

SUPPLEMENTARY MATERIAL

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Curriculum for optical diagnosis training in Europe:

European Society of Gastrointestinal Endoscopy (ESGE) Position Statement

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Name :	Hospital :
Date of birth	Starting date :

	Optical diagnosis trainers	Hospital :
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Please remember: an Excel database is also provided with this logbook to allow you to report your procedures in more detail

Overview training curriculum for optical diagnosis diminutive colorectal lesions

A. Pre-adoption	requirements to start OD training	Progress (X if
	Personal experience of at least 300 LGI endoscopies	completed
	Meeting the ESGE key quality performance measures for LGI	
	endoscopy.	
	Be able and competent to perform LGI endoscopy with HD white	
	light combined with virtual and/or dye-based CE	
B. Training/lear	ning steps OD	
	Attending a validated training course with the validated NICE/	
	WASP/BASIC classification.	
	Self-learning by assessing at least 120 diminutive colorectal	
	lesions prospectively with histological feedback.	
C. Assessment criteria OD proficiency		
Being	Meeting pre-adoption requirements and training/ learning	
competent OD	criteria OD.	
	Meeting international endorsed competence thresholds in 60	
	prospectively-assessed diminutive colorectal lesions.	
Maintaining	In vivo audit and review of at least 120 diminutive colorectal	
competence	lesions within one year.	
OD	If it is not possible to perform OD on a regular basis, repeat	
	training/learning and competence phases.	



A. Pre-adoption requirements to start optical diagnosis training

Personal experience of at least 300 LGI endoscopy	Date achieved
Performed ≥300 LGI endoscopies	

ESGE quality measures for LGI endoscopy	Date achieved	Average score
Cecal intubation rate \geq 95%		
Adenoma detection rate (ADR) of $\ge 25\%$		
Minimum mean withdrawal time of six minutes		

Competent to perform LGI endoscopy with HD-WLE with virtual and/or dye-based CE	Estimated number of cases
LGI endoscopy with HD-WLE combined with virtual CE	
LGI endoscopy with HD-WLE combined with dye-based CE	

To assess ESGE quality performance measures, a total of 100 consecutive procedures should be used, or all if <100 procedures have been performed (use the provided Excel file*)



B. Training/learning steps optical diagnosis

	Validated optical diagnosis training course with the validated NICE/ WASP/BASIC classification.
Name training course	
Location training course	
Date training course	
Content training	
Name trainer	
Signature trainer	

	Date achieved
Self-learning by assessing at least 120 diminutive colorectal lesions	
prospectively with histological feedback (use the provided Excel file*).	



C. Assessment criteria optical diagnosis proficiency

Being competent in OD

	Percentage	Date achieved
Meeting international endorsed competence thresholds in 60 prospectively-assessed diminutive colorectal lesions (high-confidence predictions (use the provided Excel file*).		
PIVI 1: ≥90% Surveillance interval agreement		
PIVI 2: NPV ≥90% for diminutive neoplastic lesions in the rectosigmoid		

Calculation PIVI criteria:

- NPV: To calculate the NPV for predicting diminutive neoplastic lesions in the rectosigmoid, OD
 of each diminutive polyp with high confidence have to be compared with histopathological
 diagnosis. In this calculation, adenomas and SSL were categorized as neoplastic lesions,
 whereas HPs were considered as non-neoplastic lesions. Note that when a SSL is assessed as
 an adenoma or vice versa, this is considered a correct diagnosis because both are categorized
 as neoplastic lesions.
- Surveillance interval agreement: To determine the surveillance agreement, for each patient in
 the dataset the surveillance intervals based on the optical diagnosis strategy have to be
 compared with the surveillance intervals based on histopathology. The surveillance intervals
 based on optical diagnosis have to be determined for each patient in the dataset by combining
 the high confidence optical diagnosis of diminutive polyps with the pathology diagnosis of the
 other polyps (polyps ≥5 mm and diminutive polyps assessed with low confidence. Patients
 have to be excluded from the surveillance interval agreement calculation when patients had
 no diminutive polyps or only low confidence predictions were made. Surveillance intervals
 have to be calculated according to the ESGE surveillance guideline.

Maintaining competence in OD

	Percentage	Date achieved
In vivo audit and review of at least 120 diminutive colorectal lesions within one year.		
PIVI 1: ≥90% Surveillance interval agreement		
PIVI 2: NPV ≥90% for diminutive neoplastic lesions in the rectosigmoid		



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A. Pre-adoption requirements to start OD training		Progress (X if completed)
	Personal experience of at least 300 LGI endoscopies	
	Meeting the ESGE key quality performance measures for LGI	
	endoscopy.	
	Be able and competent to perform LGI endoscopy with HD white	
	light combined with virtual and/or dye-based CE	
B. Training/lear	ning steps OD	
	As a validated training course is not yet available (other than	
	NICE): onsite one week training course with an OD expert in large	
	(≥20 mm) colorectal lesions (including part on techniques and	
	validated classifications (NICE/JNET/Sano/Hiroshima/ Kudo).	
	Self-learning by assessing at least 20 large (≥ 20mm) colorectal	
	lesions prospectively with histological feedback.	
C. Assessment of	riteria OD proficiency	
Being	Meeting pre-adoption requirements and training/ learning	
competent OD	criteria OD.	
	Achieving ≥80% accuracy for identifying submucosal invasion in	
	20 large (≥ 20mm) colorectal lesions.	
Maintaining	In vivo audit and review of at least 10 large (>20mm) colorectal	
competence	lesions within one year.	
OD	If it is not possible to perform OD on a regular basis, repeat	
	training/learning and competence phases. Attending additional	
	online assessment module with feedback.	

Overview training curriculum for optical diagnosis early CRC



A. Pre-adoption requirements to start optical diagnosis training

Personal experience of at least 300 LGI endoscopy	Date achieved
Performed ≥300 LGI endoscopies	

ESGE quality measures for LGI endoscopy	Date achieved	Average score
Cecal intubation rate \geq 95%		
Adenoma detection rate (ADR) of $\ge 25\%$		
Minimum mean withdrawal time of six minutes		

Competent to perform LGI endoscopy with HD-WLE with virtual and/or dye-based CE	Estimated number of cases
LGI endoscopy with HD-WLE combined with virtual CE	
LGI endoscopy with HD-WLE combined with dye-based CE	

To assess ESGE quality performance measures, a total of 100 consecutive procedures should be used, or all if <100 procedures have been performed (use the provided Excel file*)



B. Training/learning steps optical diagnosis

	Onsite one week training course with an OD expert in large (≥20 mm) colorectal lesions (including part on techniques and validated classifications (NICE/JNET/Sano/Hiroshima/ Kudo).
Name training course	
Location training course	
Date training course	
Content training	
Name trainer	
Signature trainer	

	Date achieved
Self-learning by assessing at least 20 large (≥ 20mm) colorectal lesions	
prospectively with histological feedback(use the provided Excel file*).	



C. Assessment criteria optical diagnosis proficiency

C1. Being competent in OD

	Date achieved	Accuracy
Achieving ≥80% accuracy for identifying submucosal invasion in		
20 large (≥ 20mm) colorectal lesion (use the provided Excel		
file*).		

C2. Maintaining competence in OD

	Date achieved	Accuracy
In vivo audit and review of at least 10 large (>20mm) colorectal		
lesions within one year (use the provided Excel file*).		

If it is not possible to perform OD on a regular basis, repeat training/learning and competence phases. Attending additional online assessment module with feedback.



Name :	Hospital :
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Overview training curriculum for optical diagnosis of neoplasia in IBD

A. Pre-adopt	ion requirements to start OD training	Progress (X
		completed)
	Personal experience of at least 300 LGI endoscopies	
	Meeting the ESGE key quality performance measures for LGI endoscopy.	
	Be able and competent to perform LGI endoscopy with HD white light	
	combined with virtual and/or dye-based CE	
B. Training/le	earning steps OD	
	As a validated training course is not yet available:	
	onsite one week training course with an OD expert in IBD (including part	
	on techniques and validated classifications: FACILE / Kudo).	
	Dye-based CE in ≥20 IBD surveillance patients with ≥20 biopsies targeted	
	at suspicious lesions and normally appearing mucosa with histological	
	feedback (back-up 4 quadrant random biopsies every 10 cm).	
	Dye-based or virtual CE with targeted biopsies only, with histological	
	feedback in 20 cases.	
	Virtual CE in ≥20 IBD procedures with ≥20 biopsies targeted at suspicious	
	lesions and normally appearing mucosa with histological feedback (back-	
	up 4 quadrant random biopsies every 10 cm)	
	Virtual CE with targeted biopsies only, with histological feedback in 20	
	cases.	
C. Assessmer	nt criteria OD proficiency	
Being	Meeting pre-adoption requirements and training/ learning criteria OD.	
competent	Achieving a neoplasia detection rate of ≥10% in 20 IBD pan-CE	
OD	colonoscopies with targeted biopsies only.	
Maintaining	In vivo audit and review of at least 10 IBD endoscopic lesions within one	
competence	year.	
OD	If it is not possible to perform OD on a regular basis, repeat	
	training/learning and competence phases. Attending additional online	
	assessment module with feedback.	



A. Pre-adoption requirements to start optical diagnosis training

Personal experience of at least 300 LGI endoscopy	Date achieved
Performed ≥300 LGI endoscopies	

ESGE quality measures for LGI endoscopy	Date achieved	Average score
Cecal intubation rate ≥ 95%		
Adenoma detection rate (ADR) of $\ge 25\%$		
Minimum mean withdrawal time of six minutes		

Competent to perform LGI endoscopy with HD-WLE with virtual and/or dye-based CE	Estimated number of cases
LGI endoscopy with HD-WLE combined with virtual CE	
LGI endoscopy with HD-WLE combined with dye-based CE	

To assess ESGE quality performance measures, a total of 100 consecutive procedures should be used, or all if <100 procedures have been performed (use the provided Excel file*)



B. Training/learning steps optical diagnosis

	As a validated training course is not yet available: onsite one week training course with an OD expert in IBD (including part on techniques and validated classifications: FACILE /Kudo).
Name training course	
Location training course	
Date training course	
Content training	
Name trainer	
Signature trainer	

	Date achieved
Dye-based CE in ≥20 IBD surveillance patients with ≥20 biopsies targeted at	
suspicious lesions and normally appearing mucosa with histological feedback	
(back-up of 4 quadrant random biopsies every 10 cm) (use the provided	
Excel file*).	
Dye-based or virtual CE with targeted biopsies only, with histological	
feedback in 20 cases (use the provided Excel file*).	
Virtual CE in ≥20 IBD procedures with ≥20 biopsies targeted at suspicious	
lesions and normally appearing mucosa with histological feedback (back-up	
of 4 quadrant random biopsies every 10 cm) (use the provided Excel file*).	
Virtual CE with targeted biopsies only, with histological feedback in 20 cases	
(use the provided Excel file*).	



C. Assessment criteria optical diagnosis proficiency

C1. Being competent in OD

	Date achieved	Accuracy
Achieving a neoplasia detection rate of ≥10% in 20 IBD pan-CE		
colonoscopies with targeted biopsies only (use the provided		
Excel file*).		

C2. Maintaining competence in OD

	Date achieved	Accuracy
In vivo audit and review of at least 10 IBD endoscopic lesions		
within one year (use the provided Excel file*).		

If it is not possible to perform OD on a regular basis, repeat training/learning and competence phases. Attending additional online assessment module with feedback.



Name :	Hospital :
Date of birth	Starting date :

	Optical diagnosis trainers	Hospital :
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Overview training curriculum for optical diagnosis of ESCC

A. Pre-adoption requirements to start OD training		Progress (X
		completed)
	Personal experience of at least 300 UGI endoscopies	
	Meeting the ESGE key quality performance measures for UGI endoscopy.	
	Be able and competent to perform UGI endoscopy with HD white light	
	combined with virtual and/or dye-based CE	
B. Training/le	earning steps OD	
	As a validated training course is not yet available:	
	onsite one week training course with an OD expert in ESCC (including part	
	on techniques and validated JES classification*).	
	Self-learning by assessing at least 20 oesophageal lesions in high-risk ESCN	
	patients prospectively with histological feedback.	
C. Assessmer	nt criteria OD proficiency	
Being	Meeting pre-adoption requirements and training/ learning criteria OD.	
competent	Achieving ≥80% accuracy for characterising neoplasia in 20 oesophageal	
OD	lesions in high-risk ESCN patients.	
Maintaining	Audit and review of at least 10 oesophageal lesions in in high-risk ESCN	
competence	patients within one year.	
OD	If it is not possible to perform OD on a regular basis, repeat	
	training/learning and competence phases. Attending additional online	
	assessment module with feedback.	



A. Pre-adoption requirements to start optical diagnosis training

Personal experience of at least 300 UGI endoscopy	Date achieved
Performed ≥300 UGI endoscopies	

ESGE quality measures for UGI endoscopy	Date achieved	Average score
Procedure time of ≥ 7 minutes		
Inspection time of \geq 1 minute/cm of the circumferential extent of the Barrett's epithelium.		

Competent to perform UGI endoscopy with HD-WLE with virtual and/or dye-based CE	Estimated number of cases
LGI endoscopy with HD-WLE combined with virtual CE	
LGI endoscopy with HD-WLE combined with dye-based CE	

To assess ESGE quality performance measures, a total of 100 consecutive procedures should be used, or all if <100 procedures have been performed (use the provided Excel file*)



B. Training/learning steps optical diagnosis

	As a validated training course is not yet available:
	onsite one week training course with an OD expert in ESCC
	(including part on techniques and validated JES classification).
Name training course	
Location training course	
Date training course	
Content training	
Name trainer	
Signature trainer	

	Date achieved
Self-learning by assessing at least 20 oesophageal lesions in high-risk ESCN patients prospectively with histological feedback (use the provided Excel file*).	



C. Assessment criteria optical diagnosis proficiency

C1. Being competent in OD

	Date achieved	Accuracy
Achieving ≥80% accuracy for characterising neoplasia in 20		
oesophageal lesions in high-risk ESCN patients (use the		
provided Excel file*).		

C2. Maintaining competence in OD

	Date achieved	Accuracy
Audit and review of at least 10 oesophageal lesions in in high-		
risk ESCN patients within one year (use the provided Excel		
file*).		

If it is not possible to perform OD on a regular basis, repeat training/learning and competence phases. Attending additional online assessment module with feedback.



Name :	Hospital :
Date of birth:	Starting date :

	Optical diagnosis trainers	Hospital :
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Overview training curriculum for optical diagnosis in Barrett's oesophagus

A. Pre-adoption requirements to start OD training		Progress (X
		completed)
	Personal experience of at least 300 UGI endoscopies	
	Meeting the ESGE key quality performance measures for UGI endoscopy.	
	Be able and competent to perform UGI endoscopy with HD white light combined with virtual and/or dye-based CE	
	Attending a validated training course for the detection of Barrett neoplasia: BORN and/or Chedgy	
B. Training/le	earning steps OD	
	As a validated training course is not yet available: onsite training course with a validated classification BING/ BLINC /PREDICT)	
	Self-learning by assessing at least 20 oesophageal lesions in high-risk BE patients prospectively with histological feedback.	
C. Assessmer	nt criteria OD proficiency	
Being	Meeting pre-adoption requirements and training/ learning criteria OD.	
competent	Meeting international endorsed competence thresholds in 20	
OD	prospectively-assessed oesophageal lesions in high-risk BE patients	
Maintaining	In vivo audit and review of at least 20 oesophageal lesions in BE patients	
competence	within one year.	
OD		
	If it is not possible to perform OD on a regular basis, repeat training/learning and competence phases. Attending additional online assessment module with feedback.	

OD, optical diagnosis, UGI, upper gastrointestinal; LGI, lower gastrointestinal; GI, gastrointestinal; HD, high-definition; CE, chromoendoscopy

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A. Pre-adoption requirements to start optical diagnosis training

Personal experience of at least 300 UGI endoscopy	Date achieved
Performed ≥300 UGI endoscopies	

ESGE quality measures for UGI endoscopy	Date achieved	Average score
Procedure time of ≥ 7 minutes		
Inspection time of ≥ 1 minute/cm of the circumferential extent of the Barrett's epithelium.		

Competent to perform UGI endoscopy with HD-WLE with virtual and/or dye-based CE	Estimated number of cases
LGI endoscopy with HD-WLE combined with virtual CE	
LGI endoscopy with HD-WLE combined with dye-based CE	

To assess ESGE quality performance measures, a total of 100 consecutive procedures should be used, or all if <100 procedures have been performed (use the provided Excel file*)

	Attending a validated training course for the detection of Barrett neoplasia: BORN and/or Chedgy.
Name training course	
Location training course	
Date training course	
Content training	
Name trainer	
Signature trainer	



B. Training/learning steps optical diagnosis

	As a validated training course is not yet available: onsite training	
	course with a validated classification BING/ BLINC /PREDICT)	
Name training course		
Location training course		
Date training course		
Content training		
Name trainer		
Signature trainer		

	Date achieved
Self-learning by assessing at least 20 oesophageal lesions in high-risk BE	
patients prospectively with histological feedback (use the provided Excel	
file*).	



C. Assessment criteria optical diagnosis proficiency

C1. Being competent in OD

	Percentage	Date achieved
Meeting international endorsed competence thresholds in 20 prospectively-assessed oesophageal lesions in high-risk BE patients (use the provided Excel file*).		
PIVI 1: Sensitivity of ≥90% for detecting HGD or EAC		
PIVI 2: NPV of ≥98% for detecting HGD or EAC		
PIVI 3: Specificity of ≥80% for detecting HGD or EAC		

C2. Maintaining competence in OD

	Percentage	Date achieved
In vivo audit and review of at least 20 oesophageal lesions in BE patients within one year (use the provided Excel file*).		
PIVI 1: Sensitivity of ≥90% for detecting HGD or EAC		
PIVI 2: NPV of ≥98% for detecting HGD or EAC		
PIVI 3: Specificity of ≥80% for detecting HGD or EAC		

If it is not possible to perform OD on a regular basis, repeat training/learning and competence phases.



Name :	Hospital :
Date of birth	Starting date :

	Optical diagnosis trainers	Hospital :
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Please remember: an Excel database is also provided with this logbook to allow you to report your procedures in more detail.

Overview training curriculum for optical diagnosis of early gastric cancer

A. Pre-adoption requirements to start OD training		Progress (X
		completed)
	Personal experience of at least 300 UGI endoscopies	
	Meeting the ESGE key quality performance measures for UGI endoscopy.	
	Be able and competent to perform UGI endoscopy with HD white light combined with virtual and/or dye-based CE	
B. Training/le	earning steps OD	
	As a validated training course is not yet available: onsite training course with expert in gastric dysplasia/EGC (including part on techniques and VS* / simplified NBI classification*)	
	Self-learning by assessing at least 20 gastric lesions in high-risk of gastric dysplasia/EGC patients prospectively with histological feedback	
C. Assessment criteria OD proficiency		
Being	Meeting pre-adoption requirements and training/ learning criteria OD.	
competent OD	Achieving ≥80% accuracy for characterising neoplasia in 20 gastric lesions in high risk gastric dysplasia/EGC patients	
Maintaining competence	Audit and review of at least 10 gastric lesions in high-risk gastric dysplasia/EGC patients within one year.	
OD	If it is not possible to perform OD on a regular basis, repeat training/learning and competence phases. Attending additional online assessment module with feedback.	



A. Pre-adoption requirements to start optical diagnosis training

Personal experience of at least 300 UGI endoscopy	Date achieved
Performed ≥300 UGI endoscopies	

ESGE quality measures for UGI endoscopy	Date achieved	Average score
Procedure time of ≥ 7 minutes		
Inspection time of ≥ 1 minute/cm of the circumferential extent of the Barrett's epithelium.		

Competent to perform UGI endoscopy with HD-WLE with virtual and/or dye-based CE	Estimated number of cases
LGI endoscopy with HD-WLE combined with virtual CE	
LGI endoscopy with HD-WLE combined with dye-based CE	

To assess ESGE quality performance measures, a total of 100 consecutive procedures should be used, or all if <100 procedures have been performed (use the provided Excel file*)



B. Training/learning steps optical diagnosis

	As a validated training course is not yet available: onsite training course with expert in gastric dysplasia/EGC (including part on techniques and VS/ simplified NBI classification)
Name training course	
Location training course	
Date training course	
Content training	
Name trainer	
Signature trainer	

	Date achieved
Self-learning by assessing at least 20 gastric lesions in high-risk of gastric	
dysplasia/EGC patients prospectively with histological feedback (use the	
provided Excel file*).	



C. Assessment criteria optical diagnosis proficiency

C1. Being competent in OD

	Date achieved	Accuracy
Achieving ≥80% accuracy for characterising neoplasia in 20		
gastric lesions in high risk gastric dysplasia/EGC patients (use		
the provided Excel file*).		

C2. Maintaining competence in OD

	Date achieved	Accuracy
Audit and review of at least 10 gastric lesions in high-risk gastric		
dysplasia/EGC patients within one year (use the provided Excel		
file*).		

If it is not possible to perform OD on a regular basis, repeat training/learning and competence phases. Attending additional online assessment module with feedback.