

**EUnetHTA JA2 WP5 –STRAND B**  
**Public Consultation comments and author's replies on the Draft Project Plan on 'Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction'**



The draft Project Plan on 'Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction' was open to public consultation between 19/05/2014 and 06/06/2014.

The aim of the Project Plan is to provide an overview on the planned processes, the scope, the scientific methods and the time-schedule for compiling a Pilot Rapid Assessment on the technology mentioned above. The Pilot Rapid Assessment (partly or as a whole) will be translated into national/local reports by participating WP5 members.

**Comments were received from:**

<b>Institution</b>	<b>Name</b>	<b>Contact details</b>
Spiggle & Theis Medizintechnik GmbH	Susanne Ferfers	+49 (0) 2206 / 9081 - 53 s.ferfers@spiggle-theis.de
Acclarent, Inc., a part of the Johnson & Johnson family of companies	Michael McCormack	00-1-901-341-3841 mmccor@its.jnj.com
MLOZ Mutualités Libres Onafhankelijke Ziekenfondsen	Van Wilder Philippe	00 32 474 895 290 philippe.vanwilder@mloz.be

**EUnetHTA JA2 WP5 –STRAND B**  
**Public Consultation comments and author’s replies on the Draft Project Plan on ‘Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction’**



**Summarized comments and replies:**

Comment #	Page	Line number	Comment received from	Comment	Author’s reply
1	5	3.0: Population	M. McCormack	<p><b>“Target population: adolescents over 12 years and adults with otitis media with effusion (OME).”</b></p> <p>As stated above, Acclarent is currently enrolling patients in the ELLIOTT study to include subjects age 22 and older with ETD and who are refractory to medical therapy. This study will not include a pediatric patient population.</p>	<p>Thank you for this information. The authors did not find the ELLIOTT study protocol on clinicaltrials.gov.</p>
2	5	3.0: Population	M. McCormack	<p><b>ICD-10: H65.3 chronic mucoid otitis media, otitis media with effusion (OME)(H65.2), H68.1 obstruction of Eustachian tube</b></p> <p>We agree with the selection of ICD-10 codes H65.3 and H68.1 for the identification of patients with ETD. However, consideration should be given to the inclusion of the following additional codes:</p> <p>H65.2 Chronic serous otitis media  H65.4 Other chronic nonsuppurative otitis media  H65.9 Unspecified nonsuppurative otitis media  H69.9 Unspecified Eustachian tube disorder</p> <p>ETD is characterized by numerous symptoms, such as aural fullness or pressure, tinnitus, ear pain, a clogged or muffled sensation in the ear, recurrent or persistent middle ear effusion, a sensation of being “underwater”, and the inability to rapidly self-equilibrate middle ear pressure following changes in ambient atmospheric pressure. In addition, adult patients with ETD often present with conditions such as serous otitis media, chronic otitis media, hearing loss, otalgia, tympanic membrane retraction, or cholesteatoma formation.<sup>1,2,3</sup></p> <p><sup>1</sup> Ockermann T. <i>et al.</i> Balloon Dilation Eustachian Tuboplasty: A</p>	<p>According to clinical experts, the cause should be specified. However, we can accept a broad list of indications to the project plan. Therefore, the suggested additional codes have been included.</p>

**EUnetHTA JA2 WP5 –STRAND B**

**Public Consultation comments and author’s replies on the Draft Project Plan on ‘Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction’**



**eunetha**  
EUROPEAN NETWORK FOR HEALTH TECHNOLOGY ASSESSMENT

Comment #	Page	Line number	Comment received from	Comment	Author’s reply
				<p>Clinical Study. <i>Laryngoscope</i>. 2010 Jul; 120(7): 1411-1416.  <sup>2</sup> McCoul E <i>et al</i>. Evolution of Eustachian Tube Surgery. <i>Laryngoscope</i>. 2011 Mar; 121(3): 661-666.  <sup>3</sup> Caffier P <i>et al</i>. Impact of Laser Eustachian Tuboplasty on Middle Ear Ventilation, Hearing, and Tinnitus in Chronic Tube Dysfunction. <i>Ear Hear</i>. 2011 Feb; 32(1): 132–139.</p>	
3	6	3.0: Intervention	M. McCormack	<p><b>“Once the balloon is correctly positioned in the cartilaginous and bony position of the Eustachian tube, it is filled with saline up to a pressure of 10 bars. Pressure is maintained for approximately 2 minutes and then the liquid is aspirated and the catheter removed.”</b></p> <p>Attempts to directly address the ET surgically have spanned several centuries and have included a wide variety of interventions. While most surgery was previously directed to the bony isthmus, recently it has become evident that the cartilaginous portion of the ET is the most likely site of ETD pathology.<sup>2</sup></p> <p>Based on the identified clinical need, a review of current literature, and physician feedback, Acclarent has developed a Eustachian Tube Balloon Catheter (ETBC) that is specifically intended to dilate the ET for treatment of ETD. The ETBC is designed to facilitate access to the ET and dilation of the target location of the medial, cartilaginous portion of the ET. The balled catheter tip on the ETBC is designed to prevent advancement of the device into the isthmus, and there are endoscopic markers placed along the subject device to aid in positioning under direct endoscopic visualization.</p>	We have now included information about the Acclarent catheter, based on this description.
4	6	3.0: Intervention	M. McCormack	<p><b>“Once the balloon is correctly positioned in the cartilaginous and bony position of the Eustachian tube, it is filled with saline up to a pressure of 10 bars. Pressure is maintained for approximately 2 minutes and then the liquid is aspirated and</b></p>	OK, this has been corrected.

**EUnetHTA JA2 WP5 –STRAND B**

**Public Consultation comments and author’s replies on the Draft Project Plan on ‘Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction’**



**eunethta**  
EUROPEAN NETWORK FOR HEALTH TECHNOLOGY ASSESSMENT

Comment #	Page	Line number	Comment received from	Comment	Author’s reply
				<p><b>the catheter removed.”</b></p> <p>The procedure described by EUnetHTA above pertains to the Spiggle and Theis Bielefeld Balloon Catheter and does not necessarily represent ET dilation performed utilizing Acclarent’s ETBC in accordance with the Instructions for Use (IFU).</p>	
5	6	Table: intervention	S.Ferfers	not in the bony part, only in the cartilaginous part	“bony part” has been excluded.
6	6	3.0: Comparison	M. McCormack	<p>Currently, there are various options available to treat patients suffering from ETD, but none that is universally accepted. Medical therapies are usually prescribed as a first line treatment to treat the symptoms of ETD. Following failed medical management, the mainstay surgical treatment of ETD has been insertion of pressure equalizing ventilation tubes to aerate the middle ear; however, little effect can be seen on the ET itself and this treatment has been shown to be more effective in addressing the sequelae of ETD rather than the cause itself.</p> <p>EUnetHTA lists many of these options as potential comparators in its draft project plan; however, Norman <i>et al</i><sup>4</sup> also identified active observation, supportive care, auto-inflation, nasal douching/rinses, transtubal fluids and tuboplasty as potential interventions for ETD.</p> <p><sup>4</sup> Norman G, Llewellyn A et al. Systematic review of the limited evidence base for treatments of Eustachian tube dysfunction: a health technology assessment. Clin Otolaryngol 2014;39:6-21.</p>	<p>It can be argued whether ventilation tubes are a relevant comparison group. They are however mentioned in the literature as a common treatment and therefore used as comparison.</p> <p>We included nasal douching and transtubal fluids since they can be considered as medications. Active observation, supportive care or tuboplasty are not included since in that case a third comparison group would be needed.</p>
7	6	Table: outcomes	S.Ferfers	Sono tubo manometria: wording more common: TMM = Tubomanometry (Estève, Ars)	This has been corrected according to the suggestion.
8	6	3.0: Outcomes	M. McCormack	EUnetHTA lists the primary outcome measurement for the draft project plan to be relief of ear symptoms as measured by	The primary outcome has been changed to: normalization of

**EUnetHTA JA2 WP5 –STRAND B**

**Public Consultation comments and author’s replies on the Draft Project Plan on ‘Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction’**



**eunethta**  
EUROPEAN NETWORK FOR HEALTH TECHNOLOGY ASSESSMENT

Comment #	Page	Line number	Comment received from	Comment	Author’s reply
				<p>tympanometry. Tympanometry does not measure ear symptoms. Instead, tympanometry testing is utilized as an objective measurement to assess the presence of middle ear fluid, pressure within the middle ear space, and mobility of the eardrum. Tympanometry has been identified as a reliable method of assessment for patients with intact tympanic membranes and it is commonly employed as a diagnostic tool for ETD.<sup>5</sup></p> <p>Acclarent’s ELLIOTT study will determine success of meeting the primary efficacy endpoint by comparison of the proportion of subjects experiencing normalization of tympanometry (defined as Type A) post-treatment in the investigational arm versus the proportion of subjects experiencing normalization of tympanometry post-randomization in the control arm.</p> <p><sup>5</sup> Bluestone C. <i>Eustachian Tube Structure, Function, and Role in Otitis Media</i>. Vol 2: PMPH-USA; 2005.</p>	<p>tympanometry.</p> <p>Is the protocol available in clinicaltrials.gov? We did not find it.</p>
9	7	4.0	P. Van Wilder	selection of study by PICO; maybe be more precise as the population is expected to expand and the previous trials with control groups may have different populations	According to the preliminary literature search, the literature for this assessment will be quite limited.
10	7,8	4.0 / tasks	P. Van Wilder	tasks are complementary between 1 <sup>st</sup> and co-author; would it be sound for critical issues (e.g. meta-analysis of studies, MTC, ...) to do the tasks in parallel, as quality control?	This is a good suggestion. Comments from both authors and co-authors will increase communication and quality, especially in case of critical issues.
11	17	C. References	M. McCormack	<p>For EUnetHTA’s review, a list of key references related to balloon Eustachian tuboplasty is provided below.</p> <p>(1) Adil E, Poe D. What is the full range of medical and surgical treatments available for patients with Eustachian tube dysfunction? <i>Curr Opin Otolaryngol Head Neck Surg</i> 2014 Feb;22(1):8-15.</p>	Thank you. We will consider this list carefully once the systematic literature search is done and complete it with relevant studies, if needed.

**EUnethTA JA2 WP5 –STRAND B**

**Public Consultation comments and author’s replies on the Draft Project Plan on ‘Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction’**



**eunethta**  
EUROPEAN NETWORK FOR HEALTH TECHNOLOGY ASSESSMENT

Comment #	Page	Line number	Comment received from	Comment	Author’s reply
				<p>(2) Bluestone CD. Eustachian Tube Structure, Function, and Role in Otitis Media. BC Decker; 2005.</p> <p>(3) Businco LD, Laurino S, Cipriani O, et al. Balloon dilation tuboplasty and tubal ostium shrinkage in the treatment of eustachian tube dysfunction. <i>Int Adv Otol</i> 2012;8(2):354-9.</p> <p>(4) Caffier PP, Sedlmaier B, Haupt H, et al. Impact of laser eustachian tuboplasty on middle ear ventilation, hearing, and tinnitus in chronic tube dysfunction. <i>Ear Hear</i> 2011 Feb;32(1):132-9.</p> <p>(5) Catalano PJ, Jonnalagadda S, Yu VM. Balloon catheter dilatation of Eustachian tube: a preliminary study. <i>Otol Neurotol</i> 2012 Dec;33(9):1549-52.</p> <p>(6) Dalchow C, Jowett N, Kappo N, A B. First clinical results of the dilatation of the Eustachian tube in patients with tubal dysfunction [abstract]. <i>Otolaryngol Head Neck Surg.</i> 2013;149:P99.</p> <p>(7) Doyle WJ, Swarts JD, Banks J, et al. Sensitivity and specificity of eustachian tube function tests in adults. <i>JAMA Otolaryngol Head Neck Surg</i> 2013 Jul;139(7):719-27.</p> <p>(8) Handzel O, Poe D, Marchbanks RJ. Synchronous endoscopy and sonotubometry of the eustachian tube: a pilot study. <i>Otol Neurotol</i> 2012 Feb;33(2):184-91.</p> <p>(9) Ho AC, Chan JY, Ng RW, et al. Stenting of the eustachian tube to prevent otitis media with effusion after maxillary swing approach nasopharyngectomy. <i>Laryngoscope</i> 2014 Jan;124(1):139-44.</p> <p>(10) Jurkiewicz D, Bien D, Szczygielski K, et al. Clinical evaluation of balloon dilation Eustachian tuboplasty in the Eustachian tube</p>	

**EUnethTA JA2 WP5 –STRAND B**

**Public Consultation comments and author’s replies on the Draft Project Plan on ‘Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction’**



**eunethta**  
EUROPEAN NETWORK FOR HEALTH TECHNOLOGY ASSESSMENT

Comment #	Page	Line number	Comment received from	Comment	Author’s reply
				<p>dysfunction. Eur Arch Otorhinolaryngol 2013 Mar;270(3):1157-60.</p> <p>(11) Kepchar J, Acevedo J, Schroeder J, et al. Transtympanic balloon dilatation of eustachian tube: a human cadaver pilot study. J Laryngol Otol 2012 Nov;126(11):1102-7.</p> <p>(12) Kujawski OB, Poe DS. Laser eustachian tuboplasty. Otol Neurotol 2004 Jan;25(1):1-8.</p> <p>(13) Lukens A, Dimartino E, Gunther RW, et al. Functional MR imaging of the eustachian tube in patients with clinically proven dysfunction: correlation with lesions detected on MR images. Eur Radiol 2012 Mar;22(3):533-8.</p> <p>(14) McCoul ED, Lucente FE, Anand VK. Evolution of Eustachian tube surgery. Laryngoscope 2011 Mar;121(3):661-6.</p> <p>(15) McCoul ED, Singh A, Anand VK, et al. Balloon dilation of the eustachian tube in a cadaver model: technical considerations, learning curve, and potential barriers. Laryngoscope 2012 Apr;122(4):718-23.</p> <p>(16) McCoul ED, Anand VK, Christos PJ. Validating the clinical assessment of eustachian tube dysfunction: The Eustachian Tube Dysfunction Questionnaire (ETDQ-7). Laryngoscope 2012 May;122(5):1137-41.</p> <p>(17) McCoul ED, Anand VK. Eustachian tube balloon dilation surgery. Int Forum Allergy Rhinol 2012 May;2(3):191-8.</p> <p>(18) Metson R, Pletcher SD, Poe DS. Microdebrider eustachian tuboplasty: A preliminary report. Otolaryngol Head Neck Surg 2007 Mar;136(3):422-7.</p> <p>(19) Miller BJ, Elhassan HA. Balloon dilatation of the Eustachian tube: an evidence based review of case series for those</p>	

**EUnethTA JA2 WP5 –STRAND B**  
**Public Consultation comments and author's replies on the Draft Project Plan on 'Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction'**



Comment #	Page	Line number	Comment received from	Comment	Author's reply
				<p>considering its use. Clin Otolaryngol 2013 Nov 5.</p> <p>(20) Norman G, Llewellyn A, Harden M, et al. Systematic review of the limited evidence base for treatments of Eustachian tube dysfunction: a health technology assessment. Clin Otolaryngol 2014 Feb;39(1):6-21.</p> <p>(21) Ockermann T, Reineke U, Upile T, et al. Balloon dilation eustachian tuboplasty: a feasibility study. Otol Neurotol 2010 Sep;31(7):1100-3.</p> <p>(22) Ockermann T, Reineke U, Upile T, et al. Balloon dilatation eustachian tuboplasty: a clinical study. Laryngoscope 2010 Jul;120(7):1411-6.</p> <p>(23) Park JJ, Luedeke I, Luecke K, et al. Eustachian tube function in patients with inner ear disorders. Eur Arch Otorhinolaryngol 2013 May;270(5):1615-21.</p> <p>(24) Poe DS, Metson RB, Kujawski O. Laser eustachian tuboplasty: a preliminary report. Laryngoscope 2003 Apr;113(4):583-91.</p> <p>(25) Poe DS, Grimmer JF, Metson R. Laser eustachian tuboplasty: two-year results. Laryngoscope 2007 Feb;117(2):231-7.</p> <p>(26) Poe DS, Hanna BM. Balloon dilation of the cartilaginous portion of the eustachian tube: initial safety and feasibility analysis in a cadaver model. Am J Otolaryngol 2011 Mar;32(2):115-23.</p> <p>(27) Poe DS, Silvola J, Pyykko I. Balloon dilation of the cartilaginous eustachian tube. Otolaryngol Head Neck Surg 2011 Apr;144(4):563-9.</p> <p>(28) Robes C, Tillett JS. FPIN's clinical inquiries. Pharmacologic therapy for eustachian tube dysfunction. Am Fam Physician 2013 Jun 15;87(12):883-8.</p> <p>(29) Schroder S, Reineke U, Lehmann M, et al. [Chronic obstructive</p>	

**EUnethTA JA2 WP5 –STRAND B**

**Public Consultation comments and author’s replies on the Draft Project Plan on ‘Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction’**



Comment #	Page	Line number	Comment received from	Comment	Author’s reply
				<p>eustachian tube dysfunction in adults: long-term results of balloon eustachian tuboplasty]. HNO 2013 Feb;61(2):142-51.</p> <p>(30) Seibert JW, Danner CJ. Eustachian tube function and the middle ear. Otolaryngol Clin North Am 2006 Dec;39(6):1221-35.</p> <p>(31) Silvola J, Kivekas I, Poe DS. Balloon Dilation of the Cartilaginous Portion of the Eustachian Tube. Otolaryngol Head Neck Surg 2014 Apr 4.</p> <p>(32) Sproat R, Burgess C, Lancaster T, et al. Eustachian tube dysfunction in adults. BMJ 2014;348:g1647.</p> <p>(33) Sudhoff H, Schroder S, Reineke U, et al. [Therapy of chronic obstructive eustachian tube dysfunction: evolution of applied therapies]. HNO 2013 Jun;61(6):477-82.</p> <p>(34) Swartz JD, Alper CM, Mandel EM, et al. Eustachian tube function in adults without middle ear disease. Ann Otol Rhinol Laryngol 2011 Apr;120(4):220-5.</p> <p>(35) Swartz JD, Alper CM, Luntz M, et al. Panel 2: Eustachian tube, middle ear, and mastoid--anatomy, physiology, pathophysiology, and pathogenesis. Otolaryngol Head Neck Surg 2013 Apr;148(4 Suppl):E26-E36.</p> <p>(36) Swartz JD, Teixeira MS, Banks J, et al. A method to assess the accuracy of sonotubometry for detecting Eustachian tube openings. Eur Arch Otorhinolaryngol 2014 Apr 8.</p> <p>(37) Tisch M, Maier S, Maier H. [Eustachian tube dilation using the Bielefeld balloon catheter: clinical experience with 320 interventions]. HNO 2013 Jun;61(6):483-7.</p> <p>(38) Tiwari R, Sharma RK, Panda NK, et al. Tensor tenopexy: a clinical study to assess its effectiveness in improving Eustachian tube function and preventing hearing loss in patients</p>	

**EUnetHTA JA2 WP5 –STRAND B**

**Public Consultation comments and author’s replies on the Draft Project Plan on ‘Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction’**



**eunethta**  
EUROPEAN NETWORK FOR HEALTH TECHNOLOGY ASSESSMENT

Comment #	Page	Line number	Comment received from	Comment	Author’s reply
				<p>with cleft palate. J Plast Reconstr Aesthet Surg 2013 Sep;66(9):e239-e245.</p> <p>(39) van Heerbeek N, Ingels KJ, Rijkers GT, et al. Therapeutic improvement of Eustachian tube function: a review. Clin Otolaryngol Allied Sci 2002 Feb;27(1):50-6.</p> <p>(40)Wanscher J, Svane-Knudsen V. Promising results after balloon dilatation of the Eustachian tube for obstructive dysfunction. Dan Med J 2014;64(4):A4818.</p>	
12	general		S.Ferfers	We have a new patient website: <a href="http://www.druck-auf-dem-ohr.de">www.druck-auf-dem-ohr.de</a> (planned to be in English soon)	Ok
13	general		S.Ferfers	Please don’t use an ® related to our catheter, the name is not registered as a trademark - we will probably have to change the name.	Ok, this has been removed from table 2.
14	general		S.Ferfers	There is literature on tubomanometry at these links: <a href="http://www.spiggle-theis.com/pdf/E_Ars_Tubenmanometry.pdf">http://www.spiggle-theis.com/pdf/E_Ars_Tubenmanometry.pdf</a> <a href="http://www.spiggle-theis.com/pdf/E_Esteve_Tubenmanometry.pdf">http://www.spiggle-theis.com/pdf/E_Esteve_Tubenmanometry.pdf</a>	OK, thank you for the information.
15	General		M. McCormack	<p>Acclarent appreciates the opportunity to comment on the draft Project Plan for “Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction.” However, given that CE Marking for its related technology was recently received on May 8, 2014 and the fact that there is currently only one other known technology available, Acclarent believes this assessment of balloon Eustachian tuboplasty may be premature as the existing body of clinical and economic evidence is still very much in the infancy stages.</p> <p>Acclarent began enrolling patients in the study “A Randomized Clinical Study Of Safety And Efficacy For The Eustachian Tube Balloon Catheter” (ELLIOTT) in March 2014. This study aims to enroll approximately 150-250 adult patients with Eustachian tube dysfunction at 17 centers throughout the United States.</p>	<p>This is a common problem with new technologies; RTCs and larger trials are lacking. However, as the technology is used in clinical practice, an assessment is relevant at this stage.</p> <p>Once more research data becomes available, this assessment can be updated.</p>
16	Gener		M.	Eustachian tube dysfunction (ETD) has been classified into 2	This clarification has been included to

**EUnetHTA JA2 WP5 –STRAND B**

**Public Consultation comments and author’s replies on the Draft Project Plan on ‘Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction’**



**eunetha**  
EUROPEAN NETWORK FOR HEALTH TECHNOLOGY ASSESSMENT

Comment #	Page	Line number	Comment received from	Comment	Author’s reply
	al		McCormack	<p>etiologic categories. Failure of the ET to open is referred to as "obstructive (non-patulous) or dilatory dysfunction" and failure to close is known as "patulous dysfunction". EUnetHTA may want to distinguish that its review is focused on obstructive dysfunction of the Eustachian tube.</p> <p>In treating ETD, obstructive dysfunction should be differentiated from patulous dysfunction during the clinical evaluation. Obstructive dysfunction is best differentiated by accompanying symptoms of hearing loss and abnormalities of the tympanic membrane such as retraction or middle ear effusion. Patulous dysfunction should be suspected when the primary complaint is autophony (hearing one’s own voice and breathing sounds), yet there is no complaint of hearing loss and the tympanic membrane appears normal.</p>	table 3 and table 4a (as exclusion).
17	General		M. McCormack	<p>As stated earlier in this document, Acclarent’s ELLIOTT study is currently enrolling patients to satisfy requests of the U.S. Food and Drug Administration. We also want to bring to EUnetHTA’s attention two other Eustachian tube studies underway that are listed on ClinicalTrials.gov.</p> <ul style="list-style-type: none"> <li>(1) Balloon Dilation in Selected Subjects with Refractory Eustachian Tube Dysfunction. NCT02114762, Sponsor: University of Pittsburgh.</li> <li>(2) Long Term Evaluation of Tubal Expansion on Obstructive Dysfunctions of Eustachian Tube. NCT02123277, Sponsor: University Hospital, Montpellier, France.</li> </ul>	Ok