) become aware of additional relevant evidence not submitted by the sponsor
b) need to check "real world" assumptions with NICE's expert advisers, or
c) need to ask the sponsor for additional information or data not included in the original submission, or
d) need to correspond with an organisation or individual outside of NICE

These events are recorded in the table to ensure that all information relevant to the assessment of the topic is made available to MTAC. The table is presented to MTAC in the Assessment Report Overview, and is made available at public consultation.

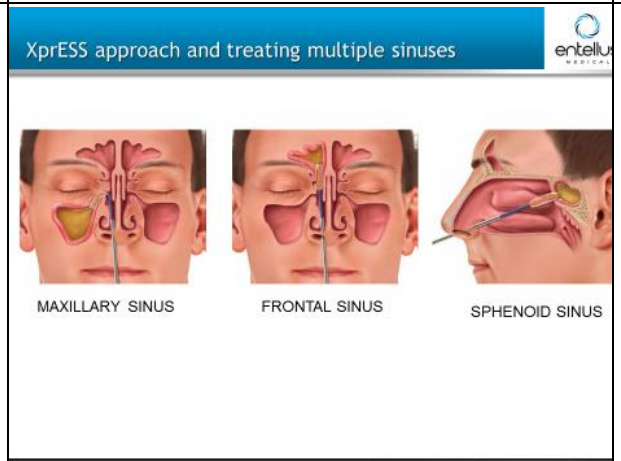
Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	Twenty-four initial clarification questions to Entellus Medical. XprESS MSDS sponsor, Margaret Boiano. Submitted by EAC for discussion at sponsor introductory teleconference 29/02/2016, hosted by NICE: 1) In the US, 3 versions of the XprESS Multi-Sinus Dilation System (MSDS) system are available; these are the Ultra, Pro, and LoProfile systems? Which was first in clinical use and can you please provide some background on your MSDS product development and why the three different versions came to market, e.g. to address which clinical / patient need(s)?	**Written and verbal responses from Margaret Boiano, Karen Peterson & Stuart Hendry to these twenty-four initial clarification questions. Summarised in this log by the EAC:** XprESS is available in 3 different suction tip sizes: XprESS Pro (2mm ball tip, 1mm ID, 1.5mm OD), XprESS LoProfile (1.75mm ball tip, 0.7mm ID, 1.2mm OD) and XprESS Ultra (1.5mm ball tip, 0.5mm ID, 1.0mm OD). All 3 suction tip sizes are appropriate for treating all sinuses; selection is based on physician preference. The XprESS Pro was the first version developed followed by the XprESS LoProfile and then the XprESS Ultra. *All devices are very similar just with time the suction tip decreased in size. All device sizes were kept on the market to give the physician greater choice.*	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	2) In the UK, only the LoProfile system is available. However, in the submission, it is stated that "selection [of XprESS system] is based on clinician preference". What might guide this preference, and what (if any) disadvantages might a UK physician have without this choice?	As stated above, all suction tip sizes are appropriate for treating all sinuses. The XprESS LoProfile has the largest selection available for balloon sizes (5 different balloon sizes) compared to the Pro (3) and Ultra (4), so there is no disadvantage. *The XprESS LoProfile device is the most versatile given that it comes in the greatest variation of balloon sizes.*	Noted with thanks.
	3) The LoProfile system comes packaged with the PathAssist LED light fibre (unlike the Pro, where it is an optional extra). In practice, is the PathAssist always used?	Yes, in practice it is most always used. *PathAssist is not required but is very useful in the confirmation of placement. There are no cases in the UK where the device is used without PathAssist LED light fibre.*	Noted with thanks.
	4) The product information within the **UK** section of the company website contains indications for use for both the Xpress and the PathAssist, which state these should be used in adults (only): "*XprESS Indications for Use:* To access and treat the frontal recesses, sphenoid sinus ostia	We are currently translating the EU IFU and it will be available very soon. *The EU IFU will be translated to be exactly in line with the US IFU. Entellus Medical anticipate that it will be published in the very near future. The attached IFU in the submission is the most up-to-date IFU*	Noted with thanks. **Updated IFU was received from the sponsor on 09/03/16**

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	and maxillary sinus ostia/ethmoid infundibula **in adults** using a trans-nasal approach. *PathAssist LED Light Fiber Indications for Use*: To locate, illuminate within and transilluminate across nasal and sinus structure **in patients aged 18 and over** ". Does this therefore confirm that the UK configuration of the XprESS LoProfile system should not be used in children or adolescents? This appears to contradict the Instructions for Use (IFU) provided in Attachment 1 of the sponsor submission, which incorporate all 3 versions of the MSDS. We observe that Attachment 1 is identical to the IFU on the **US** section of the company website.	*available.* *There are no limitations for paediatric use or no contraindications. The LoProfile device can be used in children 2 years and over in the maxillary sinus and 12 years and over in the frontal and sphenoid sinuses*.	
	5) Could you provide us with an actual inventory of components included with the XprESS system?	The Xpress LoProfile system includes the XprESS device, Inflation Syringe, Bending Tool, two Extension Lines, and LED Light Fiber. *The XprESS system comes as one sterile kit that is single-use for one patient. The balloon is an attached component of the*	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		XprESS system.	
	6) Is the system listed on NHS supply chain? If so, please could you provide us with the relevant product codes?	Not currently. *No further comments.*	Noted with thanks.
	7) The predecessor technology to the XprESS system was the FinESS system. Could you describe the differences between the present and historical systems, in particular what the transantral approach involves and why this was necessary for the older system?	The FinESS system was the first technology Entellus developed and is indicated for access and treatment of the maxillary sinus ostia/ethmoid infundibulum using a transantral approach. FinESS used a transantral approach to access the maxillary sinuses because it was thought that it would be an easy straight path to access the maxillary sinus and the FinESS catheter was straight. The transantral approach, is through a small access hole above the canine fossa (located under the lip) to the maxillary sinus created by the Micro-Trocar of the FinESS system. The XprESS system was then developed	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		as a less invasive option and is indicated for access and treatment of the maxillary sinus ostia/ethmoid infundibula, frontal ostia/recesses, and sphenoid sinus ostia using a transnasal approach. Transnasal approach is through the nose endoscopically (XprESS is inserted through the nostrils using endoscopic visualisation) to access and treat the sinuses. Since the distal end of the XprESS device is re-shapeable, the tip of XprESS can be shaped to easily access and treat multiple sinuses within the same patient with the transnasal approach. Below is an illustration of the XprESS approach and treating multiple sinuses:	

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		 The FinESS product was a pre-cursor, legacy product and is now obsolete. ENT's preferred the transnasal approach since it is less invasive and they are used to doing transnasal procedures/sinus surgery. *No further comments.*	

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	8) The REMODEL RCT used both systems as interventions. If necessary, does the company possess the data (at an individual level) so that it would be possible to either disaggregate the results, or compare the interventions with subgroup analysis? Failing this, would it be possible to provide us with figure on what the proportions of each system used were?	Both XprESS and FinESS devices were used in the study (in roughly equal amounts) and if XprESS was used, the physician was able to choose any XprESS device of their choice as all balloon sizes and suction tips are appropriate for treating the sinuses. The study was designed to evaluate standalone balloon dilation of the maxillary ostia and ethmoid infundibula independent of balloon device and both devices are "indicated for use" for treatment of this region. Additionally, review of historical outcome data (SNOT-20) by an independent statistician confirmed the data were poolable and that the method of access to the sinus does not affect poolability. *Question asked about what devices were used at different time points of the study. Answered that FinESS was used initially and then XprESS was soon added into the study. For the remainder of the study physician preference dictated which device*	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		was used. The ratio between XprESS and FinESS used in REMODEL study was approximately 50:50.	
	9) Are you aware of any other balloon sinuplasty systems that are available within the UK NHS?	Acclarent/JNJ sinuplasty system which has published data ceased operations in the UK as of Dec 31st 2015. Vent Os dilation system does not function the same as XprESS and has very little data. Medtronic system requires very expensive capital equipment for a Navigation system to function adding huge cost to NHS along with the need for three balloons to do the same as one XprESS device. Additionally, there is no published clinical data on the Medtronic product. *No further comments.*	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	10) Are you aware of any studies that have directly compared the XprESS system (or predecessor) with other balloon systems? Are you aware of any high quality studies published on other balloon systems for this indication?	No *No further comments.* No. REMODEL is the only high quality, sufficiently powered, randomized controlled trial involving balloon sinus dilation that we are aware of.	Noted with thanks.
	11) Compared with other balloon systems, what would you consider was the main "unique selling point" (USP) of the XprESS system?	Compared to other balloon system, the main "unique selling point" of the XprESS system is the fact that it is the only device that is re-shapeable, has the smallest profile, and has a seeker based design. These features allow the XprESS device to have the following unique advantages: One device can treat all sinuses (with best bend for maxillary sinus), best device to access tight spaces with less pain to the patient, excellent tactile feedback, and easiest device to use.	Noted with thanks.

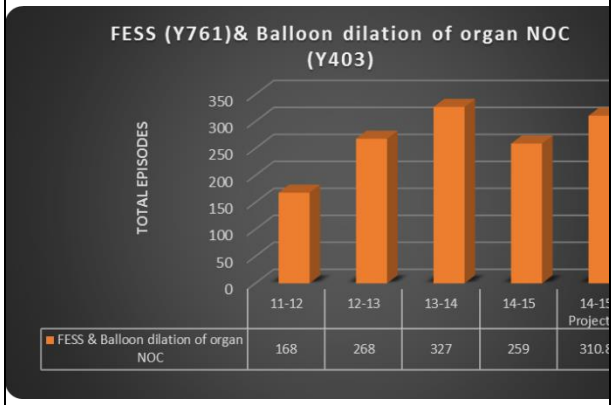
Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		Also, attached is a detailed comparison between Entellus vs. Acclarent that was sent to NICE earlier for your review. *No further comments.*	
	12) FESS works partly by removing and debulking diseased tissues from the nose and paranasal sinuses. The XprESS system leaves these tissues intact. After release of initial sinus pressure and discharge, how does the XprESS system maintain its longer term effect?	Dilation of the sinus outflow tracts fractures small bones underlying the sinus mucosa and allows sustained remodelling and enlargement of the sinus drainage path when the bone heals in the dilated state. *The bones sustain some microfractures during inflation of the balloon. There is no damage to the mucosa (unlike when cold steel instruments are used). The bones heal in the remodelled position with mucosa covering. This re-establishes the drainage passageways for the mucus.*	Noted with thanks.
	13) Relating to the above, we understand that it is stated the action of balloon dilation might work because it remodels the bony structure of the nasal passages, which FESS does not do.	Dilation of the sinus outflow tracts fractures small bones underlying the sinus mucosa surrounding the sinus ostia. *Microfractures occur and heal in the*	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	Could this result in fractures surrounding the sinus ostia?	*remodelled position.*	
	14) We understand that the majority of referrals for surgery for chronic rhinosinusitis in the UK have nasal polyps which may not be adequately treated by compression (i.e. would require excision). Could you confirm: a. If these patients are indicated for XprESS sinuplasty? b. If patients with nasal polyps were excluded from the supplied studies (including the pivotal REMODEL RCT)?	a)Yes, patients with mild to moderate sinonasal polyposis can be treated with XprESS. Patients with severe/gross polypoid disease should be treated with FESS. *Balloon dilation does nothing to the polyps. It creates an opening so that medication used to shrink the polyps can reach the polyps. The balloon enables the surgeon to reach the area without the need to strip down with cold steel.* *Question to clarify the definition of 'mild to moderate' and 'severe'. Answered that severe polyps 'look like a bunch of grapes hanging from nostril'. Mild to moderate polyps are localised to a particular area. Balloon dilation can occur before or after removal of polyps depending on access.* **b)** Patients with mild to moderate sinonasal	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		polyposis were included in all the supplied studies (including REMODEL). Patients with gross sinonasal polyposis were excluded from all of the supplied studies (including REMODEL), with the exception of the XprESS Registry. This study included patients with mild, moderate and gross polyposis. *No further comments.*	
	15) Can you recommend any review articles relating to the mechanism of action of balloon sinuplasty?	Levine and Rabago, Postgraduate Medicine, Volume 123 Issue 2, (March 2011) published a review article that includes a description of the mechanism of action as "…the balloon catheter gently displaces, microfractures, and molds bone surrounding the sinus outflow resulting in improved sinus drainage with minimal disruption to the mucosal lining." XprESS and FinESS are mentioned in the review as FDA cleared devices. *No further comments.*	Noted with thanks. Entellus Medical sent the EAC the mechanistic paper on 08/03/16. It will be used in the background section.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	16) What imaging or other diagnostic techniques are recommended before balloon sinuplasty is employed (in the UK)?	The signs/measures and symptoms are the same for CRS patients regardless of doing either a FESS procedures or a balloon dilation procedure. The ENT surgeon would determine if a symptomatic patient diagnosis with chronic sinusitis would require FESS or a balloon dilation procedure based on a complete otolaryngological physical examination with persistent symptoms and objective evidence of disease by nasal endoscopic and/or CT imaging and validated QOL survey-/SNOT 20 /22 once the patient had failed or is unresponsive to maximum medical management. *No further comments.*	Noted with thanks.
	17) We understand that the XprESS system can be performed in an office environment under local anaesthesia. As far as you know, does this occur in practice in the UK (that is, does the infrastructure allow it)?	Yes these case are now being performed under local in the UK and the infrastructure is allowing this. One particular site has performed 10 cases in the last two weeks. *An example was given by the Sponsor of Guy's Hospital where an ambulatory surgical site is used which is like an endoscopy suite. The room is equipped*	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		with crash trolleys etc.	
	18) We understand that sometime “hybrid” techniques are undertaken where balloon sinuplasty is combined with surgical excision. What are the indications for hybrid techniques? What proportion of XprESS sinuplasties within the UK NHS do you think employ hybrid techniques?	There are no specific indications for the hybrid techniques. The ENT surgeon would decide if it is appropriate to use the XprESS as an adjunct in addition to traditional endoscopic cutting instruments while performing the hybrid FESS procedure. When using in a hybrid procedure the balloon allows the ENT surgeon to be less invasive and preserve anatomy. Dissection may be used remove the diseased bone and tissue within the sinuses however by utilizing the balloon, to help create a pathway or to enlarge the ostium there would be less local trauma, reduction in invasiveness of the intervention, reduction in blood loss , more mucosal preservation and a possible reduction in operative time than standard FESS. Though, by using XprESS as a standalone procedure earlier in the treatment pathway, just after maximal medical therapy has failed, will significantly replace FESS in the	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		management of chronic sinus disease. Minor polyps causing obstruction of sinus ostia can also be easily removed. *No further comments.* Based on HSCIC HES data there has been low utilization. See chart below:  [HSCIC HES: Period Apr 13 to Mar 14]	

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		No further comments.	
	19) What postoperative aftercare do you recommend should be provided in the UK, including use of medication (analgesia, antibiotics, intranasal corticosteroids)?	Post op pain relief will be paasetamol 1g 4 hourly and Ibuprofen 400mg tds for one to two days. Douches and a six week course of macrolide antibiotic to ensure all infection has gone. *No further comments.*	Noted with thanks.
	20) Please describe the training required to perform sinuplasty with the XprESS system including: • Who provides the training; • How long the training takes; • Which clinical staff will be trained (within the UK NHS); • How many staff would be trained per device; • What the cost of the training is and who pays for it? • Any ongoing training.	Entellus provides the training with ENT specialist support, 1 day on multiple cadavaric specimens Clinical staff trained will include the ENT consultants and all their team including nursing staff at hospital site or site of service not on the same day with the consultants Staff training per device; not applicable as the training is cadaver based not device based Entellus provides the training at Entellus	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		costs and any ongoing case support as needed. *The one day training for consultants is conducted at Entellus Medical site. Head model is brought to the hospital at another time to train nurses and auxiliary staff, lasting approximately 1 hour. The surgeons can train their staff with the model under the supervision of the Entellus Medical staff using the head model. Year 6 & 7 clinicians can also be trained by Entellus Medical if required. No general anaesthetic is used in training. Entellus Medical staff can observe and offer support during the first few surgeries.*	
	21) Is general anaesthesia required when the system is being used during training? Would this therefore require the use of an operating theatre?	No because the training is done on cadaveric tissue in our training lab *No further comments.*	Noted with thanks.
	22) Lastly, could we ask some advance questions on what to expect from the economic model? • What software will it be written on?	• Excel *No further comments.*	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	• Will it use FESS as a sole comparator? • Will it include any of the subgroups stated in the PICO analysis (decision problem) outlined in the scope?	• The primary analysis will compare XprESS to FESS. A secondary analysis will compare XprESS to the Acclarent balloon dilation. *No further comments.* • The analysis will consider an average risk patient attending for CRS surgery in the UK. The cost-saving argument are similar across all groups, thus they are not considered separately in the CCA. We expect that there may be some differences in procedure time and length of stay amongst subgroups, but this will be captured sensitivity analysis around these inputs. *No further comments.*	
	23) The clinical evidence submission cites a number of supporting references in sections throughout the company response (starting in Section 3.1, Disease overview) which are not provided as a Reference List. Can a complete	On the disease overview; 1EPOS 2012, 2UK validation HES data. ENTUK Commissioning guide: Rhinosinusitis (2013)	Entellus Medical sent an updated section A and B that included a

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	reference list be provided please? There is over 5 fold variation in procedure rates for sinus surgery per 100,000 population by CCG across England	*Entellus Medical are to provide the EAC with a full bibliography. This will be included with this document in the correspondence log.*	bibliography, 08/03/16.
	24) Can you please either provide references for the statements made in current clinical practice (section 3.4) and organisation of current services (section 3.6), or otherwise identify source of this information for NHS practice?	References for section 3.4 can be found in the REMODEL publications. References for section 3.6 will be discussed under section C and the economic CCA. *As above*	Noted with thanks.
	On 03/03/2016, EAC emailed Entellus Medical with attached questions (as above) and company's responses for confirmation of correct recording of responses from telephone call, 29/02/2016. Additional request from EAC for Entellus medical to send EAC the review article on mechanism of action: Levine and Rabago, Postgraduate Medicine, Volume 123 Issue 2, (March 2011). EAC prompted Entellus Medical to send bibliography	**On 08/03/2016 Margaret Boiano, Entellus Medical, responded to EAC email. Confirmed agreement on additions to question responses. Attached an updated section A and B of the submission that included the bibliography and attached the review article on mechanism of action**	Noted with thanks.

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	for clinical section as discussed on the call.		
	On 29/02/2016, a list of sixteen questions were sent by the EAC to 6 Expert Advisors named by NICE for this project. (See Appendix 1)	**By 07/03/16, 2 responses had been received and collated by the EAC into a single documented response: see Appendix 1. The remaining four experts were chased up by email. (Andrew Smith, Valerie Lund, Carl Philpott, Rajiv Bhalla)** Paul Chatrath replied 29/02/16 Hesham Saleh replied 06/03/16 Valarie Lund replied 08/03/16 Carl Philpott replied 14/03/16 Andrew Swift replied 21/03/16 Rajiv Bhalla chased by email again on 16/03/16, and 21/03/16, No reply received.	To inform EAC report on the Clinical and Economic Evidence Submission

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	Additional question sent to Experts - Paul Chatrath on 03/03/16, Hesham Saleh on 07/03/16 Are you aware of any clinical studies involving the XprESS system that are: a) unpublished b) published in abstract form only c) very recent and likely to be presented at an upcoming conference If so, please provide any detail you have relating to the study including the name of the relevant conference.	Paul Chatrath replied 03/03/16 Hesham Saleh replied 07/03/16 **See Appendix 1**	To inform EAC report on the Clinical and Economic Evidence Submission
	On 15/03/2016, a list of a further fifteen questions were sent by the EAC to 6 Expert Advisors named by NICE for this project. (See appendix 1) Andrew Swift, Paul Chatrath, Saleh Hesham, Valerie Lund, Carl Philpott, Rajiv Bhalla	**By 31/03/16, 4 responses had been received and collated by the EAC into a single documented response: see Appendix 1.** Andrew Swift replied 18/03/16	To inform EAC report on the Economic Evidence Submission

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		Paul Chatrath replied 20/03/16 Saleh Hesham replied 22/03/16 Carl Philpott chased 24/03/16, replied 31/03/16 Valerie Lund emailed to say she would be unable to respond in the time frame required.	
	On 17/03/2016 the following question was sent to ISD Scotland. I am currently undertaking some work for NICE and considering using an ISD theatre cost (for ear, nose and throat specifically) within my analysis. I note than in the 'source data for theatre services' information is provided regarding which costs are included within the theatre costs and note that these include direct supplies costs - CSSD (Central Sterile Services Department) and staff costs. Please would you be able to confirm the following:	**No response received by date of submission.**	

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	1. Do the direct supplies costs - CSSD include things like sterile drapes and gowns and surgical trays used during surgery? 2. Do staff costs (medical and dental/nursing/other) incorporate all staff involved in surgery on average or would some specialties not be included? **On 17/03/2016 a response was chased up.**		
	Additional question sent to Experts – Paul Chatrath on 21/03/16 If a patient visited their GP post-surgery, would it be reasonable to assume that they would be prescribed the following: 1. A steriod nasal spray e.g. Fluticasone propionate 2. Macrolide - Azithromycin 500 mg once daily for 3 days (in tablet/capsule form)	**Reply from Paul received on 21/03/16 - See Appendix 1**	To inform EAC report on the Economic Evidence Submission
	Additional question sent to Entellus Medical on 21/03/16: I note that the table in section 9.2.6 of your submission provides the following information on	Following reply from Entellus Medical received on 22/03/16 – The average disposable cost of the blade and burr were obtained from several theatre	Noted with thanks

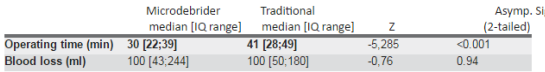
Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	average equipment cost: includes the cost of one FESS Micro-blade and one burr; costs sourced from ENTELLUS internal market data. I wondered if you could provide more information around the brand of blade/burr costed? Also, to confirm, is the cost of the microdebrider itself excluded? If so, please could you explain your rationale for this.	staff members at the hospitals and the brands sourced were Medtronic and Storz. No capital costs for equipment were included as all other capital equipment used is expected to be standard surgical equipment already available in the surgery suite. Therefore, we excluded the cost of the capital equipment of the microdebrider and only compared the average cost of the consumable/ disposable equipment used in either a FESS (blade/burr) or XprESS (device/system) procedure.	
	EAC contacted the Supplies Department at NUTH, 22/03/16 to ask for the costs of FESS consumables. Further information provided by the EAC by email 29/03/16.	Supplies department contacted Medtronic 29/03/16 to request prices of FESS consumables using a sample of product codes provided by the EAC. Supplies department chased Medtronic 31/03/16. As of 07/04/16 no response received from Medtronic.	

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	4 additional questions were sent to Margaret Boiano at Entellus Medical on 23/03/16 (see Appendix 2): 1) In Section 7.2.2 of the submission (illustrated in Figure B7.1) it is reported that 3 studies were identified through other sources (than database searching). We have assumed that two of these studies were the unpublished FinESS registry (2011) [1] and pre-publication study by Soler et al. (2016) [2]. Could you clarify what the third study was?	**Out of office reply was received so questions were forwarded to Stuart Hendry, LuAnn Russo & Karen Peterson at Entellus Medical. Reply received from Karen Peterson on 23/03/16.** The 3 unpublished papers noted in Figure B7-1 are the FinESS Registry (2011), the prepublication study by Soler et al (2016), and the XprESS Maxillary Pilot study that was published by Gould (2012) as a white paper in the *Ear, Nose and Throat Journal* (see Table B7-7).	Noted with thanks
	2) There is some ambiguous text in the study by Gould et al. (2014) [3] that suggests XprESS patients from the balloon arm of the REMODEL were also recruited into the XprESS multi-sinus study. Can you clarify if this was the case, or otherwise can you confirm that *all* patients in *all* the included studies were unique?	There is no overlap in participants recruited for the REMODEL trial and the XprESS Multisinus Study. All participants in all reported studies are unique.	Noted with thanks

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	3) The EAC identified an additional study by Brodner et al. (2013) [4] that focussed on the effect of septal deviation on balloon outcomes. However, we believe the patients recruited were probably the same as those in the XprESS registry [5]. Can you confirm this is the case?	The *ENT Journal* white paper by Brodner et al (2013) is a retrospective analysis of data from participants prospectively enrolled in multiple Entellus studies. The participant population for this analysis was drawn from the BREATHE, XprESS Maxillary Pilot, and XprESS Multisinus studies.	Noted with thanks
	4) In the follow up paper of the REMODEL study reported by Chandra et al. (2016) [6], the size of both arms had been increased compared with previous publications. Can you confirm the recruitment, randomisation, and analysis protocols were as previously described [7]? Can you provide any details on patient attrition in the extended cohort following randomisation?	The REMODEL publication by Chandra et al (2016) reports data on the full population of 135 treated participants in the REMODEL trial. The earlier publications (Bikhazi et al, 2014; Cutler et al, 2013) reported the data from the first 92 patients treated in the trial. All 135 REMODEL treated participants were recruited, randomized, and analysed as previously reported by Cutler et al (2013). In addition to the pretreatment attrition reported by Cutler et al (2013), 3 participants randomized to FESS withdrew before treatment, resulting in a total of 151 participants randomized and 135 treated in the final REMODEL trial cohort.	Noted with thanks

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	Additional question sent to Experts – Paul Chatrath on 24/03/16, Andrew Swift on 29/03/16 1. Once a patient has undergone surgery (either with FESS or balloon dilation) where would they be located within the hospital for the few hours before they are discharged? Would they be in a general area akin to outpatients or a more sterile environment?	Andrew Swift replied 31/03/16 Paul Chatrah replied on 01/04/16	Noted with thanks
	Additional email sent to Carl Philpott 31/03/16 to confirm that 2 hours of FESS reported in his completed questionnaire was applicable to a population of patients that could receive balloon dilation i.e. not a more severe patient group.	Michelle Jenks chased by telephone and received a response 01/04/16. Response was that 2 hours for FESS surgery was representative of his practice and would be in more severe FESS patients. He said that if he undertook FESS in patients otherwise eligible for balloon therapy the timing wouldn't be much different to that for balloon therapy.	Noted with thanks

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	Additional question sent to Entellus Medical on 31/03/16: I had a further query that I was hoping you'd be able to help with. I note within your submission (table on page 58) you report "...procedures time of 42 minutes with FESS for unilateral reported in UK audits (Hopkins 2006)..." based upon the following reference: Hopkins C, Browne J, Slack R, et al. 2006. The national comparative audit of surgery for nasal polyposis and chronic rhinosinusitis. *Clinical Otolaryngology.* 2006; 31:390-398. Please would you be able to substantiate this statement to describe where the paper reports that this timing is for *unilateral* procedures specifically?	**Response received on 01/04/2016:** Thank-you for your query! As you noted, the procedure time is reported and it does not explicitly state in the audit for a unilateral procedure unfortunately. This misunderstanding was a mistake on our end! When we recently contacted the lead author Dr. Claire Hopkins for interpretation, she indicated that it was not tracked that way for the audit paper. However, Dr. Hopkins referred us to an additional study which reported similar procedures times per side procedures, which we mistaken earlier for the audit when we spoke to Dr. Hopkin prior. So sorry on our end for any confusion. Please find the attached article by Cornet et al. The microdebrider, a step forward or an expensive gadget? In this study, 60	Noted with thanks

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		patients (120 sides) with bilateral CRSwNP were included. The surgery was performed under general anaesthesia and with traditional instruments on both sides and a microdebrider was used furthermore on the side indicated by randomisation. The average procedure times reported per side (unilateral) were 41 minutes for a FESS procedure without a microdebrider and 30 minutes performed with a microdebrider on the other side (unilateral). Page 197 -Table 4. Operating time and blood loss.  These estimates are comparable to the base-case, referencing Hopkins et al. 2006 and scenario analysis, referencing the RCT by Marzett 2014, considered in the analysis submitted.	

	Microdebrider median [IQ range]	Traditional median [IQ range]	Z	Asymp. Sig. (2-tailed)
Operating time (min)	**30 [22;39]**	**41 [28;49]**	-5,285	<0.001
Blood loss (ml)	100 [43;244]	100 [50;180]	-0,76	0.94

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		Additionally, Dr. Hopkins is listed as a reference in our submission and has also indicated she is available for consultation on the times if required by the review team for any additional clarification.	
	Additional question sent to Experts – Carl Philpott, Hesham Saleh, Paul Chatrath and Andrew Swift 05/04/16 1. In your opinion, would the patients included in REMODEL form a reasonable subgroup of patients currently treated within the NHS? 2. Does the low Lund-Mackay score in the clinical study raise issues of generalisability of the data to patients treated within the NHS?	**Hesham Saleh replied 06/04/16** Dear Michelle Many thanks. There are some concerns regarding the REMODEL study. The low Lund and Mackay score my reflect the fact that they only chose patients with isolated maxillary disease. The low SNOT 20 score is the real concern as this reflects the whole symptomatology and in their group it is almost considered normal (4 in SNOT 22 is normal).	Noted with thanks

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		The answers to your questions are: 1) Yes but it is a small group 2) Forgive me but I don't exactly understand the question. However, as above I think that the low score may reflect the fact that they only chose patients with isolated maxillary disease which is a small group. Best wishes, Hesham	
	Further additional email sent to expert 06/04/16 - Hesham Saleh – to thank for response on 05/04/16 email and to highlight/make more clear a point made in email 05/06/16 regarding SNOT scores given.	No response received by 07/04/16	
	Additional email sent to Experts 06/04/16 – Carl Philpott, Paul Chatrath and Andrew Swift - to clarify/highlight a point made in the email sent	Carl Philpott replied (with two separate emails) 07/04/16 Hi Michelle, a read of the Remodel	

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	05/04/16 regarding SNOT scores given.	inclusion/exclusion criteria instantly tells you that they are different patient groups. As a rule of thumb we don't operate on patients with snot-22 scores of less than 10 and LM scores of less than 4. You can't divide the snot-22 up that way to give an average score - the snot-22 ask two additional questions which are key to the diagnosis of rhinosinusitis. All you could do is compare the specific symptom scores directly if you have access to that data. BW Carl Hi Michelle, further to my other e-mail. REMODEL has looked at cases of recurrent ARS as well as CRS, but even the CRS cases were maxillary +/- anterior ethmoid involvement only so different groups. Without looking at the individual cases difficult to comment further but my own policy is to use the balloon for minimal disease where one or two sinuses are affected. I void cases with significant	

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		ethmoidal involvement where the balloon can't help. BW Carl Andrew Swift replied 06/04/16 Dear Michelle Sorry for the delay. I have considered the data as tabulated. I think that the patients in the REMODEL groups would be a reasonable subgroup but there are limitations. It is important to appreciate that that the sinus disease in the REMODEL groups is limited to a single maxillary sinus with some anterior ethmoid surgery in some patients. The LM scores would therefore be expected to be low. From my recollection of the RCS Audit on CRS, we recruited patients with chronic rhinosinusitis with polyps, without polyps and also recurrent ache	

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
		sinusitis who underwent FESS. The CRS groups in the RCS audit included a small proportion of patients with recurrent acute sinusitis, but most patients had chronic sinus disease with bilateral change and more extensive sinus change - and thus higher LM scores. Within your table you have a row CRS (chronic rhinosinusitis) but then in columns 3 and 4 have 30%+ that have recurrent acute sinusitis. The 2 conditions are different. Hope that this helps. Best wishes Andrew	

Submission Document Section/Sub-section number	Question / Request *Please indicate who was contacted. If an Expert Adviser, only include significant correspondence and include clinical area of expertise.*	Response *Attach additional documents provided in response as Appendices and reference in relevant cells below.*	Action / Impact / Other comments
	NUTH made aware that Acclarent Inspira Air was discontinued from wholesale in the UK 04/10/15. NUTH received a Customer Letter from the manufacturer.	Appendix 3	

Appendix 1

COLLATED
RESPONSES Questior

Appendix 2

Additional question
to Entellus Medical 23

Appendix 3

UK, MKT03484
Customer Letter v2.d

NY EAC Questions to XprESS Clinical Experts 29/02/2016 – Non-respondents in ~~strikethrough text~~

Name of Expert Advisers	Job Title	Professional Organisation/ Specialist Society	Nominated by	Ratified
Mr Andrew Swift	**Consultant ENT Surgeon and Rhinologist**	**British Rhinological Society**	**NICE**	**Yes**
Mr Paul Chatrath	**Consultant ENT surgeon**	**British Association of Otorhinolaryngologists, Head and Neck Surgeons (ENT UK)**	**Sponsor**	**Yes**
Dr Hesham Saleh	**Consultant Rhinologist and Facial Plastic Surgeon**	**British Society for Allergy & Clinical Immunology**	**Nominated**	**~~Yes~~**
Professor Valerie Lund	**Professor of Rhinology**	**British Association of Otorhinolaryngologists, Head and Neck Surgeons (ENT UK)**	**NICE**	**Yes**
Mr Carl Philpott	**Consultant ENT Surgeon and Rhinologist**	**British Association of Otorhinolaryngologists, Head and Neck Surgeons (ENT UK)**	**Nominated**	**Yes**
~~Mr Rajiv Bhalla~~	**~~Consultant ENT Surgeon~~**			**~~Yes~~**

** Experts excluded from tables below were nil responders for that particular question. Supplementary clinical and economic questions were only sent to one or two clinical experts.*

Question 1: Approximately what proportion of each pair of sinuses are typically affected by chronic rhinosinusitis (CRS)? Is CRS of the four main paranasal sinuses (maxillary, ethmoid, sphenoid and frontal sinuses) managed in the same way?

Expert Adviser	Comment
Mr Andrew Swift	the ethmoid sinuses are affected in 95% of patients. Typically, there is evidence of inflammatory disease in all of the sinuses in many patients. This occurs in varying degrees and at the extreme, all of the sinuses are completely opaque. Occasionally we see isolated chronic sinusitis in the sphenoid or maxillary sinus and very rarely the frontal sinus. The principles of management are the same for all cases: topical steroids to reduce inflammation, saline rinses, escalating to antibiotics and systemic steroids in more serious cases.
Mr Paul Chatrath	Most commonly maxillary and anterior ethmoid, then frontal/posterior ethmoid, then sphenoid. This is an approximation only. Treatment is usually medical in the first instance regardless of the sinuses involved.
Dr Hesham Saleh	The majority of CRS is bilateral. Medically yes but surgically the ethmoids can only be managed by formal endoscopic sinus surgery while the other sinuses can potentially managed by balloon sinuplasty.
Professor Valerie Lund	CRS is normally divided into CRS with nasal polyposis (CRSwNP) and without (CRSsNP). In the majority of CRS cases, both sides are affected though the degree may vary from side to side. However, in the majority of cases of CRSwNP, all or virtually all the sinuses are opacified on CT. In CRSsNP there is often some air but ~ 75% of sinuses are affected. In order of frequency the maxillary sinuses& anterior ethmoids (most often), frontal, posterior ethmoids and sphenoid (least) are affected on CT. Please note that ~20% of the normal population have mucosal thickening in one sinus eg anterior ethmoid or maxilla on CT
Mr Carl Philpott	They are all affected. Without longitudinal studies of CT scans in CRS patients without any intervention it is difficult to comment precisely but it is anticipated that there is progressive involvement of the maxillary and ethmoid and then frontal and sphenoid sinuses. Medical management does not differ according to sinus; there are anatomical variances that affect the surgical management of each of the sinuses in terms of dissection during sinus surgery.
EAC summary	*Maxillary and ethmoid sinuses most commonly affected followed by sphenoid and frontal sinuses. Usually multiple bilateral sinuses are affected, isolated sinus disease relatively rare. Opacification usually more severe when nasal polyps are present.* *Medical management is similar for all sinuses, surgical management is dependent on anatomical variation of sinuses (but essentially same techniques used).*

Question 2: Relating to the above question, the XprESS Multi-Sinus Dilation system (XprESS MSDS) may be used on all of these sinuses, but the supporting literature predominantly concerns the management of the maxillary sinuses. Can we assume that outcomes achieved in any one of these sinuses may be generalised to all sinuses?

Expert Adviser	Comment
Mr Andrew Swift	Yes – the principle of establishing draining and ventilation is the same for all sinuses
Mr Paul Chatrath	With regard to the frontal sinus there is likely to be a correlation as the frontal sinus is rarely treated adequately by other surgical means. The ethmoid sinuses are not accessed by this balloon so will not be directly treated.
Dr Hesham Saleh	No. The frontal sinuses are more complex and outcome mat be different. Isolated sphenoid disease is uncommon.
Professor Valerie Lund	No. The system cannot be used for the anterior or posterior ethmoids. Furthermore the rationale for using these balloon devices in the frontal sinus can be supported by the difficulties of the anatomy but there is little logic or need for them to be used in the maxillary or sphenoid sinuses
Mr Carl Philpott	How do you propose to use this in the ethmoid sinuses? – this is the main limitation of the balloon techniques. As successful management is usually due to post-operative medical treatment, the distance from the nostril to the target is a key factor – the frontal and sphenoid sinuses are the least accessible in that respect.
EAC summary	*The principle of balloon sinuplasty is to improve ventilation of the sinuses.* *Surgical management of the frontal sinus is more complex and may be more suitable for balloon sinuplasty.* *2/5 experts state balloon sinu plasty cannot be used on ethmoid sinuses [but NOTE: XprESS is indicatd for use on the anterior ethmoid sinus via the infundibulum]*

Question 3: If a patient has recalcitrant CRS (i.e. does not adequately respond to maximal medical treatment), what is their prognosis if a surgical intervention is not undertaken?

Expert Adviser	Comment
Mr Andrew Swift	The prognosis in this situation is that the symptoms grumble on. Very occasionally, a complication may ensue, affecting the orbit or intracranial cavity.
Mr Paul Chatrath	Likely continued symptoms arising from recurrent attacks of sinusitis on a background of chronic long standing symptoms of nasal congestion/facial pain/nasal discharge and hyposmia.
Dr Hesham Saleh	86-90% excellent outcome (*EAC note: assume that question has been misread*)
Professor Valerie Lund	It is not known what the natural history of untreated CRS is as no proper studies have been done. However, it is likely that there will be cyclical changes with acute on chronic episodes and we know that there is an increase in remodelling of the mucosa together with changes in the underlying bone making the disease less reversible with time. There is also evidence that operating early provides better results than operating late. Thus the prognosis is likely to get worse or remain unchanged without some form of intervention
Mr Carl Philpott	Continued poor quality of life and (exacerbation of) concomitant respiratory disease e.g. asthma (if not already present).
EAC summary	*Lack of natural history studies but consensus is that without surgical intervention symptoms will persist/stagnate or deteriorate. Also possibility serious complications will occur.*

Question 4: Are data from "The National Comparative Audit of Surgery for Nasal Polyposis and Chronic Rhinosinutis" published in August 2003 likely to be representative of NHS practice today? Please specify any areas that will likely be outdated e.g. proportion of surgery conducted as a day case.

Expert Adviser	Comment
Mr Andrew Swift	Much more surgery is being conducted as day case surgery now.
Mr Paul Chatrath	Yes still representative in the main except for an expected slight increase in the proportion of surgery being carried out as a day case.
Dr Hesham Saleh	Yes. I don't think there would be a significant difference of any other factor apart form numbers if day case procedures.
Professor Valerie Lund	Yes generally – but I agree that the number of procedures done as daycases will have increased substantially
Mr Carl Philpott	Yes if you read the BMJ Open paper by Philpott et al 2015: The Burden of Sinus surgery in the UK – you will see the comparisons between now and then – mean number of 3.3 polypectomies in CRSwNPs.
EAC summary	*Experts unanimous that 2003 audit figures likely to still be valid in the main.* *However, it is likely that more day cases are now performed.*

Question 5: How does the presence of nasal polyps relate to CRS, and how does their presence affect management choices (see section C)?

Expert Adviser	Comment
Mr Andrew Swift	Polyps are part of the normal process of CRS in the majority of patients. However, a smaller subset have CRS without polyps. The management guidelines are presented in the EPOS document 2012. Management is basically similar for both groups.
Mr Paul Chatrath	CRS can occur with (CRSwNP) or without (CRSsNP) nasal polyps. The presence of polyps would generally favour a conventional surgical approach (FESS) rather than balloon dilatation surgery alone as removal of the polyps may be required in addition to sinus ventilation.
Dr Hesham Saleh	This is a different disease spectrum and the management is different from CRS without polyps. Recurrence of polyps is much higher and surgery is not the first line of treatment.
Professor Valerie Lund	See answer to Q1. There is increasing evidence that CRSwNP and CRSsNP are two different diseases (albeit with some overlap) with different underlying pathophysiology. The symptomatic outcome for CRSwNP is usually better than for CRSsNP but the chances of recurrence and further medical and surgical management is greater with CRSwNP
Mr Carl Philpott	CRS is coarsely subdivided into those cases with and those without polyp formation. In reality there are likely to be numerous endotypes but these have yet to be clearly defined. Management is currently guided by the two main phenotypes – see EPOS 2012 in Rhinology.
EAC summary	*Most patients with CRS have polyps. The presence of polyps favours FESS over balloon dilation.* *SCR with polyps typically have greater symptomatic benefits from surgery but relapse more common.*

Question 6: The XprESS MSDS system (like other balloon sinuplasty systems) is claimed to "remodel the bony sinus outflow tracts (ostia) by displacement of adjacent bone and paranasal sinus structures". What do you understand the term "remodel" to mean, that is, mechanistically, how does the inflation of the balloon lead to any long term change in the anatomy of the ostia and surrounding structures?

Expert Adviser	Comment
Mr Andrew Swift	Dilatation of sinus ostia by a balloon should create a larger ostium that does not reduce in time and stenose, the theory being that mucosal trauma is avoided and fibrosis therefore does not form and lead to stenosis. This does seem logical and although mucosal trauma will occur, it should be limited. However, I do not have the clinical experience to say if this is true in reality.
Mr Paul Chatrath	By achieving a modest widening of the sinus outflow pathway through bony microfractures, with minimal disturbance of the mucosal lining.
Dr Hesham Saleh	Remodelling is probably an inaccurate term. The high pressure of the balloons displaces bone and soft tissue to create wider drainages tracts. Theoretically bone displacement should lead to a larger opening on a long term basis.
Professor Valerie Lund	If this is true, the balloon creates microfractures in the bone surrounding the ostium, potentially squashing access to other adjacent clefts and sinuses and dilates the mucosa. This is not remodelling in a medical sense, merely stretching tissues. Depending on the degree of fibrosis and damage, this can lead to circumferential scarring. These systems work best in patients who have very little wrong with them ie patients with normal sinuses complaining of headache!
Mr Carl Philpott	Repositioning of fine bony lamellae to create a more "open' channel
EAC summary	*Remodelling occurs through microfracturing and bone displacement of the ostia which improves sinus ventilation. This should preserve soft tissue compared with FESS.*

Question 7: In contrast, during functional endoscopic sinus surgery (FESS) diseased tissue is excised and soft tissue is debulked, so the mechanism of action is substantially different. In your opinion, is it feasible both techniques will have similar outcomes in similar patients?

Expert Adviser	Comment
Mr Andrew Swift	I cannot comment from experience but I would have far more confidence in FESS being more effective in the long term. It also seems logical that in FESS, areas of polyp formation are removed.
Mr Paul Chatrath	Yes, assuming that, in cases of FESS, the mucosa regenerates itself adequately to restore function.
Dr Hesham Saleh	The limited number of studies suggests they do in moderated disease. However, I believe that FESS is still the ultimate treatment in many cases especially with severe disease.
Professor Valerie Lund	Not in CRSwNP. Balloon dilatation has little role in the treatment of CRSwNP where the entire mucosa is disease and is best managed by removal of that tissue, facilitating delivery of anti-inflammatory medication in the long term. Yes in an acute isolated sinus infection (which is very rare) eg a frontal sinusitis a balloon dilatation can be useful to open a specific ostium closed by swollen tissue. Potentially yes for CRSsNP the aim of surgery is ventilation, drainage and drug delivery which could be achieved either by FESS or with balloon dilatation in combination with FESS
Mr Carl Philpott	No. balloon techniques are unlikely to be successful when the disease is more advanced but in early stage or isolated sinus disease is more likely to be beneficial.
EAC summary	*Experts report some degree of scepticism that balloon dilation is as effective as FESS. General consensus seems to be that balloon sinuplasty:* • *Is more likely to be effective in mild to moderate disease, early in the disease process, and in isolated sinus disease where ventilation is the primary aim.* • *Is less likely to be effective in more severe or advanced disease, or in the longer term.* • *Is less useful when there are nasal polyps present.*

Question 8: Are there any benefits in using hybrid techniques (FESS with balloon dilatation), and if so, what population of patients would hybrid techniques be considered in?

Expert Adviser	Comment
Mr Andrew Swift	There may be benefits of a hybrid operation in that enlargement of the sinus ostium could be done with minimal trauma. Such operations would focus the ExPress mainly on the maxillary sinus but frontal dilation may also be an option. I would estimate that this may be justified in up to 50% of patients.
Mr Paul Chatrath	Patients with nasal polyps. Patients with complex revision surgery or anatomical abnormalities.
Dr Hesham Saleh	Yes in patients with moderate sinus disease where the ethmoids are also involved
Professor Valerie Lund	Not really – only if the surgeon is inexperienced and cannot deal with the frontal recess. Otherwise it merely adds an expensive piece of kit to a situation where it is not necessary. The main circumstance where this technology is useful is in cases of recalcitrant frontal sinus disease where one wishes to deliver sustained topical steroid release directly to the area eg Propel device or similar
Mr Carl Philpott	Yes this can be useful in revision cases where there is a stenotic outflow tract that might require drilling and the balloon presents a mucosal sparing alternative.
EAC summary	*Hybrid treatment might represent an unwarranted extra cost when FESS alone would suffice. However, it may be clinically useful:* • *To minimise mucosal trauma and be mucosa sparing.* • *In patients with nasal polyps.* • *Remove the need for drilling when there is stenotic outflow present.* • *As adjunct to FESS to dilate ostia to improve delivery of topical drugs.*

Question 9: Do otherwise healthy children commonly present to secondary care with recalcitrant CRS? If so, are they managed surgically (either with FESS or balloon dilatation) in the same way as adults?

Expert Adviser	Comment
Mr Andrew Swift	Children present differently and are managed differently. FESS is rarely indicated.
Mr Paul Chatrath	Recalcitrant CRS is very rare in children, as indeed is CRS in general. They are rarely managed surgically, except for a small subgroup with exacerbating systemic conditions, such cystic fibrosis or primary ciliary dyskinesias.
Dr Hesham Saleh	CRS in children is rare except in cases of cystic fibrosis. When they do the majority respond to medical treatment. Surgery is rarely indicated and the outcome is not as good as in adults.
Professor Valerie Lund	Rarely and rarely require surgery as managed medically
Mr Carl Philpott	They numbers are small but managed as per the adults generally speaking.
EAC summary	*CRS is rare in children and recalcitrant CRS even more so. Surgery is rarely appropriate.*

Question 10: What are the usual referral criteria for patients with CRS from primary care to secondary care?

Expert Adviser	Comment
Mr Andrew Swift	Blocked nose that fails to respond to topical steroid sprays or antibiotics. A small number of patients will present with loss of the sense of smell.
Mr Paul Chatrath	Patients with symptoms of CRS (nasal block, rhinorrhoea, hyposmia, facial pain, headache, lethargy) in whom medical therapy has not been effective at controlling symptoms Patients with acute episodes of sinusitis, occurring either recurrently or on a background of CRS.
Dr Hesham Saleh	Those who did not respond to medical treatment.
Professor Valerie Lund	They should adhere to the National Surgical Commissioning guide on Rhinosinusitis developed by the RCSEng and based on EPOS ie persistent symptom complex after adequate primary medical treatment (douche/topical steroids)
Mr Carl Philpott	The official guidelines can be found on the RCS website: www.rcseng.ac.uk%2Fhealthcare-bodies%2Fdocs%2Fpublished-guides%2Frhinosinusitus&usg=AFQjCNHpRWYOAXQiz91-e7TEql72_fD-3w&sig2=5ikAUhbB6jyyZKTDgy_9jQ These are not typically well followed: http://onlinelibrary.wiley.com/doi/10.1111/coa.12430/abstract http://onlinelibrary.wiley.com/doi/10.1111/coa.12462/full
EAC summary	*Referral criteria according to EPOS guidelines. In summary this is recalcitrant CRS (CRS that fails to respond to medical treatment).* *However, guidelines are frequently not followed well by GPs.*

Question 11: In patients who present with uncomplicated CRS in secondary care, what medical treatment is typically offered? How long would medical treatment be prescribed before it was considered to be maximal, and the patient considered as having recalcitrant CRS?

Expert Adviser	Comment
Mr Andrew Swift	Topical nasal steroid drops or sprays / saline rinses / antibiotics in some patients if infection is thought to be contributing to the disorder / systemic steroids, especially for patients with large polyps. 3 months of medical management is normal before contemplating surgery.
Mr Paul Chatrath	Nasal douching, topical nasal steroid sprays, anti-allergy medications (eg. antihistamines), occasional courses of antibiotics and/or oral steroids. Save for the latter, treatment would be expected to continue over a three month period before a conclusion is drawn.
Dr Hesham Saleh	Topical steroid drops or spray and an equivalent of a month of an antibiotic (preferably a macrolide such as clarithromycin or azithromycin). Any other factors such as allergy should be also excluded and treated.
Professor Valerie Lund	Saline/alkaline douce+topical steroid drops or spray +/- oral prednisolone for CRSwNP or long-term antibiotics (doxycycline or clarithromycin) for CRSwNP or CRSsNP
Mr Carl Philpott	See commissioning guide above for details but simply: CRSwNPs = douching + nasal steroid + doxycycline 3/52 (+/- prednisolone) CRSsNPs = douching + nasal steroid + macrolide abx for 12/52 If no improvement after 3 months then they have tried and failed maximum medical management (unless use of antihistamines/montelukast seems appropriate in selected cases)
EAC summary	*See commissioning guideline for recommendations.* *3 months maximal medical treatment may be recommended. This might include frequent or prolonged courses of antibiotics, nasal steroids, and oral steroid.*

Question 12: What are the indications for FESS? Which patients might be excluded from having FESS?

Expert Adviser	Comment
Mr Andrew Swift	Indications for FESS include persistent symptoms that do not respond to medication, or recur shortly after systemic steroids are stopped. Exclusions would include patients who are not fit enough for surgery.
Mr Paul Chatrath	Failed medical therapy Patients with complications of CRS eg. orbital Exclusions: medically unfit.
Dr Hesham Saleh	Recalcitrant CRS, Complications of sinusitis not responding to medical therapy, Mucocoeles, Allergic and invasive fungal sinusitis, Suspected neoplasia, Antrochoanal polyps…etc Contraindications are disease is not accessible endoscopically such as in the lateral frontal sinus
Professor Valerie Lund	Failure of adequate medical treatment ie after 6-12 weeks depending on circumstances assuming fit for surgery and assuming evidence of disease on CT/endoscopy Exclusions if have underlying co-morbidity which precludes surgery, patient preference, abnormal anatomy etc
Mr Carl Philpott	Failure of max medical management; patients excluded are those with contraindications to surgery/GA
EAC summary	*Main indication is failure to respond to maximal medical treatment (6 to 12 weeks) and indicated by CT scan. Contra-indications include comorbidities and inability to tolerate general anaesthesia.*

Question 13: If balloon sinuplasty is performed in your hospital/trust, what are the indications for this ? Do the indications differ from FESS, and if not, what factors would guide the choice between the interventions?

Expert Adviser	Comment
Mr Andrew Swift	Balloon sinuplasty is no longer funded by my hospital due to the high cost and lack of perceivable cost-benefit that may justify this.
Mr Paul Chatrath	Patients without polyps and with predominantly frontal sinus disease might be recommended for balloon sinuplasty in the first instance.
Dr Hesham Saleh	Moderate maxillary or frontal sinus disease, Acute rhinosinusitis, Recurrent sinus barotrauma, Patients with high anaesthetic risk Mainly the severity of dissease
Professor Valerie Lund	It is not performed
Mr Carl Philpott	As discussed above: - isolated sinus disease (as opposed to diffuse bilateral sinus disease) - preference for local anaesthesia - for revision cases to avoid drilling
EAC summary	*2/5 experts stated balloon sinuplasty not offered (due to funding constraints). Possible indications include:* • *Isolated frontal or maxillary sinus disease.* • *Recurrent sinus barotrauma.* • *To avoid drilling.* • *Restricted to patients without polyps.* *Consensus seems to be less appropriate for advanced disease.*

Question 14: Do you use Lund-Mackay scores to judge whether a patient should undergo surgery? If so, at what threshold would surgery be considered and what is the average Lund-Mackay score of patients undergoing surgical treatment?

Expert Adviser	Comment
Mr Andrew Swift	The LM score is a method of scoring the CT scan. The decision for surgery is based on the patients symptoms and not the scan score. However, abnormal CT scans are the norm, otherwise the diagnosis of CRS is in serious doubt.
Mr Paul Chatrath	Absolute Lund Mackay scores are not used for decision to surgery as the latter is made almost exclusively on clinical grounds (history with positive features as per EPOS guidelines, plus endoscopic findings). Change in Lund Mackay scores indicates success or otherwise of treatment, whether medical or surgical.
Dr Hesham Saleh	Yes but L- M correlates better with outcome (before and after treatment) that with indications for surgery. The majority of my patients are tertiary referrals with severe disease with a L-M score between 20 and 24. However
Professor Valerie Lund	NO - the decision to operate is made based primarily on the patients' symptoms and the endoscopic findings supported by the presence of inflammation on CT. I do use the LM score as I invented it and it will depend on the type of disease whether the score is relevant. Normal is 4.26 for an adult so anything higher than that. Most polyp patients have 15 or greater
Mr Carl Philpott	Not really – other than if it is <4 I would question whether it is appropriate but a patient could have only a blocked left maxillary sinus and a Lund Mackay score of 2. See Sinonasal audit for ave LM scores.
EAC summary	*Lund-McKay score are from CT scan, used as a rule out test but otherwise not that useful as an indication. This is decided according to patient symptoms.*

Question 15: When undertaking balloon dilation for CRS, in what proportion of cases would this be a hybrid procedure rather than standalone, i.e. balloon dilation as an adjunct to use of surgical or other instruments?

Expert Adviser	Comment
Mr Andrew Swift	If I were able to undertake balloon dilatation for CRS, I would personally do a hybrid operation in most cases.
Mr Paul Chatrath	50%
Dr Hesham Saleh	I personally use balloon very rarely because of the nature of my patient population. I would suggest half of the procedures would be hybrid in a standard ENT practice.
Professor Valerie Lund	Depends on the surgeon and how they are reimbursed
Mr Carl Philpott	in my practice I would use a balloon 5-10 times per year – this will be as a ratio of 1 hybrid procedure to 2 standalone cases.
EAC summary	*3/5 experts suggested that about 50% of balloon sinuplasty would be hybrid rather than standalone.*

Question 16: ***Please complete the following table (overleaf) based on your experience. We appreciate that you will only be able to complete the FESS column of the table if you do not have experience using balloon dilation systems.***

For presenting these responses an individual table is given for each of the 8 questions in the table.

Question 16(i): ***Would you routinely conduct any imaging or other diagnostic tests to confirm patient suitability? If so, which tests?***

Expert Adviser	FESS procedure	Balloon dilation (specifically XprESS if you have experience with this device)
Mr Andrew Swift	CT scan sinuses	CT scan sinuses
Mr Paul Chatrath	CT scan sinuses Allergy tests	CT scan sinuses Allergy tests
Dr Hesham Saleh	Yes CT scan	Yes CT scan
Professor Valerie Lund	Nil response from here	
Mr Carl Philpott	CT scan for anatomical/surgical planning	CT scan for anatomical/surgical planning
EAC summary	*Experts unanimously advised that the same test are required for both FESS and balloon dilation procedures*.	

Question 16(ii): Where do you conduct the procedure?

Expert Adviser	FESS procedure	Balloon dilation (specifically XprESS if you have experience with this device)
Mr Andrew Swift	Operating theatre	Operating theatre
Mr Paul Chatrath	Theatre	Theatre
Dr Hesham Saleh	Operating theatre	Operating theatre Possible in outpatients under local anaesthetic
Mr Carl Philpott	Only in theatre	Consider doing in OPD
EAC summary	*Experts unanimously advised that FESS is conducted in an operating theatre only, whilst balloon dilation can be conducted in an operating theatre or potentially in an outpatient department.*	

Question 16(iii): Which healthcare staff, including anaesthetists (and staff grades), are involved?

Expert Adviser	FESS procedure	Balloon dilation (specifically XprESS if you have experience with this device)
Mr Andrew Swift	Full team	same
Mr Paul Chatrath	Anaesthetist Scrub nurse, ODA, surgical registrar	Anaesthetist Scrub nurse, ODA, surgical registrar
Dr Hesham Saleh	All	Nurse only if under local
Mr Carl Philpott	Whole theatre team	Surgeon + nurse
EAC summary	*Procedures being carried out under general anaesthetic require the same healthcare staff regardless of procedure type, whilst balloon dilation under local anaesthetic requires a surgeon and nurse only.*	

Question 16(iv): Do you typically conduct the procedure as a day case? If not, what is the typical length of hospital stay?

Expert Adviser	FESS procedure	Balloon dilation (specifically XprESS if you have experience with this device)
Mr Andrew Swift	Yes	**No answer given**
Mr Paul Chatrath	Yes day case	Yes day case
Dr Hesham Saleh	Yes	Yes
Mr Carl Philpott	Yes	Yes
EAC summary	*All procedures are carried out as a day case.*	

Question 16(v): How long is the typical recovery time for the patient (return to normal daily activities and/or work)?

Expert Adviser	FESS procedure	Balloon dilation (specifically XprESS if you have experience with this device)
Mr Andrew Swift	1-2 weeks	same
Mr Paul Chatrath	2 weeks off work	1-2 weeks off work if under a GA
Dr Hesham Saleh	2 weeks	Possible within a week if under local and is not a hybrid procedure
Mr Carl Philpott	1-2 weeks	Standalone – up to 1 week
EAC summary	*Patients undergoing FESS have 1-2 weeks off work. Those undergoing standalone balloon dilation under local anaesthetic would have the same or slightly shorter.*	

Question 16(vi): What medication (e.g. post-operative pain relief, ongoing antibiotics, intranasal corticosteroids) are usually prescribed to patients?

Expert Adviser	FESS procedure	Balloon dilation (specifically XprESS if you have experience with this device)
Mr Andrew Swift	Topical fluticasone drops / saline rinses	**No answer given.**
Mr Paul Chatrath	Otrivine 1/52 Saline douching 4/52 Analgesia if required	Otrivine 1/52 Saline douching 4/52 Analgesia if required
Dr Hesham Saleh	Post-operative pain relief, ongoing antibiotics, intranasal corticosteroids and sinus saline rinse.	Post-operative pain relief, ongoing antibiotics, intranasal corticosteroids and sinus saline rinse.
Mr Carl Philpott	Paracetamol for pain is usual if septoplasty not performed Peri-operative prednisolone and co-amoxiclav Recommence topical therapy (douching + INCS)	Recommence topical therapy (douching + INCS)
EAC summary	*Medication is similar for both FESS procedures and balloon dilation. One expert stated that more medicines are used for FESS. However, two stated they were similar.*	

Question 16(vii): Would you see patients for a routine follow-up outpatient appointment? If so, how long after the procedure would the follow-up visit occur?

Expert Adviser	FESS procedure	Balloon dilation (specifically XprESS if you have experience with this device)
Mr Andrew Swift	Yes – within 2 weeks	**No answer given**
Mr Paul Chatrath	Yes, 6/52 postop	Yes, 6/52 postop
Dr Hesham Saleh	2 weeks	2 weeks
Mr Carl Philpott	1 week for removal of spacers 1 month 3 months	3 months if standalone
EAC summary	*Two of three experts stated that routine follow –up is consistent regardless of treatment type. The third suggested that fewer follow-up visits occur for balloon dilation.*	

Question 16(viii): Do you undertake any post-operative debridement procedures on patients (either routinely or for complicated recovery)?

Expert Adviser	FESS procedure	Balloon dilation (specifically XprESS if you have experience with this device)
Mr Andrew Swift	Yes but this is now minimal if the saline rinses are being used correctly.	**No answer given.**
Mr Paul Chatrath	No	No
Dr Hesham Saleh	Not routinely	Not routinely
Mr Carl Philpott	Yes at 1 week	Not if standalone
EAC summary	*Three of four experts do not typically undertake post-operative debridement.*	

Supplementary clinical question: Are you aware of any clinical studies involving the XprESS system that are:
a) unpublished
b) published in abstract form only
c) very recent and likely to be presented at an upcoming conference

If so, please provide any detail you have relating to the study including the name of the relevant conference

Expert Adviser	Comment
Mr Paul Chatrath	I am not aware of any unpublished work or studies for this system.
Dr Hesham Saleh	No I am not aware of any studies.
EAC summary	*Experts are not aware of any unpublished work of studies for the XprESS system.*

Economic Questions

Question 1: In typical procedure using standalone balloon dilation only (i.e. not hybrid surgery) how many sinuses would you treat?

Expert Adviser	Comment
Mr Andrew Swift	zero
Mr Paul Chatrath	between 2 and 4 in most cases
Dr Hesham Saleh	Usually 2 frontals, but potentially could be up to 6. 2 maxillary sinuses, 2 frontals, and 2 sphenoids.
Mr Carl Philpott	1-2
EAC summary	*Experts were mostly in agreement that multiple sinuses are treated per procedure (usually 2 or more). The expert stating zero, does not use balloon dilation systems, hence his response.*

Question 2: Would there be any difference in length of hospital stay between a patient undergoing a standalone balloon dilation procedure and the same patient undergoing FESS?

Expert Adviser	Comment
Mr Andrew Swift	No
Mr Paul Chatrath	Most patients would go home on the same day regardless of balloon or FESS. Some cases undergoing FESS might need an overnight stay (eg. due to medical comorbidities) but this would be most unlikely with balloon only.
Dr Hesham Saleh	Shorter with balloon dilation although most FESS patients are treated as day cases in the present time.
Mr Carl Philpott	Normally both are daycase but balloon cases more likely to be under local.
EAC summary	*Experts stated that the length of hospital stay may be shorter with balloon dilation, but that patients are treated as day cases for FESS also.*

Question 3: What proportion of surgery is undertaken under local anaesthetic for:

a) Standalone balloon dilation;

b) FESS

Expert Adviser	Comment
Mr Andrew Swift	Extremely small number in either situation Balloon dilation is no longer supported by my NHS hospital because of costs (the on costs are high)
Mr Paul Chatrath	Balloon – at present not many, probably below 10%, although with the potential to increase FESS – 0%
Dr Hesham Saleh	a. Difficult to tell but at the present time (may be less than 10%) but potentially up to 70% is possible. This will be affected by the logistics of clinic and theatre space. b. Less than 5%
Mr Carl Philpott	a. 25-50% b. 0%
EAC summary	*All four experts reported less than 5% for FESS under local anaesthetic. Three of the four experts reported that few XprESS cases are carried out under local anaesthetic. This is under 10% with balloon dilations (with the potential to go up to 70%). One expert reported a higher proportion, 25-50% with balloon dilations.*

Question 4: If you use the XprESS balloon dilation system, please provide an estimate of the number of times you perform the procedure each month (i.e. what the typical monthly throughput is).

Expert Adviser	Comment
Mr Andrew Swift	nil
Mr Paul Chatrath	For me personally, approximately 3-5 per month
Dr Hesham Saleh	N/A
Mr Carl Philpott	6 cases per year
EAC summary	*Two of the four experts use the XprESS MSDS system and there is big variation usage with 3-5 uses per month and 6 uses per year.*

Question 5: Please complete the following table, considering patients presenting with the same severity of illness typical for treatment of this type.

Expert Adviser	Comment		
Mr Andrew Swift		***Average duration of surgery (minutes)***	***Length of hospital stay (hours)***
	Surgery with FESS under general anaesthetic	90mins	8 hours
	Surgery with FESS under local anaesthetic	60-90 mins	6 hours
	Surgery with standalone XprESS under general anaesthetic	Not done	Not done
	Surgery with standalone XprESS under local anaesthetic	Not done	Not done
Mr Paul Chatrath		***Average duration of surgery (minutes)***	***Length of hospital stay (hours)***
	Surgery with FESS under general anaesthetic	45	4
	Surgery with FESS under local anaesthetic	n/a	n/a
	Surgery with standalone XprESS under general anaesthetic	30	3-4
	Surgery with standalone XprESS under local anaesthetic	45	2
Dr Hesham Saleh		***Average duration of surgery (minutes)***	***Length of hospital stay (hours)***
	Surgery with FESS under general anaesthetic	40	4-6
	Surgery with FESS under local anaesthetic	30 (usually done for less extensive disease)	2-4
	Surgery with standalone XprESS under general anaesthetic	20 (less extensive disease)	4-6
	Surgery with standalone XprESS under local anaesthetic	30 (less extensive disease)	1-2

<table>
<tr><td>Mr Carl Philpott</td><td>
<table>
<tr><td></td><td>Average duration of surgery (minutes)</td><td>Length of hospital stay (hours)</td></tr>
<tr><td>Surgery with FESS under general anaesthetic</td><td>2 hours</td><td>6 hours</td></tr>
<tr><td>Surgery with FESS under local anaesthetic</td><td>N/A</td><td></td></tr>
<tr><td>Surgery with standalone XprESS under general anaesthetic</td><td>30 mins</td><td>4 hours</td></tr>
<tr><td>Surgery with standalone XprESS under local anaesthetic</td><td>20 mins</td><td>3 hours</td></tr>
</table>
</td></tr>
<tr><td>EAC summary</td><td>Three of the four experts carry out both FESS and balloon dilation. They were consistent in their responses regarding XprESS MSDS but one expert reported a considerably longer surgery time with FESS under GA. The third expert carries out FESS only and stated that his patients are particularly severe (question 11 - economic).</td></tr>
</table>

Question 6: Considering GP visits in the 3 months post-surgery:

a) Would you expect there to be any difference in the number of GP visits between patients treated with FESS and those treated with standalone XprESS where the patients had the same severity of illness prior to surgery?

b) Is post-surgery nasal bleeding a good indicator of increased likelihood of GP visits in the 3 months following surgery?

Expert Adviser	Comment
Mr Andrew Swift	a. No b. No
Mr Paul Chatrath	a. fewer visits for balloon dilatation would be expected b. yes, along with postoperative infection and pain
Dr Hesham Saleh	a. No b. Yes
Mr Carl Philpott	a. No b. No
EAC summary	*Three of four experts thought that there would be no difference in GP visits (up to 90 days) dependent on procedure type.* *Two of four experts thought that post-operative nasal bleeding was a good predictor of GP visits (up to 90 days) whilst the remaining two experts did not.*

Question 7: Considering GP visits 3 months to 5 years post-surgery:

a) Would you expect there to be any difference in the number of GP visits between patients treated with FESS and those treated with standalone XprESS where the patients had the same severity of illness prior to surgery?

b) Is the number of acute exasperations of rhinosinusitis a good indicator of increased likelihood of GP visits in 3 months – 5 years following surgery?

Expert Adviser	Comment
Mr Andrew Swift	a. not known – I would expect FESS to be more effective at disease control though and this should lead to fewer visits b. yes - this could be a useful marker
Mr Paul Chatrath	a. only if there is a difference in recurrence rate for sinusitis. I am not aware of any long term studies or data fort the XpreESS system (whereas data does exist for the competitor Acclarent balloon system which is now obsolete in the UK although which did show reduced incidence of sinusitis over 2 years compared with FESS alone) b.yes
Dr Hesham Saleh	a. No b. Yes
Mr Carl Philpott	a. In more severe cases there would be more visits with the balloon cases b. I trust you mean exacerbations – in which case – these events are likely to result in GP consultations
EAC summary	*The experts generally thought there was no data to support a difference in GP visits in the 3 months to 5 years post-surgery. One expert reported that more severe cases would have more visits with balloon surgery.* *All experts thought that acute exasperations of rhinosinusitis are a useful marker for GP visits.*

Question 8: Considering readmission to hospital in the 3 months post-surgery:

a) Would you expect there to be any difference in the number of readmissions between patients treated with FESS and those treated with standalone XprESS where the patients had the same severity of illness prior to surgery?

b) Is post-surgery nasal bleeding a good indicator of increased likelihood of readmission to hospital in the 3 months following surgery?

Expert Adviser	Comment
Mr Andrew Swift	a. readmissions within this timeframe rarely occur b. not really – readmission with bleeding following FESS is uncommon and would normally occur within 2-5 days of the surgery. I cannot recall anyone being admitted beyond this time frame.
Mr Paul Chatrath	a. I might expect a slight increase in admissions following FESS due to bleeding, although given that major postoperative haemorrhage is quite rare even with FESS, the additional number of admissions over and above balloon alone is likely to be quite small b. yes
Dr Hesham Saleh	a. No b. Yes
Mr Carl Philpott	a. No these are rare events b. No
EAC summary	*Experts thought that readmissions are rare and there is likely to be little difference between treatments,* *Two of four experts thought that post-surgery nasal bleeding is a good indicator of readmissions.*

Question 9: Considering revision surgery:

a) Would you expect there to be any difference in the risk of revision surgery between patients treated with FESS and those treated with standalone XprESS where the patients had the same severity of illness prior to surgery?

b) Is an increase in the rate of revision in the 12 months following surgery a good indication of an increase in the rate of revision surgery 1-5 years after surgery?

Expert Adviser	Comment
Mr Andrew Swift	a. I would anticipate that this would be higher for balloon dilatation. b. I find that very few patients meet the criteria for revision surgery within 12 months of FESS
Mr Paul Chatrath	a. please see response 7. This has yet to be determined as data is lacking for the XprESS system compared with FESS. b. not necessarily
Dr Hesham Saleh	a. No b. Yes
Mr Carl Philpott	a. Yes higher risk of revision with balloon cases (20% versus 3% in my practice) b. No
EAC summary	*The experts generally thought there was no data to support a difference in revision rate in the 3 months to 5 years post-surgery. Two experts thought rates would be higher for balloon dilation.* *Experts were divided as to whether an increase in revision rate at 12 months would be a good indicator of revision rates up to 5 years.*

Question 10: What brand of microdebrider blades and microdebrider bur do you use during FESS surgery?

Expert Adviser	Comment
Mr Andrew Swift	Medtronic.
Mr Paul Chatrath	Gyrus microdebrider system. I am aware of the Medtronic system but the hospitals where I work do not have it.
Dr Hesham Saleh	Medtronic
Mr Carl Philpott	Medtronic

EAC summary	*Three of four experts use Medtronic equipment with the fourth using the Gyrus system.*

Question 11: Will NHS resource use for GP visits, readmissions and surgical revision rates post a FESS procedure be similar now to the rates reported in a clinical audit for a six-month period in 2000? If not what might be the magnitude and direction of the differences?

Expert Adviser	Comment
Mr Andrew Swift	Very difficult to answer this as my own practice has attracted the difficult end of the spectrum. There is now evidence to support earlier operative intervention gives more effective disease control but because of NHS pressures, targets and competition for theatre time, there is a tendency to try and control the disease with medication for as long as possible.
Mr Paul Chatrath	I would expect resource use for readmissions and surgical revision rates not to have changed significantly. There may be a trend towards reduced revision rates following the RCS comparative sinonasal audit publication if clinicians are increasingly undertaking a comprehensive FESS surgery along with nasal polypectomy in patients with nasal polyps, but this is yet to be determined. Number of GP visits postoperatively is difficult to judge owing to a number of competing influences. Aside from the improved surgical technique and more use of minimally invasive balloon systems likely to lead to a reduced GP visit usage, there may be a competing influence from greater patient expectations and attendance at A&E instead of GP surgery.
Dr Hesham Saleh	Probably similar
Mr Carl Philpott	See my paper in BMJ Open last year on the burden of surgery – sadly across the UK not much has changed
EAC summary	*Data from the clinical audit is on the whole likely to be applicable.*

Question 12: Does revision FESS surgery require the same staffing compliment and have the same duration as the initial surgical procedure?

Expert Adviser	Comment
Mr Andrew Swift	Yes.
Mr Paul Chatrath	Same staff compliment required. Surgery on average takes longer than the primary case (although not always) and I would still expect discharge on the same day.

Dr Hesham Saleh	Requires an experienced surgeon. Duration varies from shorter - longer than standard FESS depending on the extent of revision
Mr Carl Philpott	Staff yes, duration – depends on the case
EAC summary	*Revision surgery on may be shorter or longer then original surgery and required the same staff.*

Question 13: What percentage of FESS procedures for chronic rhinosinusitis will be conducted by a consultant surgeon? What grade of staff will conduct the remainder?

Expert Adviser	Comment
Mr Andrew Swift	90%, but SpRs would certainly do part of the procedure in most cases, depending on level of competence, but supervision should be close.
Mr Paul Chatrath	The majority would be conducted by a consultant surgeon ether as primary surgeon or scrubbed as the assisting supervising operator alongside a specialist registrar or staff grade. It would be unlikely for other grades of surgeon to undertake FESS unsupervised by a consultant, except for the ever dwindling number of associate specialists
Dr Hesham Saleh	20-50% depending on hospital and severity of disease
Mr Carl Philpott	In my practice – I am always present, but it is common place in other trusts for staff grades and SpRs to do these cases unsupervised
EAC summary	*Two of four experts thought that the majority of FESS is carried out by a consultant surgeon. One expert reported that in some trusts staff grades and specialist registrars conduct FESS unsupervised*

Question 14: Will the ratio be similar for XprESS surgery?

Expert Adviser	Comment
Mr Andrew Swift	Yes.
Mr Paul Chatrath	Initially yes
Dr Hesham Saleh	No XprESS is easier but is equally used in less severe disease
Mr Carl Philpott	As per 13

EAC summary	*Two of three experts thought that the majority of balloon dilation is carried out by a consultant surgeon at least initially. One expert reported that they are always present but in other trusts staff grades and specialist registrars conduct surgery unsupervised*

Question 15: Are you aware of any business case reporting the costs of FESS and XprESS surgery? If so, please would you be able to share this (we would treat the document as 'Commercial in confidence')?

Expert Adviser	Comment
Mr Andrew Swift	No.
Mr Paul Chatrath	Not for XprESS system. The previous supplier Acclarent (no longer in the UK) prepared a business case in many NHS hospitals. Although I do not have a personal copy, I believe that the financial arguments were based primarily on the theatre time savings by undertaking balloon sinuplasty versus FESS, which would, in their view, offset the costs of the balloon.
Dr Hesham Saleh	Not aware
Mr Carl Philpott	We have a business case for image guide sinus surgery from 2010.
EAC summary	*Three of four experts reported that no business cases were available. One expert showed awareness of one business case which was sent to the EAC. However this contained no information that was used within the report.*

Supplementary economic question 1:
If a patient visited their GP post-surgery, would it be reasonable to assume that they would be prescribed the following:

1. A steriod nasal spray e.g. Fluticasone propionate
2. Macrolide - Azithromycin 500 mg once daily for 3 days (in tablet/capsule form)

Expert Adviser	Comment
Mr Andrew Swift	N/A
Mr Paul Chatrath	If they presented with a blocked nose due to rhinitis then a steroid nasal spray would be given. If they presented with a postop infection then antibiotics would be prescribed. Most GPs would not give azithromycin as a first line, instead probably using amoxicillin or doxycycline.

Supplementary economic question 1:
If a patient visited their GP post-surgery, would it be reasonable to assume that they would be prescribed the following:

Once a patient has undergone surgery (either with FESS or balloon dilation) where would they be located within the hospital for the few hours before they are discharged? Would they be in a general area akin to outpatients or a more sterile environment?

Expert Adviser	Comment
Mr Andrew Swift	Once a patient leaves the recovery ward in the theatre suite, they would be placed on a daycare ward or short stay ward for at least 2-3 hours before discharge.
Mr Paul Chatrath	If the FESS and/or balloon sinuplasty procedure is being performed under general anaesthetic, the patient would be located in a recovery area adjacent to theatres for a short period (up to 1hour), then moved to the day surgery unit or other ward within the hospital before being discharged, usually on the same day. If the patient were undergoing balloon sinuplasty under LA in the outpatient setting, they would remain in this area, most probably in a side room, until they were well enough to go home.

Additional question to Entellus Medical (23.03.2016)

1) In Section 7.2.2 of the submission (illustrated in Figure B7.1) it is reported that 3 studies were identified through other sources (than database searching). We have assumed that two of these studies were the unpublished FinESS registry (2011) [1] and pre-publication study by Soler et al. (2016) [2]. Could you clarify what the third study was?

2) There is some ambiguous text in the study by Gould et al. (2014) [3] that suggests XprESS patients from the balloon arm of the REMODEL were also recruited into the XprESS multi-sinus study. Can you clarify if this was the case, or otherwise can you confirm that *all* patients in *all* the included studies were unique?

3) The EAC identified an additional study by Brodner et al. (2013) [4] that focussed on the effect of septal deviation on balloon outcomes. However, we believe the patients recruited were probably the same as those in the XprESS registry [5]. Can you confirm this is the case?

4) In the follow up paper of the REMODEL study reported by Chandra et al. (2016) [6], the size of both arms had been increased compared with previous publications. Can you confirm the recruitment, randomisation, and analysis protocols were as previously described [7]? Can you provide any details on patient attrition in the extended cohort following randomisation?

References

1. NCT00849953. FinESS Registry Study. 2009.
2. NCT02278484. Sinus Balloon Dilation in Pediatric Patients. 2014.
3. Gould J, Alexander I, Tomkin E, Brodner D. In-office, multisinus balloon dilation: 1-Year outcomes from a prospective, multicenter, open label trial. Am J Rhinol Allergy. 2014 Mar-Apr;28(2):156-63.
4. Brodner D. Does Office-Based Balloon Dilation Effectively Treat Chronic Rhinosinusitis Patients with Mild to Moderate Septal Deviation? ENT Journal. 2013.
5. Brodner D, Nachlas N, Mock P, Truitt T, Armstrong M, Pasha R, et al. Safety and outcomes following hybrid balloon and balloon-only procedures using a multifunction, multisinus balloon dilation tool. Int Forum Allergy Rhinol. 2013 Aug;3(8):652-8.

6. Chandra RK, Kern RC, Cutler JL, Welch KC, Russell PT. REMODEL larger cohort with long-term outcomes and meta-analysis of standalone balloon dilation studies. Laryngoscope. 2016 Jan;126(1):44-50.
7. Cutler J, Bikhazi N, Light J, Truitt T, Schwartz M, Investigators RS. Standalone balloon dilation versus sinus surgery for chronic rhinosinusitis: a prospective, multicenter, randomized, controlled trial. Am J Rhinol Allergy. 2013 Sep-Oct;27(5):416-22.

September 8, 2015

Dear Valued Acclarent Customer,

We wish to thank you for choosing Acclarent products and services over the years. We are writing today to inform you that Acclarent has made the decision to end business operations, including sales and distribution of all Acclarent products, in the Asia Pacific market/Europe, Middle East and Africa market. We are working closely with each region to align on transition timing and expect the transition to be completed in most countries by the end of 2015.

We recognize the significant impact this may cause and apologize for any inconvenience you may encounter as part of this transition. We are committed to working with you and your staff to ensure as seamless a transition as possible to minimize disruption. Acclarent maintains the same level of commitment to product quality and patient safety. In case you experience a product complaint with any of the Acclarent devices, please contact: JJMUK_FA-SS@its.jnj.com

We want to thank you for your support of Acclarent and for entrusting us to deliver product solutions you utilize in the management of your patients. As this transition continues, you and your patients remain the highest priority, and we are committed to minimizing disruptions as much as possible.

Sincerely,

Robert Spomer, Business Unit Manager, Acclarent, Johnson & Johnson, UK & Ireland