

STandardization of Reports (the STAR project) Upper gastro-intestinal endoscopy: European Society of Gastrointestinal Endoscopy (ESGE) Quality Improvement Initiative



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ABSTRACT

Upper gastrointestinal (UGI) endoscopy is the mainstay for the diagnosis and staging of precancerous and cancerous conditions of the esophagus, stomach, and duodenum. Despite development of several validated classifications for UGI diseases, endoscopy reports differ between endoscopists and endoscopy departments. This document proposes a standardized high quality UGI endoscopy report, including preprocedural, periprocedural, endoscopic findings, and postprocedural information. Preprocedural details should comprise data on the patient, exam, use of antithrombotic drugs, fasting, and premedication. Periprocedural information should report on medications administered, endoscope used, and the mucosal cleanliness assessment. Endoscopic findings should describe the esophagus, stomach, and duodenum, with any observed abnormalities reported using the most commonly employed classification (provided in the document). Postprocedural details should include data on biopsies and vials, pictures taken during the procedure, and the exam duration. A suggestion for a normal findings report is provided. Standardized reporting could enhance the quality of UGI endoscopy.

ABBREVIATIONS

EREFS	edema, rings, exudate, furrows, strictures
ESGE	European Society of Gastrointestinal Endoscopy
GRACE	Gastroscopy RATE of Cleanliness Evaluation (scale)
PEACE	Polprep: Effective Assessment of Cleanliness in Esophagogastroduodenoscopy (scale)
QIC	Quality Improvement Committee
UGI	upper gastrointestinal

Introduction

Upper gastrointestinal (UGI) endoscopy is essential for diagnosing gastrointestinal diseases of the esophagus, stomach, and duodenum. Performance measures for UGI endoscopy were published by the European Society of Gastrointestinal Endoscopy (ESGE) in 2016 [1], and have been updated in 2025 [2]. A high quality UGI endoscopy entails appropriate documentation of good performance. ESGE aims to improve the quality of endoscopy with eventual standardization of high quality endoscopy for the GI tract [3,4]. In this document, the ESGE Quality Improvement Committee (QIC) proposes information that should be included in all UGI endoscopy reports.

Methods

An initial proposal was advanced in 2022 from the project leader (G.E.) to the Chair of the QIC (M.F.), and the ESGE Governing Board approved the proposal.

The project leader developed a list of possible statements as discussed between four of the authors of this Position Statement (M.F., R.B., M.A., G.E.); this was then shared and approved by the members of the UGI working group of the QIC. No evidence-based statements were developed for the Position Statement because of the lack of available data on standardizing endoscopic reports, and the most frequently used classifications for endoscopic findings, based on the working group's expertise, were proposed.

The statements were then submitted to 37 ESGE members, including the UGI working group and the Reporting Taskforce of the QIC (listed as authors) and the Executive of the ESGE Governing Board (listed as External voting panel). The ESGE members evaluated all the statements through an online Delphi consensus process, using a five-point Likert scale (1, strongly disagree; 2, disagree; 3, neither agree nor disagree; 4, agree; 5, strongly agree), and with the possibility to comment on every individual statement. Consensus on each statement was defined as a sum of "agree" and "strongly agree" voting of at least 80%. After the first Delphi round, the project leader deleted or reformulated statements based on the comments from the ESGE members who voted in the first round. After two voting rounds, the final statements and manuscript were discussed and approved by all the authors.

During the development of the present document, ESGE performance measures for UGI endoscopy were being updated

and through the Delphi process for that update a cleanliness evaluation scale was added as a new performance measure. For this reason, during the present authors' approval process for this document, they decided to include the reporting of a cleanliness evaluation scale.

The first draft was sent for external peer review and modifications, and the subsequent version was sent for revision and approval by the ESGE Governing Board; that version was sent to all ESGE individual members for comments.

This document was developed according to the ESGE Publications Policy [5].

Results

After two rounds of the Delphi process, 55 statements reached an agreement of at least 80% (**Table 1 s**, available online-only in Supplementary Material). These related to preprocedure information (10 statements), periprocedure information (2 statements), endoscopic findings (38 statements: 4 regarding the report structure, 14 for the esophagus, 11 for the stomach, and 9 for the duodenum), and postprocedure information (5 statements).

A total of 8 statements did not show agreement after voting rounds. They related to the presence of a phone number in the preprocedure information, the description of gastric juice and peristalsis, the use of the Siewert classification for esophagogastric junction tumors [6], the use of the vessel plus surface (VS) classification system for gastric lesions [7], and the use of the Haraldsson classification for the Vater papilla [8].

Preprocedure information

STATEMENT

The report should include:

- the date of the exam
- the name of the patient
- the date of birth of the patient
- the indication for the exam
- whether the patient is on antithrombotic drugs (antiplatelets, anticoagulants, heparins)
 - which antithrombotic agent
 - whether the antithrombotic therapy is interrupted (when) or not
- the fasting time for solids
- the fasting time for liquids
- the use of premedication.

The preprocedure report information should include the date of the exam, information about the patient (name and date of birth), and the indication for the procedure.

During the preprocedure assessment, it is crucial to know whether the patient is taking any antithrombotic drugs and whether the antithrombotic medication was interrupted. In fact, considering diagnostic UGI procedures, biopsies could be

performed with continuation of antiplatelets but omission of direct oral anticoagulants on the morning of the procedure [9]. In many departments, this information could be contained in a checklist [10].

Following the quality measures for UGI endoscopy [1], fasting for solids and liquids should be reported, and premedication (simethicone, N-acetylcysteine, other) administered before the UGI endoscopy should be reported.

Periprocedure information

STATEMENT

The report should include:

- the use of drugs during UGI endoscopy
- the type of endoscope used.

For several reasons, but especially for side effects after UGI endoscopy, it is important to report drugs administered during endoscopy (xylocaine spray, midazolam, propofol, simethicone, atropine, reversal agents, and others). The type of endoscope used could give helpful information about the technology used during the exam (high definition endoscope, type of virtual chromoendoscopy) and for traceability purposes [11, 12, 13].

Mucosal cleanliness assessment

A scale for the evaluation of the cleanliness of the mucosa should be used to assess the visibility of the esophagus, stomach, and duodenum, after the use of water or simethicone and suction to improve the cleanliness of the mucosa. Recently, three scales, the GRACE scale [14], the PEACE scale [15], and the Barcelona scale [16], have been proposed and validated (► **Table 1**). The GRACE and the PEACE scales are structured similarly, evaluating 3 segments (esophagus, stomach, and duodenum). A score of 0 to 3 (0 poor visibility; 3 excellent visibility) should be assigned to each segment for a total score ranging from 0 to 9. The Barcelona scale scores 5 segments (esophagus, gastric fundus, corpus and antrum, and duodenum) with 3 grades ranging from 0 to 2 (0, poor visibility; 2, excellent visibility), with a total ranging from 0 to 10.

► **Table 1** Mucosal cleanliness evaluation scales.

Scale	Segments evaluated	Score definitions	Total score range
GRACE [14]	Esophagus, stomach, duodenum	0 = presence of solid food	0–9
		1 = severe presence of mucus, bubbles, biliary fluid, and/or foam, covering more than 50 % of surface	
		2 = moderate presence of mucus, bubbles, biliary fluid, and/or foam, covering between 5 % and 50 % of surface	
		3 = no or minimal presence of mucus, bubbles, biliary fluid, and/or foam, covering less than 5 % of surface	
PEACE [15]	Esophagus, stomach, duodenum	0 = substantial amount of fluid/foamy/solid content completely preventing evaluation of the mucosa	0–9
		1 = substantial amount of opaque fluid/foamy/solid content that does not allow evaluation of some parts of the mucosa	
		2 = small amount of hazy fluid/foamy/solid content, but allowing inspection of most of the mucosa	
		3 = clean mucosa or minor amounts of transparent fluid not impeding mucosal inspection	
Barcelona [16]	Esophagus, gastric corpus, fundus and antrum, duodenum	0 = nonaspirable solids or semisolids, presence of bile or foam, which does not allow visualization of most of the mucosa	0–10
		1 = small amount of semisolids, bile or foam, allowing visualization of most of the mucosa	
		2 = absence of any residues, so visualization of the mucosa is nearly 100 %	

GRACE, Gastroscopy **R**ate of Cleanliness **E**valuation; PEACE, Polprep: **E**ffective Assessment of Cleanliness in **E**sophagogastrroduodenoscopy

Endoscopic findings

STATEMENT

- The report should be divided into esophagus, stomach, and duodenum.
- The description of the stomach should include cardia, corpus/fundus, and antrum (including incisura).
- The description of the duodenum should include the bulb and the second portion (descending part).
- In the case of previous surgery, the type of surgery/reconstruction should be described.

The QIC strongly recommends the use of a standardized structured report, which includes all major anatomical portions of the UGI tract, even if they are all normal.

UGI endoscopy report: Normal findings

All the statements regarding normal findings for each portion of the tract are provided in ► **Table 2**.

The mucosa of esophagus, stomach (cardia, corpus/fundus, and antrum), and duodenum (bulb and second portion, including the villi and the papilla) should be described as endoscopically normal if no alterations are observed. If an alteration in the submucosal layer is observed, it should be described as an abnormality.

A proper description of the esophagogastric junction, hiatus, and squamocolumnar junction is fundamental for exams with normal findings.

► **Table 2** Reporting normal findings in upper gastrointestinal (UGI) endoscopy: statements with at least 80 % agreement.

Description of normal UGI findings

Esophagus

17 The mucosa should be described as endoscopically normal if no alterations are found.

20 The esophagogastric junction should be measured from incisors.

21 The hiatus should be measured from incisors.

23 The squamocolumnar junction should be measured from incisors.

Stomach

31,33,38 The mucosa should be described as endoscopically normal if no alterations are found.

37,41 If chromoendoscopy has been used, it should be stated in the report.

Duodenum

42,46 The mucosa should be described as endoscopically normal if no alterations are found.

43,47 Villi could be described as normal or atrophic.

50 If visible, the papilla should be described as normal if no alterations are found.

Furthermore, if chromoendoscopy (dye-based or virtual) has been used, it should be stated in the report.

In ► **Fig. 1**, a proposal for a UGI endoscopy report for normal findings is provided.

UGI endoscopy report: Abnormal findings

All statements regarding abnormal findings for each part of the UGI tract are provided in ► **Table 3**.

All findings should be described using validated classifications when available in cases of abnormalities. The most common classifications for the most common alterations seen during UGI endoscopy are described in detail below.

Hiatal hernia

STATEMENT

- If the esophagogastric junction is not coincident with the hiatus, the hiatal hernia should be measured.

In the presence of a hiatal hernia, the report should contain the following information:

“The esophagogastric and squamocolumnar junctions are located (X cm) from the incisors, and the hiatus is located (X cm) from the incisors. A hiatal hernia of (X cm in length) is present.”

Esophagitis

STATEMENT

- Esophagitis should be described using the Los Angeles classification.

In the presence of esophagitis, the report should state grades of esophagitis, according to the Los Angeles classification [17]:

Grade A: One or more mucosal break ≤ 5 mm that does not extend between the tops of two mucosal folds.

Grade B: One or more mucosal break > 5 mm that does not extend between the tops of two mucosal folds.

Grade C: One or more mucosal break that is continuous between the tops of two or more mucosal folds but that involves $< 75\%$ of the circumference.

Grade D: One or more mucosal break that involves $\geq 75\%$ of the esophageal circumference.

In this case, the report should contain the following sentence:

“The esophagogastric and squamocolumnar junctions are located (X cm) from the incisors, coincident with the hiatus where there is the presence of one or more mucosal break ... (esophagitis grade X by Los Angeles classification).”



UPPER GI ENDOSCOPY

Preprocedure information

Date of the exam:

Name:

Date of birth:

Indication:

Use of antithrombotic drugs:

☐ Yes ☐ No

Which drug(s):

☐ Active ☐ Interrupted, when?

Fasting for solids:

Fasting for liquids:

Premedication:

Periprocedure information

Drugs during endoscopy:

Type of endoscope (if no automated traceability):

Quality of cleanliness: scale name, score per segment, total score

Endoscopic findings

Esophagus

The esophageal mucosa appears normal. The esophagogastric and squamocolumnar junctions are located [X cm] from incisors, coincident with the hiatus.

Stomach

Cardia: the mucosa of the cardia appears normal.

Corpus/fundus: the mucosa of the corpus/fundus appears normal (biopsies).

Antrum (including incisura): the mucosa of the antrum appears normal (biopsies).

Duodenum

Bulb: the mucosa of the bulb appears normal. The villi appear normal.

Second portion: the mucosa of the second duodenal portion (descending part) appears normal. The villi appear normal. (If visible: The papilla appears normal).

Use of virtual chromoendoscopy:

Postprocedure information

Biopsies:

Number of vials:

Duration of the exam:

Names of all staff involved and roles:

► **Table 3** Reporting abnormal findings in upper gastrointestinal (UGI) endoscopy: statements with at least 80% agreement.

Description of abnormal UGI findings

Esophagus

18 The presence of proximal ectopic mucosa (inlet patch) should be described.
19 The presence of Zenker diverticulum (or any diverticulum) should be described.
22 If the esophagogastric junction is not coincident with the hiatus, the hiatal hernia should be measured.
24 In the case of Barrett's esophagus, Prague classification should be used [18].
25 In the case of Barrett's esophagus, if acetic acid or virtual chromoendoscopy is used, it should be stated in the report.
26 Polyps or suspected lesions should be described using the Paris classification [22].
27 Esophagitis should be described using the Los Angeles classification [17].
28 Varices should be described using the Baveno classification [19].
29 The suspected eosinophilia esophagitis should be described using the EREFS classification (edema, rings, exudate, furrows, strictures) [20].
30 Caustic esophagitis should be described using the Zargar classification [21].
<i>Stomach</i>
32,36,40 Polyps or suspicious lesions should be described using the Paris classification [22].
34,39 Ulcers should be described using the Forrest classification [23].
35 Varices should be described using the Sarin classification [24].
<i>Duodenum</i>
44 Ulcers should be described using the Forrest classification [23].
45,48 Polyps or suspicious lesions should be described using the Paris classification [22].
49 The presence of diverticula should be described.
50 If the papilla presents a suspicion of adenoma, this should be described.

Barrett's esophagus

STATEMENT

- In the case of Barrett's esophagus, the Prague classification should be used.
- In the case of Barrett's esophagus, if acetic acid or virtual chromoendoscopy is used, this should be stated in the report.

In the presence of Barrett's esophagus as tongue-like areas or circumferential mucosa proximal to the esophagogastric

junction, the extent in centimeters and the Prague classification [18] should be reported:

- The C value represents the extent of totally circumferential columnar-lined mucosa above the esophagogastric junction.
- The M value represents the total maximum extent of the entire Barrett's area, including the circumferential extent and any tongue-like protrusions, above the gastro-esophageal junction.
- Therefore, the following is always applicable: $M \geq C$.

In this case the report should contain, for example, the following sentence:

"The esophagogastric junction is located (X cm) from the incisors, and the suspected/known Barrett's esophagus has a circumferential extent up to XX cm and a maximum extent up to XX cm from the incisors (CxMx by Prague classification). Acetic acid/virtual chromoendoscopy was used, and areas of suspected dysplasia were/were not identified."

Esophageal varices

STATEMENT

- Varices should be described using the Baveno classification.

If esophageal varices are present during the UGI endoscopy, they should be described following the Baveno classification [19]:

- Small: < 5 mm in diameter
- Large: $\geq$ 5 mm in diameter.

If varices are observed during UGI endoscopy, they should be described as follows:

"Presence of XX esophageal varices of less/more than 5 mm in diameter (small/large following Baveno classification)."

Eosinophilic esophagitis

STATEMENT

- Suspected eosinophilic esophagitis should be described using the EREFS classification (edema, rings, exudate, furrows, strictures).

In the presence of eosinophilic esophagitis, some characteristics of the esophagus should be described following the EREFS classification [20]:

- Edema (also referred to as decreased vascular markings, mucosal pallor):
 - Grade 0: Absent (distinct vascularity present)
 - Grade 1: Loss of clarity, or absence of vascular markings
- Rings (also referred to as concentric rings, corrugated esophagus, corrugated rings, ringed esophagus, trachealization):
 - Grade 0: None
 - Grade 1: Mild (subtle circumferential ridges)

- Grade 2: Moderate (distinct rings that do not impair passage of a standard adult endoscope [outer diameter 8–9.5 mm])
- Grade 3: Severe (distinct rings)
- Exudate (also referred to as white spots, plaques):
 - Grade 0: None
 - Grade 1: Mild (lesions involving $\leq 10\%$ of the esophageal surface area)
 - Grade 2: Severe
- Furrows (also referred to as vertical lines, longitudinal furrows):
 - Grade 0: Absent
 - Grade 1: Present
- Stricture:
 - Grade 0: Absent
 - Grade 1: Present.

In this case, the report should contain the following sentence:

“The esophagus presented edema (grade 0/1), rings (grade 0/1/2/3), exudate (grade 0/1/2), furrows (grade 0/1), and stricture (grade 0/1), according to the EREFS classification.”

Caustic esophagitis

STATEMENT

- Caustic esophagitis should be described using the Zargar classification.

If the UGI endoscopy is performed after caustic ingestion, the Zargar classification [21] should be used:

- Grade 0: Normal esophagus
- Grade 1: Esophageal hyperemia
- Grade 2a: Superficial ulceration, noncircumferential
- Grade 2b: Deep, discrete, or circumferential ulceration
- Grade 3a: Black, brown necrosis is noted with areas of ulceration
- Grade 3b: Extensive necrosis
- Grade 4: Perforation.

In this case, the report should contain the following sentence:

“The esophagus presented ... (grade X according to Zargar classification).”

Esophagus: Other alterations

STATEMENT

- The presence of proximal ectopic mucosa (inlet patch) should be described.
- The presence of Zenker diverticulum (or any diverticulum) should be described.

In the proximal esophagus, the presence of ectopic mucosa (inlet patch) and/or the presence of Zenker diverticulum should

be reported, as well as their location from the incisors and estimated size.

Esophagus, stomach, and duodenum: Polyps or suspected lesions

STATEMENT

- Polyps or suspected lesions should be described using the Paris classification.

If a polyp or a suspected lesion (a flat elevated or a flat area of the mucosa with or without depression) is identified during UGI endoscopy, it should be described in location, size (mm), and shape following the Paris classification [22]:

- Protruded lesions
 - Ip: pedunculated polyps
 - lsp: subpedunculated polyps
 - ls: sessile polyps
- Flat elevated lesions
 - 0-IIa: flat elevation of the mucosa
 - 0-IIa/IIc: flat elevation with central depression
- Flat lesions
 - 0-IIb: flat mucosal change
 - 0-IIc: mucosal depression
 - 0-IIc/IIa: mucosal depression with raised edge.

In this case, the report should contain the following sentence:

“At (location) a XX mm polyp/suspected lesion is identified and appears as a X polyp (X according to Paris classification).”

Stomach and duodenum: Ulcers

STATEMENT

- Ulcers should be described using the Forrest classification.

In the presence of an ulcer during UGI endoscopy, it should be described in location, size (mm), and bleeding stigmata using the Forrest classification [23]:

- Type 1: Active bleeding
 - 1a: Spurting hemorrhage
 - 1b: Oozing hemorrhage
- Type 2: Signs of recent bleeding
 - 2a: Non-bleeding visible vessel
 - 2b: Adherent clot on lesion
 - 2c: Hematin-covered lesion
- Type 3: Lesion without bleeding (flat spot, clean base).

In this case, the report should contain the following sentence:

“At (location) a XX mm ulcer with (description) (type X according to the Forrest classification) was found.”

Gastric varices

STATEMENT

- Varices should be described using the Sarin classification.

If gastric varices are present during the UGI endoscopy, they should be described following the Sarin classification [24]:

- GOV 1: Appear as continuations of esophageal varices and extend for 2 to 5 cm below the gastroesophageal junction, along the lesser curve of the stomach
- GOV 2: Extend beyond the gastroesophageal junction into the fundus of the stomach
- IGV 1: Are located in the fundus of the stomach and fall short of the cardia by a few centimeters
- IGV 2: include isolated ectopic varices and can appear anywhere in the stomach, such as in the body, antrum, or pylorus.

In this case, the report should contain the following sentence:

“Presence of gastric varices located at (location) (X according to Sarin classification).”

Duodenum (bulb and second portion/descending part): Other alterations

STATEMENT

- Villi could be described as atrophic.
- The presence of diverticula should be described.

In cases of alteration of villi, they could be described as atrophic.

The presence of diverticula should be reported, and if the papilla presents a suspicion of adenoma, it should be described.

Postprocedure information

STATEMENT

- The type of biopsies should be described: random or targeted.
- The location of biopsies should be reported.
- The number of biopsies for each area and the number of vials, specifying the specimens inserted in each vial, should be reported.
- Photographic images obtained during UGI endoscopy (complying with performance measures in UGI endoscopy guidelines) should be inserted in the report according to the capabilities of the reporting system.
- The duration of the exam should be reported from intubation to extubation (total time).

At the end of the report, the endoscopists should clearly state the location of biopsies, the number of biopsies for each area, whether the biopsies were random or targeted, and the number of vials sent for the histopathological examination, specifying the specimens inserted in each vial.

Photodocumentation of all normal anatomical landmarks and all abnormal findings is also required. During the UGI endoscopy, images should be taken following the ESGE updated *Performance measures for upper gastrointestinal endoscopy*, in terms of number and locations [2], and inserted in the report as far as the reporting system allows, bearing in mind that photographic images are a fundamental part of the report. A proposed systematic sequence for the recording of the 10 suggested pictures, regarding all relevant normal landmarks, would be: proximal esophagus (1), distal esophagus (2), Z-line and diaphragmatic indentation (3), duodenal bulb (4), second part of duodenum (5), antrum (6), cardia and fundus in full inversion (7), lesser curvature of corpus in partial inversion (8), incisura in partial inversion (9), greater curvature of corpus in forward view (10). When withdrawing from the esophagus, a repeated final picture of the upper esophagus just below the sphincter allows a precise calculation of the examination time (from picture 1 to picture 11 in a normal diagnostic endoscopy). Any abnormality should have at least one picture to complement the information written in the report.

The report should state the exam duration, considering the total time from intubation to extubation, namely from the insertion of the scope in the patient's esophagus to the retrieval of the scope from the patient's esophagus.

The endoscopic report should be concluded with the names of all staff involved and their roles.

Conclusions

To the best of our knowledge, this is the first document aiming to provide a standardized report for UGI endoscopy.

There are some limitations in this document. Most of the authors and co-authors who participated in the manuscript and the Delphi processes are from European countries, and this could affect the terminology used and the classifications of every pathology of the UGI tract. However, most are expert endoscopists whose practice is dedicated to the UGI tract. Due to the lack of rigorous studies, many of the reporting proposals are expert opinions and not evidence-based.

Nevertheless, this document provides the most important classifications that should be used during the writing of a UGI endoscopy report, aiming to counter vague and useless descriptions that are liable to varying interpretations, misunderstanding, and error. Uniform and essential information describing the UGI tract promotes consistency among endoscopy providers, diminishes information errors, and might even speed up the writing of the report, saving more time for performance of the endoscopic procedure, where it is clinically more useful.

In conclusion, standardization of reporting could enhance the quality of endoscopy and shape endoscopist performance towards uniformly high quality UGI endoscopy.

Disclaimer

The legal disclaimer for ESGE guidelines [5] applies to this Position Statement.

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Competing interests

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