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Horizon scanning prioritising summary

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Enteryx™: For the treatment of gastro-oesophageal reflux disease.

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PRIORITISING SUMMARY

REGISTER ID: **000127**

NAME OF TECHNOLOGY: **ENTERYX™**

PURPOSE AND TARGET GROUP: **TREATMENT OF GASTRO-OESOPHAGEAL REFLUX DISEASE**

STAGE OF DEVELOPMENT (IN AUSTRALIA):

☐	Yet to emerge	☐	Established
☐	Experimental	☐	Established *but* changed indication or modification of technique
☐	Investigational	☐	Should be taken out of use
☒	Nearly established		

AUSTRALIAN THERAPEUTIC GOODS ADMINISTRATION APPROVAL

☒	Yes	ARTG number	79680
☐	No	☐	Not applicable

INTERNATIONAL UTILISATION:

COUNTRY	LEVEL OF USE		
	Trials Underway or Completed	Limited Use	Widely Diffused
United States	✓		
Canada	✓		
Belgium	✓		
Italy	✓		

IMPACT SUMMARY:

Boston Scientific provides Enteryx™ with the aim of treating Gastro-oesophageal Reflux Disease. The Enteryx™ is listed by the Australian Therapeutics Goods Administration and has been available in Australia since August 2001. Enteryx™ received European approval in May of 2000 and American FDA approval in 2003.

BACKGROUND

The Enteryx™ device consists of a polymer (ethylene vinyl alcohol copolymer) and a solvent (dimethyl sulfoxide) that is permanently implanted into the wall of the lower oesophagus of patients who suffer from gastro-oesophageal reflux disease (GERD). The aim of the device is to prevent acid reflux up into the oesophagus, strengthening the lower oesophageal sphincter muscle that separates the lower part of the oesophagus from the stomach at the gastro-oesophageal junction.

The liquid polymer is injected into the lower oesophageal sphincter muscle where it solidifies into a sponge-like permanent implant (Figure 1). The Enteryx™ implantation is performed as an outpatient procedure using standard gastrointestinal endoscopy (Louis and Deviere, 2003). The procedure takes approximately 35 minutes. As the procedure is relatively new in Australia, most patients are hospitalised for one night as a precautionary measure (personal communication, Boston Scientific)

Figure 1 The Enteryx™ kit: 1. Solution, 2 primer, 3. catheter (Printed with permission, Boston Scientific, 2004)

CLINICAL NEED AND BURDEN OF DISEASE

Gastro-oesophageal reflux disease (GERD) is caused by failure of the sphincter muscle at the lower end of the oesophagus. Several factors alone or in combination can lead to the development of GERD such as impaired oesophageal clearance, hiatal hernia and delayed gastric emptying. Symptoms of GERD can be broadly grouped into those directly related to reflux episodes such as heartburn and regurgitation, and those symptoms caused by complications of reflux disease including respiratory symptoms, dysphagia and painful swallowing (odynophagia).

Gastro-oesophageal reflux disease (GERD) is a frequent and common reason for patient visits to general practitioners. Data from the United States and the United Kingdom suggest that heartburn and acid regurgitation may occur weekly in up to 20% of the population and monthly in up to 40%. Similar rates have been observed in Australia and New Zealand (Tally 2002).

The prevalence of diagnosed GERD in a sample general practice population of 3018 respondents from 102 GPs in 2001-02 was estimated to be 20% (AIHW GP Statistics and Classification Unit, 2002). The prevalence of GERD increased significantly with age (34% of 65+ age group, 3% in 25 years or less) and 80% of diagnosed patients were taking medication.

In 2002-03 there were a total of 35,545 hospital separations for item numbers K21.0 (Gastro-oesophageal reflux disease with oesophagitis) and 22,822 separations for K21.9 (Gastro-oesophageal reflux disease without oesophagitis) (AIHW 2004).

DIFFUSION

Enteryx™ is currently available on a private basis in Australia and to date, twelve Australian gastroenterologists have been trained to use the Enteryx™ system. Approximately 28 procedures have so far been performed (personal communication Boston Scientific).

COMPARATORS

Patients who fail to respond to lifestyle/dietary modifications are often treated with acid suppressive medications, typically classified into three broad categories: antacids, H2 Receptor Antagonists (H 2RA) and Proton Pump Inhibitors (PPIs).

For patients with severe symptoms or oesophagitis, intensive pharmacologic therapy or anti-reflux surgery may be needed. For most patients pharmacological therapy will be the mainstay of treatment.

Two other injection/implant alternatives exist for the treatment of GERD, polyacrylonitrile-based hydrogel and polymethylmethacrylate microspheres (DiBaise, 2003).

EFFECTIVENESS AND SAFETY ISSUES

A multicentre, prospective study (level IV evidence) evaluated the safety and effectiveness of the Enteryx™ device implanted in 85 patients, aged an average of 49.6 years (Johnson et al, 2003). Of these patients, 81 (95.3%) completed 6 months of follow-up and 77 (90.6%) completed one year of follow-up. The primary endpoint was medication (PPI) usage and the incidence of adverse events. Patients were classified as treatment responders if PPI use after implantation was ≤50% of PPI use at baseline.

At baseline, 62% of subjects were taking standard doses of PPI, 30% were on higher and 7% on lower than standard daily doses. In addition, 7% of patients were taking supplemental H2RAs and 14% supplemental over-the-counter antacids (FDA, 2004).

This study reported that after 12 months of follow-up, 76.5% (65/85) of patients had reduced their PPI dose requirement by ≥ 50% when compared to baseline, 67.1% (57/85) had ceased PPI use entirely, and 56.5% (48/85) were not taking any anti-secretory medications (including over-the counter antacids, H2RAs, or PPIs). Of the 65 subjects who were able to eliminate or reduce their PPI use by ≥ 50% at 12 months, 26% *(*17/65*)* were taking over-the-counter antacids or H2RAs on at least an as-needed basis at that time (FDA 2004).

The manufacturer recently completed a two-year follow-up study with the same patient group and reported 69% of patients had ceased PPI use at two years (unpublished, personal communication, Boston Scientific).

A total of 299 adverse events were reported during follow-up, 122 (40.8%) of which were considered to be device-related or potentially device-related, 29 procedure-related, and 148 unrelated to either the device or procedure. Seventy-eight (92%) of the enrolled 85 patients experienced at least one device-related adverse event. The study rated adverse events as mild (52%), moderate (44%) and severe (4%).

Device-related adverse events included retrosternal chest pain (92%), transient dysphagia (20%), fever (12%), belching/burping (7%), bloating/flatulence (6%), body odour or bad taste (5%), rib pain (1%), and flu syndrome (1%). All adverse events were resolved without sequelae. Seventy-five and 100 per cent of patients reported resolution of pain by 14 days and three months, respectively. No mortality was recorded.

There are currently further investigations in progress to compare Enteryx™ implantation with a sham treatment and to evaluate cost-effectiveness compared with surgical and pharmacologic alternatives (Johnson et al, 2003).

COST IMPACT

There is no cost-effectiveness data available for the Enteryx™ implant (Johnson et al 2003). Drugs for GERD contribute more to the cost of the Pharmaceutical Benefits Schedule than almost any other group of drugs (National Prescribing Service Limited 2004). The prescribing costs of this group, which consists predominantly of the proton pump inhibitors (PPIs), is rising. They cost $534 million in 2003, an increase of 14% over the previous year.

It is likely that there would significant savings if the Enteryx™ was found to be a safe and effective alternative to long-term medication usage to manage GERD. A person taking a high dose of PPI would typically require two prescriptions per month, with an average cost $56.00.

However, at this point in time there is no such long-term effectiveness data available from controlled trials of the Enteryx™ implant. The current available data for treatment with Enteryx™ shows that not all medication usage is eliminated. It is premature to determine whether a reduction in medication usage outweighs the cost of the Enteryx™ implant procedure. The cost of purchasing Enteryx™ is $4000.00 AUD.

ETHICAL, CULTURAL OR RELIGIOUS CONSIDERATIONS

No issues were identified/raised in the sources examined.

CONCLUSION:

There is limited, low quality (level IV evidence) information available regarding the safety and effectiveness of Enteryx™ in treating GERD in the long-term. However, the prevalence of GERD in Australia and the cost of treating it is high.

HEALTHPACT ACTION:

In light of the evidence and the ongoing controlled investigations of the Enteryx™ implant, it is recommended that a full HTA be conducted.

SOURCES OF FURTHER INFORMATION:

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Wiersema, M. J. (2003). 'Re: Johnson et al. endoscopic, deep mural implantation of enteryx for the treatment of GERD: 6-month follow-up of a multicenter trial', *Am J Gastroenterol,* 98 (8), 1892; author reply 1893-1894.

SEARCH CRITERIA TO BE USED:

Digestive System/ methods
Endoscopy,
Follow-Up Studies
Gastroesophageal Reflux/ drug therapy
Gastroesophageal Reflux/ therapy