



**Kaiser Foundation Health Plan of Washington**

**Clinical Review Criteria**

**Capsule Endoscopy**

- Given® AGILE Patency System
- M2A™ Capsule Endoscopy
- PillCam™ SB
- Wireless Capsule Enteroscopy

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**Criteria**

**For Medicare Members**

Source	Policy
CMS Coverage Manuals	None
National Coverage Determinations (NCD)	None
Local Coverage Determinations (LCD)	<p><b>Esophagus:</b> In April 2011 Noridian retired <a href="#">Wireless Capsule Enteroscopy (L23785)</a>. These services still need to meet medical necessity as outlined in the LCD and will require review. LCDs are retired due to lack of evidence of current problems, or in some cases because the material is addressed by a National Coverage Decision (NCD), a coverage provision in a CMS interpretative manual or an LCD. Most LCDs are not retired because they are incorrect. The criteria should be still referenced when making an initial decision. However, if the decision is appealed, the retired LCD cannot be specifically referenced. Maximus instead looks for "medical judgment" which could be based on our commercial criteria or literature search.</p> <p><b>Colon:</b> <a href="#">Colon Capsule Endoscopy (CCE) (L38826)</a></p>
Local Coverage Article (LCA)	<a href="#">Billing and Coding: Colon Capsule Endoscopy (CCE) (A58438)</a>

**For Non-Medicare Members**

Kaiser Permanente has elected to use the Capsule Endoscopy (KP-0134) MCG\* for medical necessity determinations. For access to the MCG Clinical Guidelines criteria, please see the MCG Guideline Index through the provider portal under Quick Access.

\*The MCG are proprietary and cannot be published and/or distributed. However, on an individual member basis, Kaiser Permanente and share a copy of the specific criteria document used to make a utilization management decision. If one of your patients is being reviewed using these criteria, you may request a copy of the criteria by calling the Kaiser Permanente Clinical Review staff at 1-800-289-1363.

**If requesting this service, please send the following documentation to support medical necessity:**

- Last 12 months of clinical notes from requesting provider &/or specialist (gastroenterology)
- Most recent lab works

**Patency Capsule**

There is insufficient evidence in the published medical literature to show that this service/therapy is as safe as standard services/therapies and/or provides better long-term outcomes than current standard services/therapies.

The following information was used in the development of this document and is provided as background only. It is provided for historical purposes and does not necessarily reflect the most current published literature. When significant new articles are published that impact treatment option, KPWA will review as needed. This information is not to be used as coverage criteria. Please only refer to the criteria listed above for coverage determinations.

## Background

### **Wireless Endoscopy**

Approximately 5% of patients presenting with obscure gastrointestinal (GI) bleeding do not have a source identified after evaluation with upper endoscopy, colonoscopy and/or barium studies. Enteroscopy, evaluation of the small bowel, is indicated in many of these patients. Push enteroscopy, sonde enteroscopy and intraoperative enteroscopy are commonly used options. Push enteroscopy is relatively easy to perform but is limited by its inability to examine beyond the mid to distal jejunum in most patients. Sonde-type enteroscopes are longer than push enteroscopes and in some cases can examine as far as the terminal ileum. Disadvantages include long procedure times and a steep learning curve to master the technique. Intraoperative enteroscopy was first reported in 1976 and is considered the “gold standard” for evaluating the small bowel for the source of unexplained GI bleeding. However, this is an invasive procedure that requires a laparotomy (Adrain and Kversky, 1996).

The M2A (mouth-to-anus), a pill-sized disposable endoscope, is proposed as an alternative non-invasive tool for identifying obscure GI bleeding. The M2A capsule contains a video camera, lights, transmitter and batteries. It is swallowed by the patient and, as it moves through the digestive tract, it transmits video signals which are stored in a recorder attached to the patient's belt. The M2A moves through the digestive tract with the aid of peristalsis and is then excreted normally by the patient. About five hours of continuous reading is possible. The video can be downloaded from the recorder to a computer workstation with special software (Reporting and Processing of Images and Data, RAPID).

The M2A capsule, manufactured by Given Imaging (Yoqneam, Israel), received FDA approval in August 2001.

M2A capsule endoscopy for unexplained chronic gastrointestinal blood loss or anemia was previously reviewed by MTAC in December 2001. At that time there were no studies of health outcomes and no data on patients with unexplained chronic gastrointestinal blood loss.

#### Iron Deficiency Anemia:

Iron deficiency anemia (IDA) represents a major public health problem. Its estimated prevalence in the US is 2% of adult men and 9-12% of non-Hispanic white women. It is most commonly secondary to chronic occult bleeding from the gastrointestinal tract and is one of the common reasons for referral to gastroenterology clinics (Apostolopoulos 2006, Killip 2007).

Obscure gastrointestinal bleeding (OGIB) is defined as bleeding of unknown origin that persists or recurs after a negative initial endoscopy. OGIB accounts for at 5-10% of all gastrointestinal (GI) bleeds and may be overt or occult. Overt GI bleeding is clearly signified by rectal bleeding, bloody stools, or melena. Occult blood loss, on the other hand, is subtle and may only present as iron deficiency anemia or as a positive fecal occult blood test (Triester 2005, Concha 2007, Estevez 2006).

Diagnosing the cause of OGIB might be clinically challenging, especially when the origin of bleeding is a very small lesion in parts of the small bowel that is not apparent or accessible for direct viewing. Patients with OGIB may undergo multiple diagnostic procedures and invasive testing. Diagnostic work-up may include barium x-ray studies of the bowel, endoscopy, enteroscopy, computed tomography (CT), radionuclide scans, angiography, intraoperative endoscopy, and exploratory surgery.

Evaluation of the small bowel by conventional endoscopy has the advantage of allowing for intervention if the bleeding site is identified, but may be difficult due to the length, motility, tortuosity, looping, and free hanging course of the small bowel. Typically, an endoscope will reach only the proximal small bowel. Enteroscopy is an extension of an upper endoscopy where a longer endoscope that reaches down to the ileum is used. There are different types of enteroscopes including the push type and the sonde-type. Push enteroscopy allows the evaluation of the jejunal mucosa up to 150 cm beyond the ligament of Trietz; however, it is an invasive procedure that requires deep sedation or anesthesia, has a variable diagnostic yield (38-75%), and does not explore lesions in the ileum. Double balloon enteroscopy (DBE) is a modified push enteroscopy that is emerging as an alternative

for operative enteroscopy. The balloons grip the intestinal wall allowing further insertion of the scope and the examination of larger areas of the small bowel reaching up to 300 cm in the oral direction. The entire small bowel could be potentially evaluated when a DBE is carried out with oral and anal approaches in conjunction (Lewis 2000, Mitchell 2004, Concha 2007).

Laparotomy with intraoperative enteroscopy is used after all other techniques fail to detect the source of bleeding, when there are adhesions that require lysis via a laparoscopic approach, or and when the risk of bleeding exceeds the risk of the procedure. It is considered the gold standard for a complete endoscopic evaluation of the small bowel. However, intraoperative endoscopy is invasive, risky, and may cause artifacts that could be falsely identified as the cause of bleeding. Moreover, it was reported that intraoperative endoscopy can examine only 50-80% of the small bowel and detect the source of bleeding in up to 40% of undiagnosed cases (Mitchell 2004).

Other indirect methods for visual examination of the small bowel such as x-ray series and enteroclysis, radioisotope bleeding scans, angiography, computed scans, and MRIs have been found to have low sensitivities in detecting the source of bleeding, especially for vascular lesions which are the most frequent cause of OGI (Estevez 2006, Leighton 2006).

Capsule endoscopy (M2A video capsule endoscope, Given Imaging Ltd, Yoqneam, Israel) was introduced in 2001 as a noninvasive direct endoscopic technique for visualization of the small bowel. It is a swallowable wireless capsule endoscope 26 mm in length and 11 mm in diameter. The device consists of an optical dome, 4 light emitting electrodes, a sensor, 2 batteries, and a micro transmitter. The capsule acquires and transmits digital images at the rate of 2/second to a sensory array attached to the patient's abdomen. It is able to capture video-images of the mucosal surface of the entire length of the small intestine directly for 7-8 hours. The capsule is propelled forward through the GI tract with the peristaltic movement and is excreted normally by the patient after 8-72 hours. The images can be downloaded from the recorder to a computer workstation with special software (Hara 2005, Eliakim 2007).

The capsule endoscopy is noninvasive and easy to perform. However, it lacks the ability to obtain a tissue sample for biopsy, deliver therapy, or treat pathology when it is found. In addition, it was reported that some lesions could be missed due to rapid or delayed small bowel transit. It might also be difficult to identify the precise location of the pathology when it is discovered. Unlike endoscopy, the lesion cannot be washed, and re-examined, and large amounts of intraluminal bile could be mistaken for blood. Interpretation of the small bowel images is highly subjective, and the potential inter-observer variation may compromise the reliability and accuracy of the technology. Moreover, some investigators have reported that the quality of the images taken by the capsule was not satisfactory, and that the duodenum was not effectively visualized. The 8 hour-battery life of the capsule is estimated to be enough time for 85% of the patients to image the entire small intestine. For the rest, the battery life expires before the capsule reaches the cecum. The major potential complication with capsule endoscopy is the risk of capsule retention due to stenosis, stricture, diverticulum, or fistula. The documented incidence of entrapment is 1%, however a retained capsule may potentially lead to intestinal obstruction, and its retrieval may necessitate surgical extraction (Concha 2007, Mazarola 2007, Enns 2007).

The PillCam TM, previously marketed as M2A TM, manufactured by Given Imaging (Yoqneam, Israel), received FDA approval in August 2001 for detecting problems in the small bowel in adults and children ten years of age or older. The most common application for capsule endoscopy is the evaluation of obscure gastrointestinal bleeding. The second most studied indication is the evaluation of suspected Crohn's disease. It is also being used to detect polyps, cancers, other causes of chronic inflammation, bleeding, and anemia. Capsule endoscopy is contraindicated in patients with intestinal blockage, strictures or fistulas, pregnant women, patients with swallowing disorders, or those with a cardiac pacemaker or other implanted electromagnetic devices.

### **Patency Capsule**

The capsule endoscopy is relatively noninvasive, easy to perform, well tolerated, and has a low incidence of complications. The most worrisome complication is capsule retention due to stenosis, stricture, diverticulum, or fistula. Overall, the documented incidence of capsule retention or entrapment is as low as 1% but may be higher in some population at risk. Studies reported retention rates of 5-13% in patients with known Crohn's disease, and a rate of 21% in suspected bowel obstruction. A retained or impacted capsule may potentially lead to small bowel ileus, intestinal obstruction, or fragmentation of the capsule with potential toxic hazard. Risk factors for capsule retention include major abdominal surgery, known or suspected Crohn's disease, previous intestinal obstruction, prolonged NSAID use, ischemic bowel disease, radiation injury, and suspected bowel tumors. Retrieval of a retained capsule requires medical, endoscopic or surgical intervention (Sears 2004, Signorelli 2006, Concha 2007, Enns 2007, Caunedo-Alvarez 2008).

Due to the risk of capsule retention, wireless capsule endoscopy is contraindicated in patients with suspected small bowel strictures. In most centers, a radiographic evaluation of the small bowel patency is mandatory before performing a wireless capsule endoscopy in patients with a risk of small bowel strictures. Standard imaging techniques include small bowel (SB) follow-through, barium enema, enteroclysis, or CT enteroclysis. Limitations of these techniques include a tendency to underestimate or overestimate SB strictures. They can identify long or medium stenosis with great reduction in their lumen size but may not detect a short intestinal stenosis or obstruction, leading to false negative results (Boivin 2005, Caunedo-Alvarez 2008, Karagiannis 2009).

Given Imaging, the manufacturer of the PillCam SB has developed a new system (The Given® Patency Capsule) to identify patients with strictures that may cause retention of the video capsule. The first generation was the M2A patency capsule, which due to the risk of obstruction, was modified to the AGILE Patency Capsule (PC). This consists of a dissolvable capsule and a scanner. The capsule is composed of a lactose body with 5% barium (to induce radiopacity) that surrounds a small radiofrequency identification tag (RFID). The body is coated with an impermeable cellophane membrane with two wax timer plugs located at each end of the capsule. The timer plugs seal the capsule's body, and each has a small window or opening that allows penetration by gastrointestinal (GI) fluids.

The Agile patency capsule (PC) has the same dimensions and shape as the PillCam. Once the patient ingests the capsule, it is propelled through the GI tract by normal peristalsis. The Agile PC is designed to remain intact for 30 hours (40 hours in the first generation). It is assumed that it will be excreted intact if there is no bowel obstruction. In this case a PillCam capsule can be administered. If there is any kind of stricture hindering its passage for more than 30 hours, the patency capsule starts to disintegrate (except for the identification tag), allowing the insoluble outer membrane to collapse and be excreted deformed or in fragments. The persistence of the PC inside the GI tract can be verified by means of radiology or with a radiofrequency emitting external detector device locating the RFID (Signorelli 2006, Caunedo-Alvarez 2008).

It is reported that the Given patency capsule may provide direct evidence of functional patency of the gut lumen, even in those patients showing radiological evidence of small bowel stricture. This information may allow a distinction between rigid fibrotic strictures and flexible ones (Spada 2005, Karagiannis 2009).

The Given® AGILE Patency System received marketing clearance from the U.S. Food and Drug Administration (FDA) in 2006, as an accessory to the PillCam to verify adequate patency of the gastrointestinal tract in patients with known or suspected strictures prior to administration of the PillCam video capsule.

## Medical Technology Assessment Committee (MTAC)

### Capsule Endoscopy

#### 12/12/2001: MTAC REVIEW

**Evidence Conclusion:** There is insufficient published evidence on which to base a conclusion about the effect of M2A capsule endoscopy on health outcomes.

The search yielded 4 articles. One of these was a historical piece, one was a letter to the editor describing the use of the technology with 4 cases. The third was an empirical study conducted in dogs. The fourth was description of the technology including acceptability (e.g. ability to swallow, quality of images, mouth-to-evacuation time) in 10 normal human volunteers. There were no studies of health outcomes and no data on patients with unexplained chronic gastrointestinal blood loss. In addition to the studies found on Medline, there were several published abstracts in the Given Imaging reference list. None of the articles were suitable for critical appraisal.

The use of M2A™ (Given Imaging) capsule in the diagnosis of small bowel lesions/chronic bleed sites does not meet the *Kaiser Permanent Medical Technology Assessment Criteria 2* for effectiveness.

#### 12/10/2003: MTAC REVIEW

### Capsule Endoscopy

**Evidence Conclusion:** The prospective comparative studies that were reviewed suggest that M2A capsule endoscopy has a significantly greater diagnostic yield than push enteroscopy among patients with unexplained gastrointestinal bleeding. The studies did not use the gold standard evaluation tool, an invasive surgical procedure, so diagnostic accuracy (e.g. sensitivity, specificity) cannot be calculated.

**Articles:** The search yielded 23 articles. The ideal study would be an independent, blind comparison of M2A and a gold standard diagnostic test. There were 5 comparative studies in patients with gastrointestinal bleeding. No articles specifically studied use of the M2A for anemia, but patients with anemia suggestive of overt bleeding were



included in some of the GI bleeding studies. The methodology was similar in the 5 studies. All compared M2A evaluation with push enteroscopy and none of the studies included evaluation with intraoperative enteroscopy, the invasive “gold standard” procedure. The primary outcome in each study was diagnostic yield (the ability to diagnose the source of bleeding) of the two procedures. All 5 studies included blinded evaluation of test results. Results of the studies were similar; all found a higher rate of diagnostic yield with the M2A. Findings were statistically significant in 4 of the 5 studies and did not reach statistical significance in the smallest study. Sample sizes ranged from 20 to 60 patients. The two largest studies (n=52, n=60) were critically appraised: Mylonaki M, Fritscher-Ravens A, Swain P. Wireless capsule endoscopy: a comparison with push enteroscopy in patients with gastroscopy and colonoscopy negative gastrointestinal bleeding. *Gut* 2003; 1122-1125. See [Evidence Table](#) Saurin J-C, Delvaux M, Gaudin J-L. et al. Diagnostic value of endoscopic capsule in patients with obscure digestive bleeding: Blinded comparison with video push-enteroscopy. *Endoscopy* 2003; 35: 576-584. See [Evidence Table](#)

The use of M2A™ (Given Imaging) capsule in the diagnosis of small bowel lesions/chronic bleed sites does meet the *Kaiser Permanente Medical Technology Assessment Criteria* for effectiveness.

## 12/03/2007: MTAC REVIEW

### Capsule Endoscopy

**Evidence Conclusion:** Diagnostic accuracy: Triester, Leighton and colleagues' meta-analyses (2005, 2006) as well as the other published meta-analyses compared CE with one or more alternative diagnostic modalities for evaluation the small bowel in patients with OGIB. Triester's meta-analysis included studies either published in full or in the abstract form. The studies compared the performance of CE mainly to push enteroscopy and barium radiography, none of which is considered as a gold standard, nor is able to identify all kinds of lesions in the entire small bowel. The performance of CE and other diagnostic modalities were thus measured as diagnostic yield, which mainly depends on subjective interpretation, rather than sensitivity and specificity. CE was found to be associated with significantly higher incremental yield and number needed to test around 3. A higher yield might indicate that CE is superior to the alternative method but does not assess sensitivity of the test, nor is it able to discriminate the false positive findings. Hartmann and colleagues' 2005, study (not included in the meta-analysis) compared capsule endoscopy to the gold standard of intraoperative enteroscopy. In that study 47 consecutive patients with OGIB and a negative initial work-up underwent both capsule and intraoperative endoscopy. The source of bleeding was located by intraoperative endoscopy in 72.3% of cases and by capsule endoscopy in 74.5%. Compared to the gold standard CE had a sensitivity of 97%, specificity of 85%, positive predictive value of 95% and negative predictive value equal to 86%. CE was not associated with any major adverse events, while one patient died of postoperative peritonitis after laparotomy. Apostolopoulos and colleagues 2006, compared the performance of CE to enteroclysis among 51 patients with unexplained iron deficiency anemia after negative endoscopic evaluation of the upper and lower gastrointestinal tract. This was a highly selected group of patients which may limit generalization of the results. Upper GI series and push enteroscopy were not included among the diagnostic procedures performed. The authors compared the yield of CE with enteroclysis which is not considered as a gold standard, and the results were presented as diagnostic yields not sensitivity and specificity. Its results show that CE had a diagnostic yield of 56.9% vs. 11.8% for the enteroclysis (p<.0001). Impact of capsule endoscopy on patient management: The published studies, to date, on the influence of capsule endoscopy on patient management included highly selected groups of patients with wide variations in their baseline characteristics as age, indication of endoscopy, duration of bleeding, number and type of previous investigations undergone, as well as other variables. In addition, the investigators used different diagnostic criteria for the identification of the bleeding pathology, as reflected in the wide range of diagnostic yield. The latter was also influenced with the experience and number of researchers interpreting the CE images. Thus, the published studies with their potential biases and confounding factors, and with the lack of randomized controlled trials, do not provide sufficient evidence to determine that capsule endoscopy would lead to any incremental improvement in the management of patients. Impact of CE on patient outcome: There is insufficient evidence to determine the impact of CE on patient outcome. The published outcome studies were small case series with no control groups. The therapies and interventions received by the patients were not standardized and varied between studies. Patients were treated with medical, endoscopic or surgical interventions and complete resolution of bleeding was achieved in 40-85% of cases. This varied according to study, eligibility criteria, patient characteristics, bleeding condition, condition, and treatment received. Randomized controlled trials with long-term follow-up periods are needed to determine the effect of capsule endoscopy on patient management and outcomes. Assessment objective: To evaluate the diagnostic accuracy for the capsule endoscopy (CE) in identifying the lesion of, IDA or obscure gastrointestinal bleeding (OGIB)? To determine whether CE contributes substantially to improved diagnosis and/or replaces other diagnostic tests or procedures. To determine if diagnosing the source of IDA/OGIB with the CE would influence the management decisions? Would it result in providing more appropriate therapy? To determine whether using CE for locating the source of OGIB would improve the clinical and patient-

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oriented outcomes? Diagnostic accuracy: There were three meta-analyses (Triester 2005, Triester 2006, and Leighton 2006) that evaluated CE for OGIB and/or Crohn's disease. All three were conducted by the same investigators and the two meta-analyses on OGIB included the same studies. There was also another meta-analysis that compared CE to double-balloon enteroscopy, one study that compared CE with the gold standard intraoperative enteroscopy, and several other studies that compared the performance of CE with other diagnostic modalities. Almost all studies investigated the use of CE for patients with OGIB. Two very small studies investigated the use of CE for patients with iron deficiency anemia (IDA) after negative endoscopic evaluation of the upper and lower GI. Apostolopoulos et al 2006 performed CE on 51 out of 253 patients referred for the evaluation of iron deficiency anemia, and Bar-Meir et al 2004, assessed the diagnostic yield of a second CE for 20 patients with severe IDA). Diagnostic/therapeutic impact:

**Articles:** The literature search identified several prospective studies on the influence of capsule endoscopy on management decisions and/or treatment outcomes. All were case series with no control or comparison groups. The largest more recent meta-analysis of studies that compared CE to other diagnostic modalities, the prospective study that compared it with intraoperative endoscopy, the study on its role in investigating unexplained iron deficiency anemia, a case series on its impact on patient management, as well as 4 outcome studies were critically appraised. The four outcome studies were summarized in one table. *The following studies were critically appraised:* Triester SL, Leighton JA, Leontiadis GL, et al. A meta-analysis of the yield of capsule endoscopy compared to other diagnostic modalities in patients with obscure gastrointestinal bleeding. *Am J Gastroenterol*; 2005; 100:2407-2418. See [Evidence Table](#) Leighton JA, Triester SL, Sharma VK. Capsule endoscopy: A meta-analysis for use with obscure gastrointestinal bleeding. *And Crohn's disease. Gastrointest Endosc* 2006;16:229-250 See [Evidence Table](#) Hartman D, Schmidt H, Bolz G, et al. A prospective two-center study comparing wireless capsule endoscopy with intraoperative enteroscopy in patients with obscure gastrointestinal bleeding. *Gastrointest Endosc* 2005;61:826-832 See [Evidence Table](#) Apostolopoulos P, Liatos C, Gralnek IM, et al. The role of wireless capsule endoscopy in investigating unexplained iron deficiency anemia after negative endoscopic evaluation of the upper and lower gastrointestinal tract. *Endoscopy* 2006; 38:1127-1132. See [Evidence Table](#) Sidhu R, Sanders DS, Kapur K et al., Capsule endoscopy changes patient management in routine clinical practice. *Dig Dis Sci* 2007; 52:1382-1386. See [Evidence Table](#) Viazis N, Papaxoinis K, Theodoropoulos I, et al. Impact of capsule endoscopy in obscure small-bowel bleeding; defining strict diagnostic criteria for a favorable outcome. *Gastrointest Endosc* 2005; 62:717-722 See [Evidence Table](#) Estevez, Gonzalez-Conde B, Vazquez-Iglesias JL, et al. Diagnostic yield and clinical outcomes after capsule endoscopy in 100 consecutive patients with obscure gastrointestinal bleeding. *Europ J Gastroenterol Hepatol* 2006;18:881-888 See [Evidence Table](#) Neu B, Ell C, May A, et al. Capsule endoscopy versus standard tests in influencing management of obscure digestive bleeding: results from a German multicenter trial. *Am J Gastroenterol*; 2005; 100:1736-1742. See [Evidence Table](#) Pennazio M, Santucci R, Rondonotti E, et al. Outcome of patients with obscure gastrointestinal bleeding after capsule endoscopy: report of 100 consecutive cases. *Gastroenterol* 2004; 26:643-653. See [Evidence Table](#)

The use of M2A™ (Given Imaging) capsule in the diagnosis of unexplained iron deficiency anemia does not meet the *Kaiser Permanente Medical Technology Assessment Criteria* for effectiveness.

#### **4/18/2011: MTAC REVIEW**

##### **Capsule Endoscopy**

**Evidence Conclusion:** There is limited published evidence on the usefulness and safety of Agile patency capsule in identifying patients who can safely undergo capsule endoscopy. There are no published randomized controlled trials, to date, that compared the accuracy of Agile capsule to any of the radiographic methods used to assess small bowel patency prior to capsule endoscopy. The case series by Herrerias and colleagues (2008) examined the ability of the Agile system in determining which patients with known strictures can safely undergo capsule endoscopy (CE). 106 eligible patients with evidence of intestinal stricture ingested the patency capsule and were followed up periodically with scanning devices until the capsule was excreted. The intestinal tract was considered sufficiently patent if the patency capsule was excreted intact without any changes in its original dimensions, or if the radiofrequency identification tag (RFID) was not detected by scanning the patients at 32-38 hours after ingestion. 59 patients (56%) excreted the patency capsules intact and underwent capsule endoscopy with the PillCam video capsule, with no cases of capsule retention. The majority of patients who excreted intact patency capsules still had to undergo fluoroscopy as the capsules were passed after the scheduled 38 hours (over 25% were excreted after 60 hours). A total of 17 patients had adverse events mainly abdominal pain; one patient had intestinal obstruction and underwent surgical resection of the proximal colon and terminal ileum. The authors indicate that no remnants of the capsule were found at surgery. The study may suggest that patients who pass the Agile Patency Capsule intact may be suitable candidates for capsule endoscopy but does not provide sufficient evidence that it is safer and more accurate than other radiographic methods used.

**Articles:** The literature revealed a limited number of articles on the Given Patency System. The published empirical studies were all case series and mainly on the first generation of the patency capsule (M2A Patency Capsule). Only one case series on the newer generation, the Agile Patency System, was identified, and critically appraised. Herrerias J, Leighton JA, Costamagno G, et al. Agile patency system eliminates risk of capsule retention in patients with known intestinal strictures who undergo capsule endoscopy. [Gastrointest Endosc.](#) 2008;67:902-909. See [Evidence Table](#)

The use of patency capsule does not meet the *Kaiser Permanente Medical Technology Assessment Criteria* for effectiveness.

## Applicable Codes

**Considered Medically Necessary when criteria in the applicable policy statements listed above are met:**

CPT® or HCPC Codes	Description
91110	Gastrointestinal tract imaging, intraluminal (eg, capsule endoscopy), esophagus through ileum, with interpretation and report
91111	Gastrointestinal tract imaging, intraluminal (eg, capsule endoscopy), esophagus with interpretation and report
91113	Gastrointestinal tract imaging, intraluminal (eg, capsule endoscopy), colon, with interpretation and report

**\*Note:** Codes may not be all-inclusive. Deleted codes and codes not in effect at the time of service may not be covered.

\*\*To verify authorization requirements for a specific code by plan type, please use the [Pre-authorization Code Check](#).

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Date Created	Date Reviewed	Date Last Revised
12/12/2001	07/06/2010 <sup>MDCRPC</sup> , 05/03/2011 <sup>MDCRPC</sup> , 03/06/2012 <sup>MDCRPC</sup> , 01/08/2013 <sup>MDCRPC</sup> , 02/05/2013 <sup>MDCRPC</sup> , 12/03/2013 <sup>MPC</sup> , 10/07/2014 <sup>MPC</sup> , 05/05/2015 <sup>MPC</sup> , 03/01/2016 <sup>MPC</sup> , 01/03/2017 <sup>MPC</sup> , 11/07/2017 <sup>MPC</sup> , 11/07/2017 <sup>MPC</sup> , 10/02/2018 <sup>MPC</sup> , 10/01/2019 <sup>MPC</sup> , 10/06/2020 <sup>MPC</sup> , 10/05/2021 <sup>MPC</sup> , 10/04/2022 <sup>MPC</sup> , 10/03/2023 <sup>MPC</sup>	12/08/2022

<sup>MDCRPC</sup> Medical Director Clinical Review and Policy Committee

<sup>MPC</sup> Medical Policy Committee

Revision History	Description
05/05/2015	Slight modifications to the policy were made to include esophageal varices. Also, a notation and to allow approval for NSAIDS if ASA is used for anticoagulation.
08/31/2016	Added retired LCD language
07/11/2017	MPC approved to adopt revised indication
10/05/2021	Added Colon Capsule Endoscopy LCD/LCA for Medicare.
12/08/2022	Added applicable new CPT code to criteria; removed applicable deleted CPT code