Boston Scientific
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Economic Evidence
Closure Technologies Economic Impact

Advanced Endoscopic Techniques

Minimally invasive surgical approaches benefit patients and healthcare systems by **reducing procedural costs** in comparison to conventional surgery.[1]

Endoscopic Closure of Gastrointestinal Defects

The most **common complications** during and after gastrointestinal procedures include:[2]

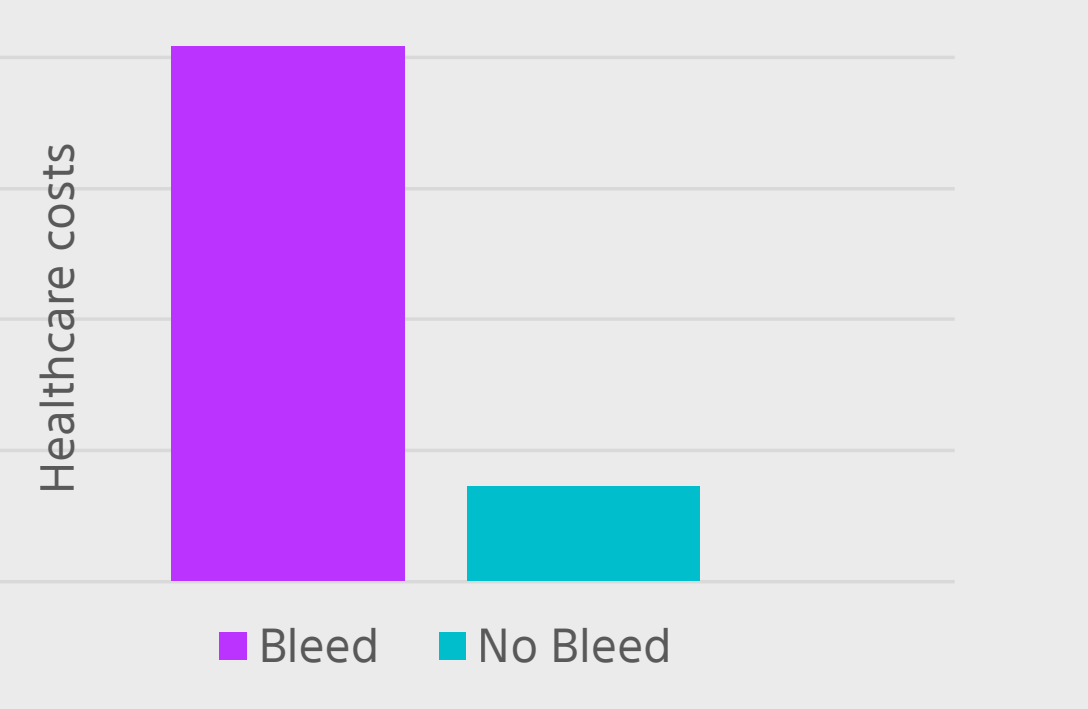
- **Bleeding**
- **Perforations**

Prophylactic Clip Closure of Defects

Failed Haemostasis

Patients with upper gastrointestinal (UGI) bleeds experienced significantly higher 12-month health-resource utilisation and costs.[3]

Long-term economic burden associated with UGI bleeds[3]



Complications often require **re-intervention**

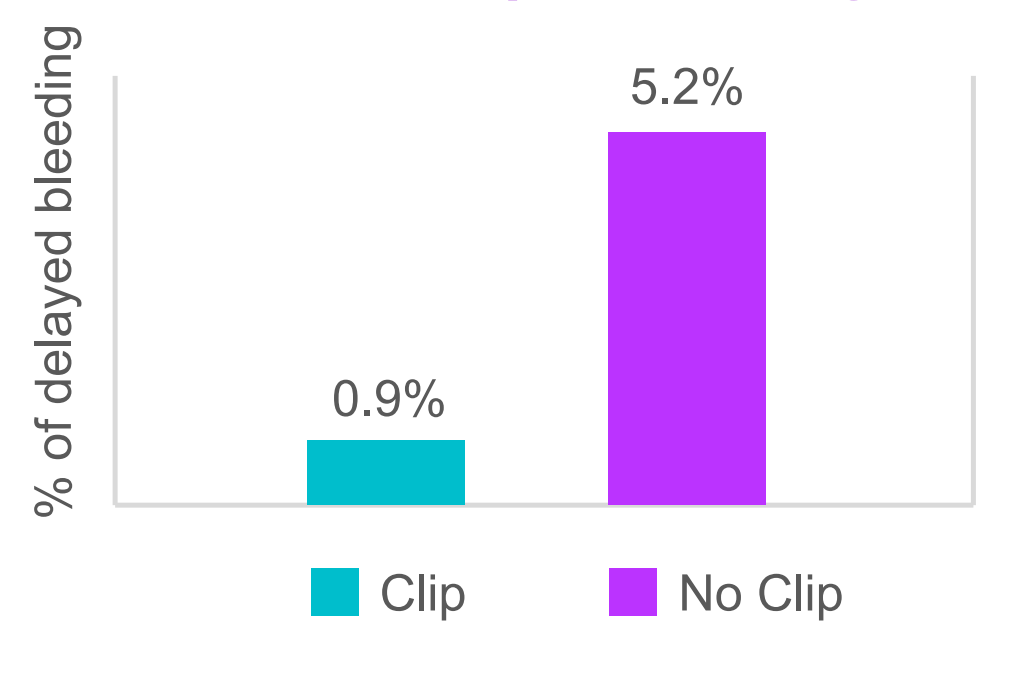
Mortality is less if re-interventions are avoided.

Several randomised trials have underlined how **prophylactic clip closure of defects** reduces the risk of complications – potentially resulting in cost savings by avoiding re-interventions and re-hospitalisations.[4,5,6]

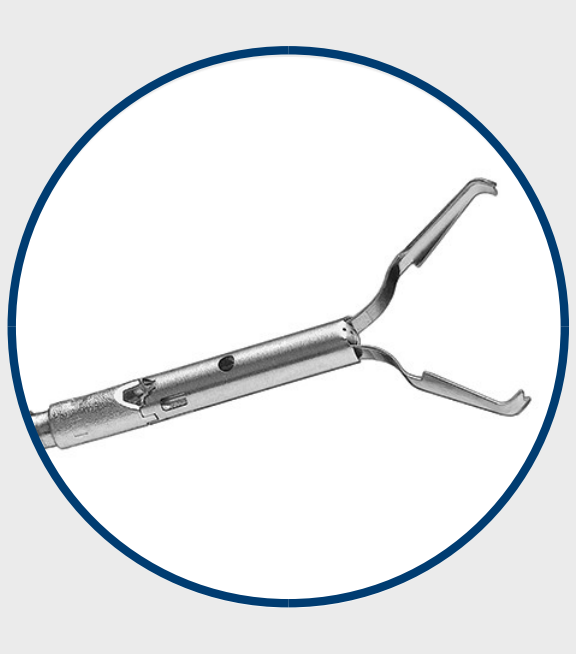
A **meta-analysis** has demonstrated that prophylactic defect closure reduces the risk of complications.[7]

The **beneficial effect of clip closure** is evident in proximal colon lesions or in patients with a high risk of bleeding.[4,6]

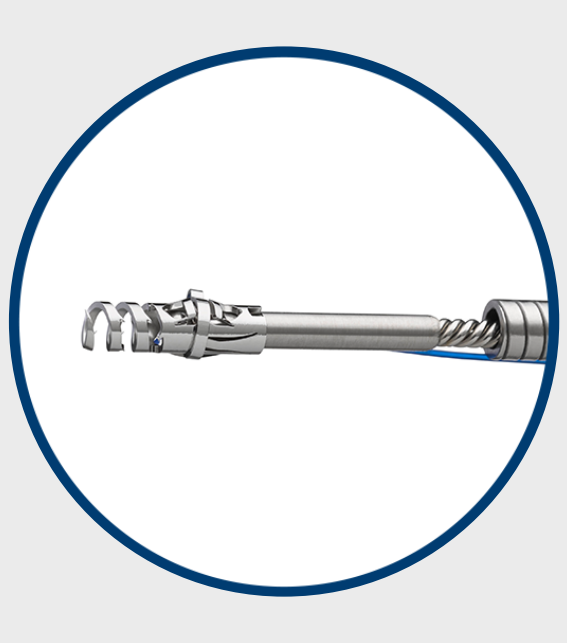
Risk of delayed bleeding[7]



Complications can be **prevented** with **closure technologies**:[6,8,9,10,11]


Resolution™ Clip

MANTIS™ Clip


X-Tack™
Endoscopic HeliX Tacking System

OverStitch™
Endoscopic Suturing System

Select the right closure device for each defect considering its:

- **Location**
- **Size**
- **Shape**

MANTIS™ Clip

Anchor, Mobilise and Close Approach.

MANTIS™ has the potential to require **fewer devices** to achieve **large defect closure.**[12]

Reducing closure time can lead to potential **cost savings.**[13]

X-Tack™ Endoscopic HeliX Tacking System

Enables closure of **variously sized and irregularly shaped defects.**

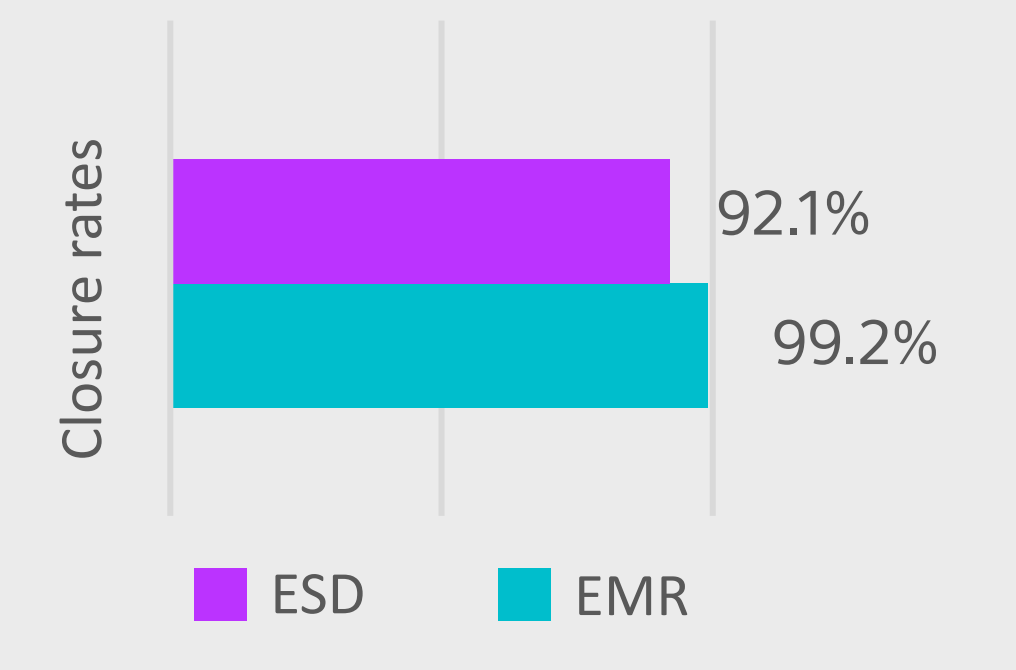
X-Tack™ addresses a significant unmet clinical need.

In a multicentre study, closure could not have been achieved in 24.7% of patients with an alternative device to X-Tack™ due to the defect's location, size, or shape.[14]

X-Tack™ may be used in cases **where other closure devices fail**, highlighting the importance of this new through the scope (TTS) suturing device in the armamentarium of endoscopic tools for defect closure.[15]

Complete defect closure rates were much higher than clips, reaching **99.2%** and **92.1%** for endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) defects, respectively.[8]

Defect closure rates[8]



This could potentially **reduce the risk of complications** and the associated diagnostic and management costs, thereby **lowering the economic burden.**[8]

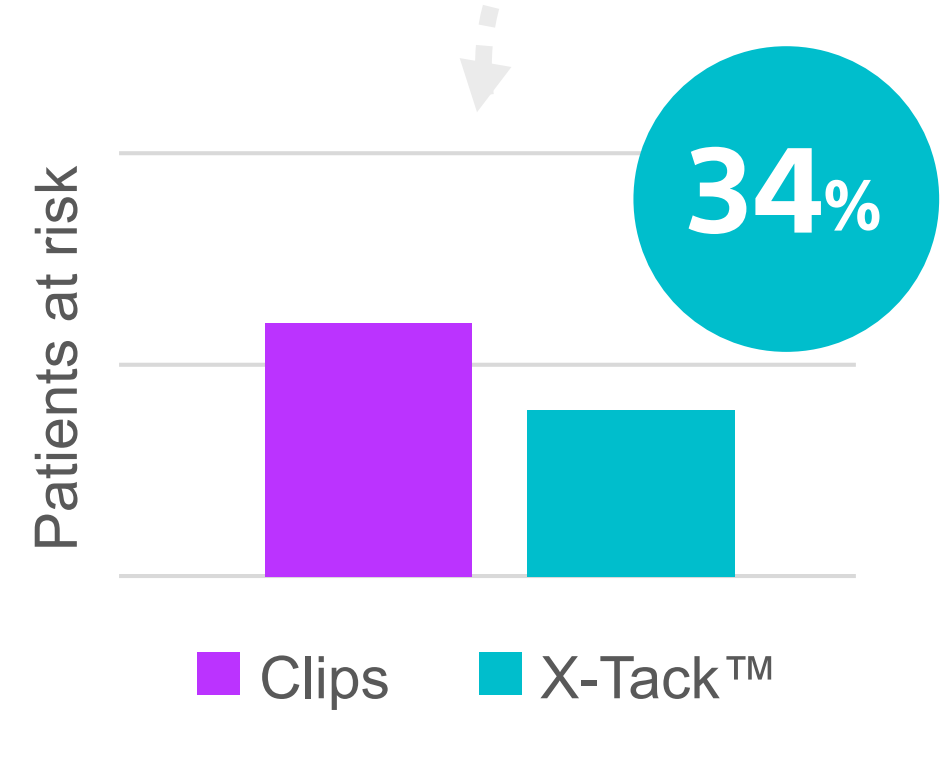
100 patients

treated with clips vs X-Tack™

No serious adverse events or procedure-related deaths.[14]

Lowering adverse event management costs

thereby delivering **economic savings.**[14]



34% reduction in **delayed bleeding.**

Potential **economic savings** for healthcare systems.

The **reduction in procedure time** and the **enhanced ease of closure** provided by X-Tack™ could result in potential cost savings.[15]

1

Most patients achieve complete closure with a **single X-Tack™** **reducing the number of clips** used regardless of defect size.[14]

OverStitch™ Endoscopic Suturing System

OverStitch™ has a **favourable safety profile**, lowering the costs associated with managing complications and **offering potential savings.**[9]

Provides fast resolution of symptoms

allowing patients to potentially be **discharged** on the **same day** of the procedure.[16]

Prospective Multicentre European Registry

OverStitch™ achieved a closure rate of

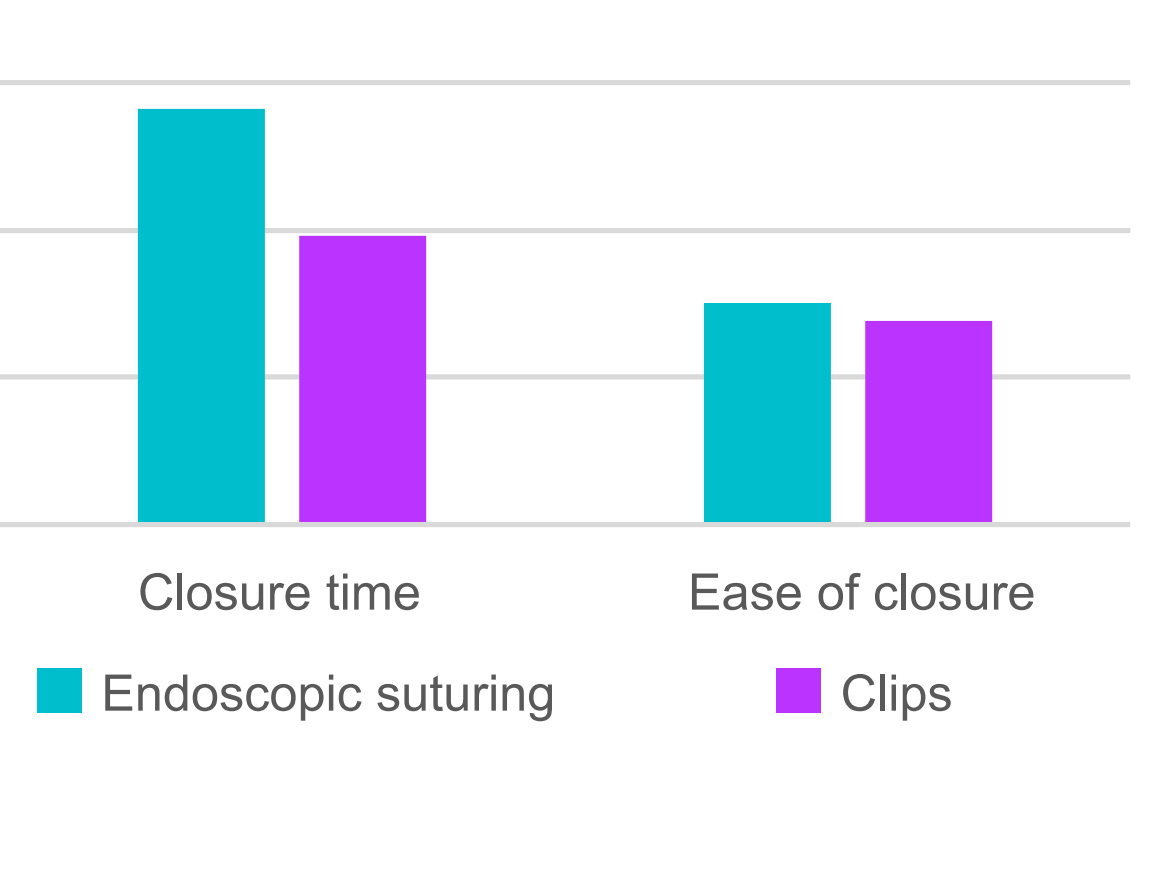
100%

for mucosal defects.[9]

OverStitch™ can **avoid the need for re-interventions.**

In certain post-surgical gastrointestinal wall defects, OverStitch™ has been shown to **eliminate the need for more complex and costly surgical procedures.**[17]

Comparing the efficacy of two closure methods: clips and endoscopic suturing[18]



In a prospective single centre study the **ease of closure** with both procedures was assessed as **comparable** by the endoscopist.[18]

Closure technologies

provide benefits for both **patients** and **healthcare systems.**

References: **1.**Loras C, Mayor V, Fernández-Bañares F, et al. Study of the standard direct costs of various techniques of advanced endoscopy. Comparison with surgical alternatives. Dig Liver Dis. 2018 Jul;50(7):689-697. **2.** Ferlitsch M, Moss A, Hassan C, et al. Colorectal polypectomy and endoscopic mucosal resection (EMR): European Society of Gastrointestinal Endoscopy (ESGE) Clinical Guideline. Endoscopy. 2017;49(3):270-297. **3.**Cryer BL, Wilcox CM, Henk HJ, et al. The economics of upper gastrointestinal bleeding in a US managed-care setting: a retrospective, claims-based analysis. J Med Econ. 2010 Mar;13(1):70-7. **4.**Pohl H, Grimm IS, Moyer MT, et al. Clip Closure Prevents Bleeding After Endoscopic Resection of Large Colon Polyps in a Randomized Trial. Gastroenterology. 2019 Oct;157(4):977-984.e3. **5.** Gupta S, Sidhu M, Shahidi N, et al. Effect of prophylactic endoscopic clip placement on clinically significant post-endoscopic mucosal resection bleeding in the right colon: a single-centre, randomised controlled trial. Lancet Gastroenterol Hepatol. 2022 Feb;7(2):152-160. **6.**Albéniz E, Álvarez MA, Espinós JC, et al. Clip Closure After Resection of Large Colorectal Lesions With Substantial Risk of Bleeding. Gastroenterology. 2019 Nov;157(5):1213-1221.e4. **7.**Liu M, Zhang Y, Wang Y, et al. Effect of prophylactic closure on adverse events after colorectal endoscopic submucosal dissection: A meta-analysis. J Gastroenterol Hepatol. 2020 Nov;35(11):1869-1877. **8.**Canakis A, Deliwala SS, Frohlinger M, et al. Endoscopic outcomes using a novel through-the-scope tack and suture system for gastrointestinal defect closure: a systematic review and meta-analysis. Endoscopy. 2024 Aug;56(8):605-611. **9.**Maselli R, Palma R, Traina M, et al. Endoscopic suturing for GI applications: initial results from a prospective multicenter European registry. Gastrointest Endosc. 2022 Nov;96(5):780-786. **10.**Shiomi D, Tanabe M, Uragami N, et al. Clinical utility of a novel anchor pronged clip for mucosal defect closure after colorectal endoscopic submucosal dissection (with video). Endosc Int Open. 2024;12(10):E1127-E1133. Published 2024 Oct 10. **11.**Yoshida N, Hirose R, Dohi O, et al. A novel reopenable clip with sharp claw for complete closure of mucosal defects after colorectal endoscopic submucosal dissection [published correction appears in Endoscopy. 2024 Nov 13. **12.**Boston Scientific Internal report - 92891076 Report of MANTIS Defect Closure Study **13.**Motomura D, Toyonaga T, Takayama H, et al. Endoscopic double-layered suturing: an updated technique for clip closure of large mucosal defects after endoscopic submucosal dissection. VideoGIE. 2023 Oct 5;9(2):95-98. **14.**Mahmoud T, Wong Kee Song LM, Stavropoulos SN, et al. Initial multicenter experience using a novel endoscopic tack and suture system for challenging GI defect closure and stent fixation (with video). Gastrointest Endosc. 2022 Feb;95(2):373-382. **15.**Hernandez A, Marya NB, Sawas T, et al. Gastrointestinal defect closure using a novel through-the-scope helix tack and suture device compared to endoscopic clips in a survival porcine model (with video). Endosc Int Open. 2021 Apr;9(4):E572-E577. **16.**Ali O, Canakis A, Huang Y, Patel H, Alizadeh M, Kim RE. Closure of Mucosal Defects Using Endoscopic Suturing Following Endoscopic Submucosal Dissection: A Single-Center Experience. Tech Innov Gastrointest Endosc. 2023;25(1):46-51. **17.**Granata A, Amata M, Ligres D, et al. Endoscopic management of post-surgical GI wall defects with the overstitch endosuturing system: a single-center experience. Surg Endosc. 2020 Sep;34(9):3805-3817. **18.**Hustak R, Vackova Z, Krajciova J, et al. Endoscopic clips versus overstitch suturing system device for mucosotomy closure after peroral endoscopic pyloromyotomy (G POEM): a prospective single-center study. Surg Endosc. 2022 Dec;36(12):9254-9261.

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CE2797 X-Tack™, OverStitch™ CE0344 Mantis™

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