Medical Policy

Title: Plugs for Anal Fistula Repair

See Also: Bio-Engineered Skin and Soft Tissue Substitutes

Professional
Original Effective Date: December 11, 2009
Revision Date(s): August 31, 2011; June 29, 2012; October 31, 2013; December 14, 2015; May 10, 2017
Current Effective Date: December 14, 2015

Institutional
Original Effective Date: December 11, 2009
Revision Date(s): August 31, 2011; June 29, 2012; October 31, 2013; December 14, 2015; May 10, 2017
Current Effective Date: December 14, 2015

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<th>Outcomes</th>
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<tr>
<td>Individuals:</td>
<td>Interventions of interest are:</td>
<td>Comparators of interest are:</td>
<td>Relevant outcomes include:</td>
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<td>With anal fistula(s)</td>
<td>Placement of anal fistula plug(s)</td>
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<td>Fibrin glue</td>
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DESCRIPTION
Anal fistula plugs (AFP) are biosynthetic devices used to promote healing and prevent recurrence of anal fistula. They are proposed as an alternative to procedures including fistulotomy, endorectal advancement flaps, seton drain placement, and use of fibrin glue in the treatment of anal fistulas.

Objective
The objective of this evidence review is to evaluate whether the use of anal fistula plugs improves health outcomes for anal fistulas compared with other approaches.

Background
An anal fistula is an abnormal communication between the interior of the anal canal or rectum and the skin surface. Rarer forms may communicate with the vagina or other pelvic structures, including the bowel. Most fistulas begin as anorectal abscesses, which are thought to arise from infection in the glands around the anal canal. When the abscess opens spontaneously into the anal canal (or has been opened surgically), a fistula may occur. Studies have reported that 26% to 37% of cases of perianal abscesses eventually form anal fistulas.1

Other causes of fistulas include tuberculosis, cancer, prior radiotherapy, and inflammatory bowel disease. Fistulas may occur singly or in multiples. Symptoms include a purulent discharge and drainage of pus and/or stool near the anus, which can irritate the outer tissues causing itching and discomfort. Pain occurs when fistulas become blocked and abscesses recur. Flatus may also escape from the fistulous tract.

The most widely used classification of anal fistulas is the Parks classification system, which defines anal fistulas by their position relative to the anal sphincter as transsphincteric, intersphincteric, suprasphincteric, or extrasphincteric. More simply, anal fistulas are described as low (present distally and not extending up to the anorectal sling) or high (extending up to or beyond the anorectal sling). Repair of high fistula can be associated with incontinence. Diagnosis may involve fistula probe, anoscopy, fistulography, ultrasound, or magnetic resonance imaging.

Fistula Repair
Treatment is aimed at repairing the fistula without compromising continence.

Surgical treatments for anal fistulas include fistulotomy or fistulectomy, endorectal or anal sliding flaps, ligation of the intersphincteric fistula tract (LIFT) technique, seton drain, and fibrin glue. Fistulotomy involves division of the tissue over the fistula and laying open of the fistula tract. Although fistulotomies are widely used for low fistulas, lay-open fistulotomy in high fistulas carries risk of incontinence. A seton is a thread placed through the fistula tract for the purpose of draining fistula material and preventing the development of a perianal infection. Draining setons can control sepsis, but few patients heal after removal of the seton, and the procedure is poorly tolerated long-term.
A “cutting seton” refers to the process of regular tightening of the seton to encourage gradual cutting of the sphincteric muscle with subsequent inflammation and fibrosis. Cutting setons can cause continence disturbances. Endorectal advancement flaps involve the advancement of a full or partial thickness flap of the proximal rectal wall over the internal (rectal) opening of the fistula tract. The LIFT technique involves identifying the intersphincteric plane and then dividing the fistula tract; its use has been reported in small studies, but long-term follow-up is unavailable. Fibrin glue is a combination of fibrinogen, thrombin, and calcium in a matrix, which is injected into the fistula tract. The glue induces clot formation within the tract, which is then closed through overgrowth of new tissue.

**Fistula Plugs**

Fistula plugs are designed to provide a structure that acts as a scaffold for new tissue growth. The scaffold, which can be derived from animal (eg, porcine) tissue or a synthetic copolymer fiber, is degraded by hydrolytic or enzymatic pathways as healing progresses. The plug is pulled through the fistula tract and secured at the fistula’s proximal opening; the fistula tract is left open at the distal opening to allow drainage. Several fistula plugs have been cleared for marketing by the U.S. Food and Drug Administration (see Regulatory Status section).

A fistula plug derived from autologous cartilage tissue has been investigated in a small (n=10) pilot study.

**Regulatory Status**

Several plugs for fistula repair have been cleared for marketing by the U.S. Food and Drug Administration through the 510(k) process and are outlined in Table 1.

<table>
<thead>
<tr>
<th>Device</th>
<th>Year</th>
<th>Description</th>
<th>Indication(s)</th>
<th>Predicate Device(s)</th>
<th>FDA Product Code</th>
</tr>
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<tbody>
<tr>
<td>SIS Fistula Plug (Cook Biotech)</td>
<td>Mar 2005</td>
<td>• Manufactured from porcine SIS</td>
<td>• Repair of anal, rectal, and enterocutaneous fistulas</td>
<td>• SURGISIS® Soft Tissue Graft (Cook Biotech)</td>
<td>FTM</td>
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<tr>
<td>Surgisis RVP Recto-Vaginal Fistula Plug (Cook Biotech)</td>
<td>Oct 2006</td>
<td>• Manufactured from porcine SIS • Tapered configuration with a button to increase plug retention and improve fistula blockage</td>
<td>• Reinforce soft tissue to repair rectovaginal fistulas</td>
<td>• SIS Fistula Plug (Cook Biotech)</td>
<td>FTM</td>
</tr>
<tr>
<td>Device</td>
<td>Year</td>
<td>Description</td>
<td>Indication(s)</td>
<td>Predicate Device(s)</td>
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<tr>
<td>Surgisis Biodesign Enterocutaneous Fistula Plug (Cook Biotech)</td>
<td>Feb 2009</td>
<td>• Manufactured from porcine SIS</td>
<td>• Reinforce soft tissue to repair enterocutaneous fistulas</td>
<td>• SIS Fistula Plug (Cook Biotech)</td>
<td>FTM</td>
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<tr>
<td></td>
<td></td>
<td>• Tapered configuration with flange to increase plug retention and improve fistula blockage</td>
<td></td>
<td></td>
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</tbody>
</table>
| Gore Bio-A Fistula Plug (W.L. Gore & Associates) | Mar 2009 | • Manufactured from bioabsorbable PGA:TMC copolymer                         | • Reinforce soft tissue to repair anorectal fistulas                                              | • Gore Bioabsorbable Mesh (W.L. Gore & Associates)  
• SIS Fistula Plug (Cook Biotech) | FTM   |
|                                          |        | • Supplied in a 3-dimensional configuration of a disk with attached tubes   |                                                                                                  |                                          |                 |
| Biodesign Anal Fistula Plug (Cook Biotech) | May 2016 | • Manufactured from porcine SIS                                              | • Reinforce soft tissue where a rolled configuration is required to repair anal, rectal, and enterocutaneous fistulas | • SIS Fistula Plug (Cook Biotech)        | FTM             |
|                                          |        | • Additional wash steps added in processing                                 |                                                                                                  |                                          |                 |

FDA: Food and Drug Administration; PGA:TMC: polyglycolide-co-trimethylene carbonate; SIS: small intestinal submucosa

**POLICY**

Biosynthetic fistula plugs, including plugs made of porcine small intestine submucosa or of synthetic material are considered **experimental / investigational** for the repair of anal fistulas.

**RATIONALE**

This evidence review has been updated with searches of the MEDLINE database. The most recent literature review was performed for the period through November 3, 2016.

Conventional treatments for anal fistulas include fistulotomy or fistulectomy, endorectal or anal sliding flaps, seton drains, and fibrin glue. Evidence for new treatments must allow comparison with conventional treatment on outcomes including symptoms, change in disease status, morbid events, functional outcomes (ie, sphincter function), and treatment-related morbidity (ie, fistula recurrence).
Systematic Reviews

At least 9 systematic reviews have been undertaken on anal fistula plugs (AFPs).

In 2016, Narang et al published a systematic review of the Gore Bio-A plug for anal fistulas, which included 6 studies (total N=221 patients) in a qualitative synthesis. Fistula healing rates ranged from 15.8% to 72.7%. Reviewers assessed the overall quality of the underlying studies as poor.

In 2016, Nasseri et al reported on a systematic review of AFP for patients with Crohn disease and anal fistulas. Twelve studies were included: 8 nonrandomized prospective studies and 4 retrospective studies (total N=84 patients; range, 1-20 per study). Due to study heterogeneity, reviewers did not perform a weighted analysis with summary efficacy estimates. The total success rate of AFPs was 49 (58.3%) of 84 placed (95% confidence interval [CI], 47% to 69%).

Also in 2016, Xu et al reported on a meta-analysis of comparative studies of AFPs and mucosal advancement flaps for complex anal fistulas, which included 10 studies (total N=778 patients). Three studies were randomized trials; the remaining were observational studies or did not describe designs. In pooled analysis, there were no significant differences in healing rates at the end of follow-up between the AFP and mucosal advancement flap groups (odds ratio [OR], 0.79; 95% CI, 0.36 to 1.73; p=0.55, H²=74%). None of the 7 studies reporting on recurrence rates found significant differences in recurrence rates (OR=2.29; 95% CI, 0.59 to 8.88; p=0.23, H²=83%). However, conclusions were limited by shortcomings in the underlying evidence base.

In 2013, Cirocchi et al published results of a systematic review and meta-analysis of studies that compared biologically derived products for fistula repair, including fibrin glue, AFPs, and acellular dermal matrix, with surgical therapy for fistula repair. Seven studies met eligibility criteria, 4 of which compared AFPs with surgery and 2 of which were randomized controlled trials (RCTs; Ortiz et al, 2009, and van Koperen et al, 2011, are described in the Randomized Controlled Trials section). In combined analysis, AFP placement did not differ significantly from surgical treatment in terms of rates of healing (pooled relative risk [RR], 1.19; 95% CI, 0.51 to 2.76). Recurrence of anal fistulas did not differ significantly between patients treated with AFP and those treated with surgery, although the confidence interval for the pooled analysis was very wide (pooled OR=3.12; 95% CI, 0.52 to 18.83).

In 2012, 3 reviews compared AFP with conventional surgical treatment for anal fistulas. Pu et al undertook a meta-analysis of 5 studies (2 RCTs, 3 retrospective studies) published through April 2012. Treatment options in the conventional arm included endorectal or mucosal advancement flaps, fibrin glue, and seton drains. The 2 RCTs included Ortiz et al (2009) and van Koperen et al (2011). On combined analysis (5 studies, 428 patients), AFP patients had a higher recurrence rate (62%) than those undergoing conventional treatment options (47%) after 3-month follow-up (p=0.004; OR=1.91; 95% CI, 1.23 to 2.97).

Leng and Jin undertook a meta-analysis of 6 studies published through April 2011 (3 RCTs, 2 retrospective studies, 1 cohort study) involving 408 patients comparing AFP with mucosal advancement flap (MAF). Two RCTs in this analysis were included by Pu et al (previously described); the third RCT was a Chinese trial of 90 patients comparing AFP (manufactured in China with design similar to the SURGISIS) with the MAF. On combined analysis, the differences in the overall success rates (6 studies) and incidence of fistula recurrence (4 studies including 3 RCTs) did not differ statistically significantly between AFP and MAF (risk difference [RD], -0.12;
95% CI, -0.39 to 0.14; RD=0.13; 95% CI, -0.18 to 0.43, respectively). The risk of continence postoperatively (3 studies including 2 RCTs), however, was reported to be lower with AFP (RD = -0.08; 95% CI, 0.15 to -0.02). In addition to the small numbers of controlled studies and limited follow-ups, the studies in this meta-analysis had significant heterogeneity.9

O’Riordan et al conducted a systematic review of AFP (20 studies including the RCTs by Ortiz and van Koperan) for patients with Crohn and non-Crohn-related anal fistulas.10 The follow-up period across studies ranged from 3 to 24.5 months. The pooled proportion of patients achieving fistula closure in those with non-Crohn anal fistula (0.54; 95% CI, 0.50 to 0.59) was similar to that in those with Crohn disease (0.55; 95% CI, 0.39 to 0.70).10 There were no reported cases of significant change in continence after AFP insertion in any study patients (total N=196 patients). The findings of this systematic review were limited by the variability of operative technique and perioperative care across studies, which may have influenced the probability of success or failure associated with the AFP.10

A 2010 systematic review reported a wide range of success rates.11 In the 12 case series selected, reported success rates for the AFP procedure ranged from 24% to 92%. Success rates in treating complex fistula-in-ano in the 8 prospective studies reviewed were 35% to 87%. The complications of abscess formation and/or sepsis ranged from 4% to 29%, and plug extrusion rates ranged from 4% to 41%.

In a Cochrane review of surgical intervention for anorectal fistula, Jacob et al found few randomized trials comparing surgical repair procedures.12 Anal fistula plug was a procedure noted as needing further study with randomized trials.

Section Summary: Systematic Reviews
Several systematic reviews of studies of AFP repair of anal fistulas have demonstrated a wide range of success rates and heterogeneity in study results. The net benefit of a strategy using AFPs compared with open surgical repair is unknown given a lack of high-quality trials and uncertainty related to the tradeoff between a less invasive procedure and a higher fistula recurrence rate.

Randomized Controlled Trials
In 2016, Senejoux et al reported on an RCT comparing AFP to seton removal alone in 106 patients who had Crohn disease with non- or mildly active disease but at least 1 anoperitoneal fistula drained for at least 1 month.13 The trial was powered for superiority of AFP, and analysis was intention-to-treat. At 12 weeks of follow-up, in the AFP group (n=54), clinical remission rates were 31.5% compared with 23.1% in the control group (RR=1.31; 95% CI, 0.59 to 4.02; p=0.19). Fistula tract healing rates on magnetic resonance imaging did not differ significantly between groups at 12 weeks.

Ortiz et al compared use of porcine submucosal (Surgisis) AFPs with an endorectal anal flap (ERAF) procedure in an RCT of 43 patients with high anal fistula.14 The primary end point was fistula healing. Recurrence was defined as the presence of an abscess in the same area or obvious evidence of fistulization. Five patients in the AFP group and 6 in the ERAF group did not receive the allocated intervention, leaving 32 patients. One patient in the AFP group was lost to follow-up. A large number of fistula recurrences in the fistula plug group led to premature closure of the trial. After 1 year, fistula recurrence was seen in 12 of 15 patients treated with an AFP
versus 2 of 16 patients who underwent the flap procedure (RR=6.40; 95% CI, 1.70 to 23.97; p<0.001). A trend for more sphincter involvement and more women in the ERAF group was noted. Complications were not reported.

Van Koperen et al reported on a double-blinded, multicenter, randomized trial comparing AFP with mucosal advancement flap in 60 patients with high perianal fistulas. At 11-month follow-up, trialists reported fistula recurrence in 22 (71%) patients in the AFP group and in 15 (52%) patients in the advancement flap group; these rates did not differ significantly (p=0.126). Postoperative pain scores, quality of life after surgery, and functional outcomes did not differ significantly between groups. Despite disappointing results, trialists indicated the plug might be considered as an initial treatment option because the procedure is simple and minimally invasive.

**Section Summary: Randomized Controlled Trials**

Two relatively small RCTs have compared AFP with surgical flap treatment for anal fistulas, one of which reported significantly higher rates of fistula recurrence with AFP while the other found similar rates of recurrence between AFP and surgical treatment. Larger RCTs are needed to determine the comparative efficacy of AFPS and surgical repair. An additional RCT has compared AFP with seton drain removal alone for fistulizing Crohn disease, with no significant difference reported between groups.

**Nonrandomized Comparative Studies**

A number of nonrandomized studies have compared AFP with alternative treatments for anal fistula. In one of the larger, prospective studies, Hyman et al reported on outcomes data for various procedures to treat anal fistulas in 245 patients at 13 hospitals. Data were collected as part of a prospective, multicenter outcomes registry. Fistulotomy was the most frequently performed procedure (n=120), followed by fistula plug (n=43), staged fistulotomy (n=36), seton drain only (n=21), cutting seton (n=13), fibrin glue (n=5), and advancement flap (n=4). Three patients were listed as other or unrecorded. At 1 and 3 months, 19.5% and 63.2% of patients were healed, respectively. At 3 months, 32% of fistula plug patients had healed compared with 87% of fistulotomy, 50% of staged fistulotomy, and 5% of seton drain-only patients. The authors noted limitations to this registry-based study, including concerns about data entry, lack of standardized surgical procedures, and heterogeneity among patients. The 3-month results may also indicate longer healing times might be required.

Hall et al reported results from another larger multicenter registry study of prospectively collected data for 240 anal fistula surgeries, including those conducted with AFPS. Rates of utilization of fistulotomy, ligation of the intersphincteric fistula tract (LIFT) technique, advancement flap, AFP placement, draining seton, and cutting seton were 61%, 18%, 6.3%, 4.2%, 8.3%, and 0.83%, respectively. The healing rate for patients treated with AFPS was 20% (95% CI, 5% to 50%) compared with 95% after fistulotomy (95% CI, 89% to 97%), 79% after LIFT technique (95% CI, 65% to 88%), 60% after advancement flap (95% CI, 33% to 77%), and 100% after cutting seton placement (95% CI, 34% to 100%).

Several smaller or retrospective studies have also compared AFP and alternative treatments. Fisher et al retrospectively evaluated success rates after AFP (n=31) or endorectal advancement flap (n=40) in patients with anal fistula treated at a single institution from 2007 to 2012. For patients treated after May 2007, the Surgisis anal fistula plug was available. More patients treated with AFP had inflammatory bowel disease (IBD; 29.0% vs 5.0%; p=0.008). During
follow-up, 12 (39%) patients treated with AFP and 17 (43%) treated with endorectal advancement flap had fistula recurrence (OR=0.94; 95% CI, 0.32 to 2.72; p=1.00). Rates of complications did not differ significantly between groups.

Christoforidis et al retrospectively analyzed patients from a U.S. center with transsphincteric fistulas treated with ERAF (n=43) or anal plug (Surgisis; n=37) between January 1996 and April 2007. Success was defined as closed external opening in absence of symptoms at minimal follow-up of 6 months. The success rate was 63% in the ERAF group and 32% in the AFP group after a mean follow-up of 56 months (range, 6-136 months) for ERAF and 14 months (range, 6-22 months) for AFP. After exclusion of patients with early AFP extrusion, which may be considered a technical failure, the ERAF advantage was not statistically significant (p=0.06). Twenty-three of 27 patients who had ERAF and 7 of 12 patients who had AFP responded to a questionnaire addressing functional outcomes. In the ERAF group, 11 of 23 patients had no continence disturbance versus 6 of 7 in the AFP group. The lack of prospectively collected incontinence scores before the procedure and low response rate in the AFP group do not permit valid comparisons on functional outcomes. Complication rates were low in both groups; only 2 patients in the ERAF group required reoperation for bleeding. The authors concluded that “randomized trials are needed to further elucidate the efficacy and potential functional benefit of AFP in the treatment of complex anal fistulas.”

Wang et al compared outcomes for patients with transsphincteric fistulas treated with AFP from 2005 to 2006 (n=29) to historical controls treated with ERAF (2001-2005) (n=26). Of 26 initial flap procedures, 10 failed and 16 healed. Of 29 initial plug procedures, 19 failed and 10 healed. In total, 30 advancement flaps and 34 plug procedures were performed (including additional treatments for failed initial procedures). Closure rates were 34% for plugs (mean follow-up, 279 days; range, 110-690 days) and 62% for flaps (median follow-up, 819 days; range, 93-1928 days; p=0.045). Complications were not reported. The authors concluded that a systematic randomized trial with long-term follow-up comparing advancement flaps with fistula plugs was needed, and they calculated that 112 patients would have to be randomized to detect a statistically significant difference in success rates for each procedure.

A retrospective study of 232 patients treated in Canada between 1997 and 2008 using various methods for high transsphincteric anal fistulas was reported by Chung et al. Postoperative healing rates at the 12-week follow-up for the fistula plug, fibrin glue, flap advancement, and seton drain groups were 59%, 39%, 60%, and 33%, respectively. The authors concluded that closure of the primary fistula opening using an AFP and flap advancement resulted in similar fistula healing rates in this patient group and that these strategies were superior to seton placement and fibrin glue. The 12-week follow-up in this study was likely too short to evaluate the durability of treatment.

**Section Summary: Nonrandomized Comparative Studies**

Nonrandomized comparative studies have reported variability in rates of healing after AFP compared with other fistula closure methods. These studies are limited by patient heterogeneity and relatively short-term follow-up.

**Noncomparative Studies**

Retrospective and prospective studies have reported on outcomes after AFP placement. Two larger noncomparative studies are by Blom et al and Stamos et al.
Stamos et al prospectively evaluated healing rates after treatment with a bioabsorbable AFP among 93 patients with complex transsphincteric anal fistulas.\textsuperscript{22} Seventy-three (78\%) patients also received draining setons preoperatively at the surgeon’s discretion. Over the 1-year follow-up, 13 patients were lost and 21 patients withdrew, most often for an alternative treatment. Of the 66 patients examined 6 months after plug implantation, 30 had a healed fistula. Of the 55 patients examined 12 months after plug implantation, 36 had a healed fistula, but plug implantation failed in 18 patients before the 12-month visit. Overall continence scores improved from presurgery baseline to 6 months postsurgery.

Blom et al retrospectively analyzed outcomes after AFP placement (with the Biodesign plug) at 4 hospitals.\textsuperscript{23} They identified 126 patients who underwent AFP placement and were followed for a median of 13 months (range, 1-7 months). At the last assessment, 30 (24\%) of 126 patients had no symptoms indicative of fistula (pain at the fistula site or drainage). Anterior fistulas were less likely to have successful closure (12\%) than posterior (32\%) or lateral (41\%) fistulas.

Other studies have reported treatment of very small numbers of patients with rectovaginal fistulas, endoscopic treatment of postoperative enterocutaneous fistulas after bariatric surgery, colocutaneous fistulas, and recurrent tracheoesophageal fistulas treated with a fistula plug.

**Section Summary: Noncomparative Studies**

Noncomparative studies evaluating outcomes after AFP have demonstrated a range of fistula recurrence rates postprocedure. These types of studies provide limited information on the relative performance of AFP compared with standard treatments for anal fistulas.

**Summary of Evidence**

For individuals who have anal fistula(s) who receive placement of anal fistula plugs (AFPs), the evidence includes 3 randomized comparative trials (RCTs), a number of comparative and noncomparative nonrandomized studies, and systematic reviews of these studies. Relevant outcomes are symptoms, change in disease status, morbid events, functional outcomes, and treatment-related morbidity. Two RCTs comparing AFP with surgical flap treatment have reported disparate findings: one found significantly higher rates of fistula recurrence with AFP; the other found similar rates of recurrence for AFP and surgical treatment. Another RCT, which compared AFP to seton drain removal alone for patients with fistulizing Crohn disease, found no significant difference in healing rates at 12 weeks between groups. Systematic reviews of AFP repair of anal fistulas have demonstrated a wide range of success rates and heterogeneity in study results. Nonrandomized studies have also reported conflicting results. The evidence is insufficient to determine the effects of the technology on health outcomes.

**Clinical Input From Physician Specialty Societies and Academic Medical Centers**

While the various physician specialty societies and academic medical centers may collaborate with and make recommendations during this process, through the provision of appropriate reviewers, input received does not represent an endorsement or position statement by the physician specialty societies or academic medical centers, unless otherwise noted. In response to requests, input was received from 3 physician specialty societies and 5 academic medical centers while this policy was under review in 2013. The clinical input was mixed, with 3 reviewers in agreement that biosynthetic fistula plugs are considered investigational for all indications, and 4 reviewers considered their use as both investigational and medically necessary.
One reviewer disagreed with the policy statement but noted that the success rates of all procedures (including anal fistula plugs) vary widely, as reflected by our review of the literature.

**Practice Guidelines and Position Statements**

**American Society of Colon and Rectal Surgeons**
The 2011 practice parameters on the treatment of perianal abscess and fistula-in-ano from the American Society of Colon and Rectal Surgeons provided a weak recommendation for treatment of complex anal fistulas with an anal fistula plug. The guidelines noted the available evidence was of moderate quality, with success rates of less than 50% in most studies.24

**National Institute for Health and Care Excellence**
The National Institute for Health and Care Excellence (NICE) updated its guidance on the suturable bioprosthetic plug in November 2011.25 NICE determined that while there are no major safety concerns, evidence on the efficacy of the procedure is not adequate for it to be used without special arrangements for consent, audit, or research.

**U.S. Preventive Services Task Force Recommendations**
Not applicable.

**Ongoing and Unpublished Clinical Trials**
Some currently unpublished trials that might influence this review are listed in Table 2.

**Table 2. Summary of Key Trials**

<table>
<thead>
<tr>
<th>NCT No.</th>
<th>Trial Name</th>
<th>Planned Enrollment</th>
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<tr>
<td>NCT01021774</td>
<td>Comparison of Anal Fistula Treatment Outcome - Collagen Plug vs Advancement Flap Surgery. A Randomised Prospective Blinded Multi-centre Study</td>
<td>100</td>
<td>Dec 2016</td>
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<td>ISRCTN78352529</td>
<td>Surgisis® anal fistula plug versus surgeon's preference (advancement flap, fistulotomy, cutting seton) for transphincteric fistula-in-ano: a multicentre phase III randomised controlled trial</td>
<td>306</td>
<td>May 2017</td>
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<td><strong>Unpublished</strong></td>
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<tr>
<td>NCT01478139</td>
<td>Ligation of Intersphincteric Fistula Tract (LIFT) Versus LIFT-plug Procedure for Anal Fistula Repair: a Multicenter, Randomized, Open-label, Parallel Controlled Trial</td>
<td>240</td>
<td>Nov 2013 (unknown)</td>
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NCT: national clinical trial.  
* Denotes industry-sponsored or cosponsored trial.
CODING

The following codes for treatment and procedures applicable to this policy are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement. Please refer to the member’s contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

CPT/HCPCS
46707 Repair of anorectal fistula with plug (e.g., porcine small intestine mucosa [SIS])

- There is a specific CPT code for use of these plugs in repair of an anorectal fistula: 46707.

DIAGNOSIS

Experimental / investigational for all diagnoses related to this policy.

REVISED

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<td>Rationale section added.</td>
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<td>10-31-2013</td>
<td>In Header: Revised the See Also titled policy from &quot;Wound Care: Skin Substitutes and Growth Factors&quot; to &quot;Bio-Engineered Skin and Soft Tissue Substitutes&quot;</td>
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<td>Removed “all indications including, but not limited to,” and “and rectal” to read,</td>
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<td>“Biosynthetic fistula plugs, including plugs made of porcine small intestine submucosa or of synthetic material are considered experimental / investigational for the repair of anal fistulas.”</td>
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<td>Rationale section updated.</td>
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<td>In Coding section:</td>
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<td></td>
<td>Removed CPT codes: 43305, 43312, 44640, 57300, 57305, 57307, 57308</td>
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<td>References updated.</td>
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<tr>
<td>05-10-2017</td>
<td>Description section updated.</td>
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<td>Rationale section updated.</td>
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<td>References updated.</td>
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REFERENCES

Contains Public Information

