

Terminology and Global Standardization of Endoscopic Information

Minimal Standard Terminology (MST)

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What is MST ?

- ❖ **1990** The 9th World Congress of Gastroenterology in Sydney: **ESGE held ad hoc meeting for setting up MST Committee**
- ❖ **1991 ~ 1994 Committee meetings**
2-3 times per annum, each with debates over nights; actual endoscopy reports sampled at random for frequencies of terms
- ❖ **1994** The 10th World Congress of Gastroenterology in Los Angeles: **MST published as Working Party Report**
- ❖ **2001** JGES published **Japanese version of MST** on the homepage of the society
- ❖ **2006** Terminology Committee of OMED renewed
- ❖ **Future** Addition of **MST for EUS**, inclusion of ICD-10 and other modifications

 Japanese

 English

 French

 Czeck

 German

 Hungarian

 Italian

 Russian

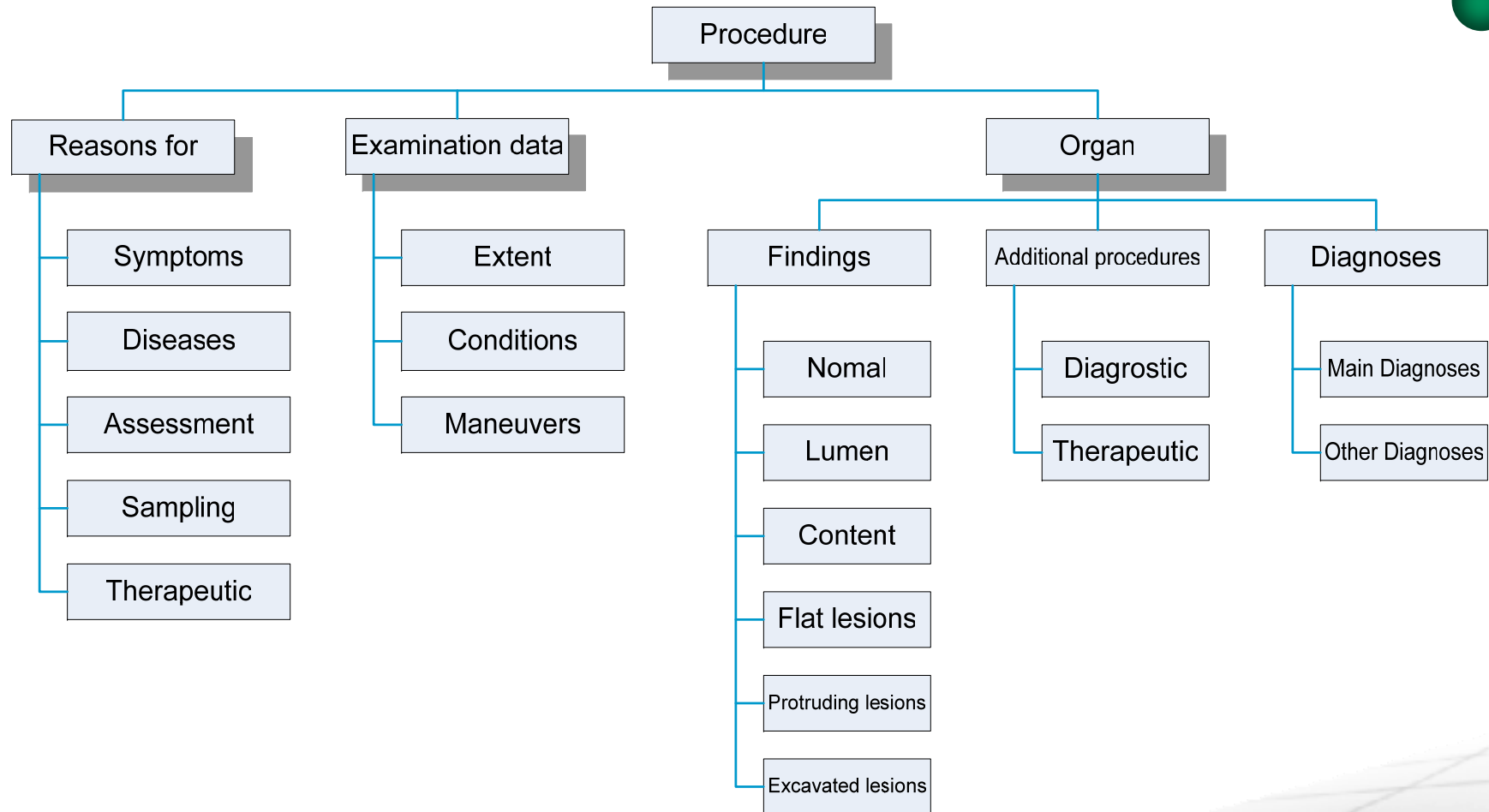
 Portugese

 Spanish

 Turkish

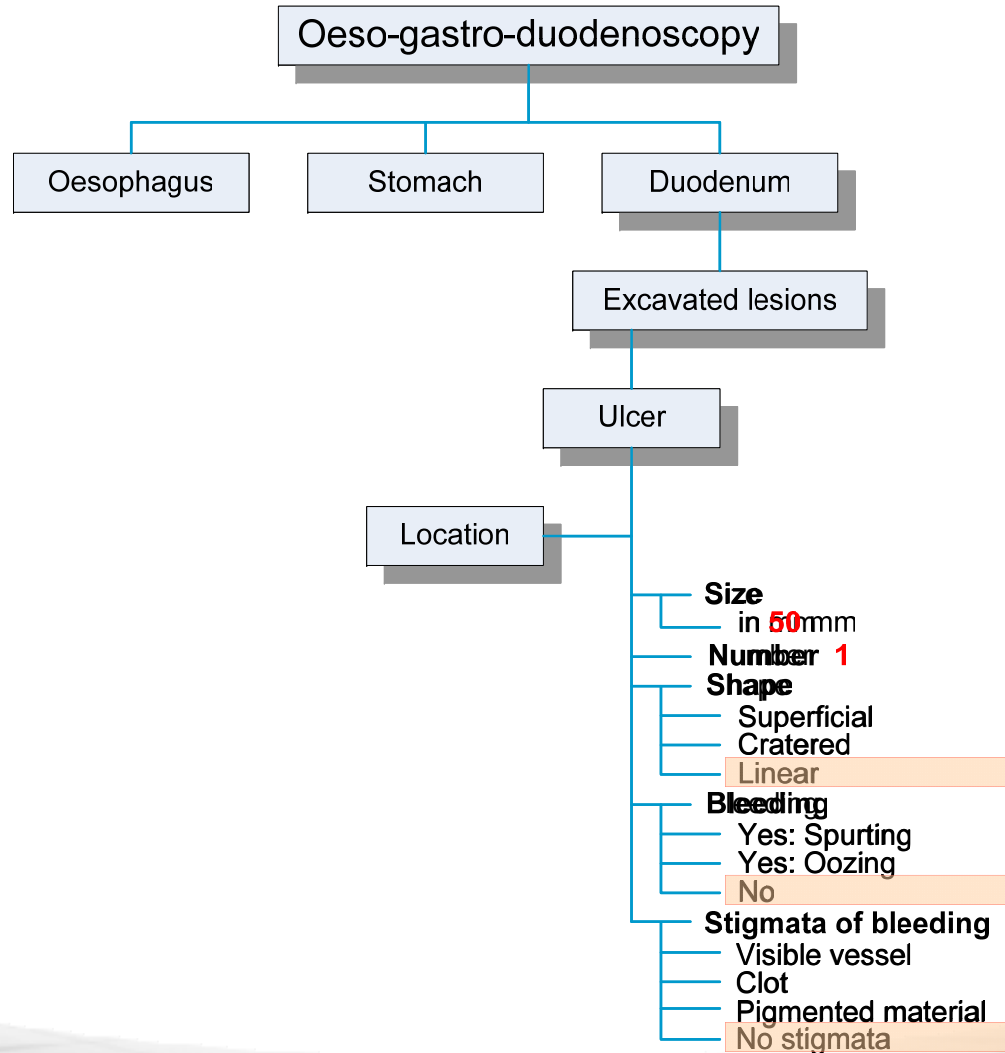
MST Structure

Organization of the MST



MST Structure [Example]

Structure of the links between terms and attributes



Function and Application of MST

1. **Construction of a database on endoscopic information**
2. **Statistical analysis**
3. **Quality control of endoscopic examination and endoscopic treatment**
4. **Safety management, and further by linking with the hospital information system:**
5. **Scheduling of the procedures and patients**
6. **Management of the distribution of the goods**
7. **Billing will be automatically made**

Our report generator © MST

- ❖ Based on this MST, we developed an endoscopy report generator.
- ❖ Furthermore, we studied the cross-language operability of MST, with the intention of modifying our report generator with the additional function of “simultaneous” multiple-language translator.

Comparison of All Language Versions

Table 1. 上部消化管の部位と所見 (Sites for location of findings in the upper gastrointestinal tract).

器官 (ORGAN)	部位 (SITE)
食道 (Esophagus)	食道入口部 (Cricopharynx)
	上1/3 (Upper third)
	中1/3 (Middle third)
	下1/3 (Lower third)
	贛門 (Cardia)
	食道全体 (Whole esophagus)
	吻合部 (Anastomosis)
胃 (Stomach)	

Table 1. Sites for location of findings in the upper gastrointestinal tract.

ORGAN	SITE	MOD
Esophagus	Cricopharyngeus	
	Upper third	
	Middle third	
	Lower third	
	Cardia	
	Whole esophagus	
	Anastomosis	
Stomach		

Table 1. Localisation anatomiques : Tractus digestif supérieur.

ORGANE	SITE
Œsophage	Cricopharynx
	Tiers supérieur
	Tiers moyen
	Tiers inférieur
	Cardia
	Tout l'œsophage
	Anastomose
Estomac	

Tabulka 1. Lokalizace nálezů v horní části trávicího ústrojí

ORGÁN	LOKALIZACE
Jícen	krkofaryngeální
	horní třetina
	střední třetina
	dolní třetina
	kardie
	celý jícen
	anastomóza
Žaludek	kardie

Table 1. Regionen zur Lokalisierung von Befunden im oberen Gastrointestinaltrakt.

ORGAN	LOKALISATION	NÄHERE BEZEICHNUNG
Ösophagus	Ösophaguseingang	
	Oberes Drittel	
	Mittleres Drittel	
	Unteres Drittel	
	Kardia	
	Gesamter Ösophagus	
	Anastomose	
Magen	Kardia	

	Japanese	English	French	Czech	German	Hungarian	Italian	Russian	Portugese	Spanish	Turkish
2											
3	食道入口部	Crico-	Cricopharyng	krkofaryngea	Ö	Crico-	Cricofaringe	Перстневидн	Cricofaringeo	Cricofaringe	Kriko-
4	上 1/3	Upper third	Tiers supé	horní třetina	Oberes Drittel	Felső harmad	Terzo	Верхняя трет	Tercio superior	Tercio	Üst bir bölüçü
5	中 1/3	Middle third	Tiers moyen	střední třetina	Mittleres Drittel	Középső	Terzo medio	Средняя трет	Tercio médio	Tercio medio	Orta bir bölüçü
6	下 1/3	Lower third	Tiers inférie	dolní třetina	Unteres Drittel	Alsó harmad	Terzo inferiore	Нижняя трет	Tercio inferior	Tercio	
7	贛門	Cardia	Cardia	kardie	Kardia	Cardia	Cardias	Кардия	Cardia	Card	
8	食道全体	Whole	Tout	celý jícen	Gesamter Ö	Egész nyelöcs	Intero esofago	Весь пищевод	Todo o esó	Total	
9	吻合部	Anastomosis	Anastomose	anastomóza	Anastomose	Anastomosis	Anastomosi	Анастомоз	Anastomose	Anas	
10	贛門	Cardia	Cardia	kardie	Kardia	Cardia	Cardias	Кардия	Cardia	Card	
11	胃底部	Fundus	Grosse tubé	fundus	Fundus	Fundus	Fondo	Свод (Дно)	Fundo	Fund	
12		Fundus	Grosse tubé	fundus	Fundus	Fundus	Fondo	Свод (Дно)	Fundo	Fund	
13		Fundus	Grosse tubé	fundus	Fundus	Fundus	Fondo	Свод (Дно)	Fundo	Fund	
14		Fundus	Grosse tubé	fundus	Fundus	Fundus	Fondo	Свод (Дно)	Fundo	Fundus	
15	胃体部	Body	Corps	tělo	Korpus	Corpus	Corpo	Тело	Corpo	Corpo	

Table 1. Lugares para la localización de los hallazgos en el tracto gastrointestinal superior.

ORGANO	LUGAR	ALTERACIONES
Esófago	Cricofaringe	
	Tercio superior	
	Tercio medio	
	Tercio inferior	
	Cardias	
	Totalidad del esófago	
	Anastomosis	
Estómago	Cardias	

Table 1. Lugares para la localización de los hallazgos en el tracto gastrointestinal superior.

ORGANO	LUGAR	ALTERACIONES
Esófago	Cricofaringe	
	Tercio superior	
	Tercio medio	
	Tercio inferior	
	Cardias	
	Totalidad del esófago	
	Anastomosis	
Estómago	Cardias	

1. Táblázat. Helyek a felső gastrointestinalis traktusban talált érvényes lokalizációknak.

SZERV	HELY	MODOSÍTÓ
Nyelvcső		
	Cricofaryngetik	
	Felső harmad	
	Középső harmad	
	Alsó harmad	
	Cardia	
	Egésznyelöcs	
	Anas	
gyomor		

Tabella 1. Sedi di localizzazione dei reperti del tratto digestivo superiore

ORGANO	SEDE	SPECIFICHE
Esófago	Cricofaringe	
	Tercio superiore	
	Tercio medio	
	Tercio inferiore	
	Cardias	
	Intero esofago	
	Anastomosi	
Stomaco		

Таблица 1. АНАТОМИЧЕСКИЕ ОТДЕЛЫ ИСПОЛЗУЕМЫЕ ДЛЯ ТОПОГНОСТИЧЕСКОГО ОПИСАНИЯ РЕЗУЛЬТАТОВ ЭНДСКОПИЧЕСКОГО ИССЛЕДОВАНИЯ ВЕРХНЕЖЕЛУДОЧНО-КИШЕЧНОГО ТРАКТА

ОРГАН	ОТДЕЛЫ ЧАСТОЙ	МОДИФИКА
Пищевод	Перстневидно-глоточный (Крико-фарингеальный) отдел	
	Верхняя треть	
	Средняя треть	
	Нижняя треть	
	Кардия	
	Весь пищевод	
	Анастомоз	
Желудок	Кардия (Свод/Дно)	Нижняя треть

4.1.1 Regiões anatómicas do tubo digestivo superior. O quadro seguinte define os termos que devem ser usados para localizar as lesões do tubo digestivo superior.

ORGÃO	REGIÃO	LOCAL
Esófago	Cricofaringe	
	Tercio superior	
	Tercio medio	
	Tercio inferior	
	Cardia	
	Todo o esófago	
	Anastomose	
Estómago	Cardia	

Is MST interchangeable across languages?

- ❖ Through our comparative study, minor problems of 5 categories were found:
 1. Inconsistencies in the terms, attributes, attribute values (Expansion, excessive ramification, lacking, wrong interpretation)
 2. Inconsistent order of the terms, attributes and attribute values.
 3. Inconsistencies in the layer structure of terms.
 4. Inconsistencies in handling the free text
 5. Inconsistencies in the definition of terms (definition of terms being the specification of the terminology.)

Problem (1) Free Text or Choice of Attribute Values

【Table 9】Terms for colon

Japanese	大腸の	縫合材露出	記述する		
English	Terms				
French	Termes				
Czeck	Termíny	Suture Material Visible	Specify		
German	Begriffe				
Hungarian	Tábláz	Matériel de suture visible		Oui	Non
Italian	Termini				
Russian	Терми	видiteľný šicí materiál	specifikuj		
Portugese	Termín				
Spanish	Términ				No
Turkish	Kolon	Sichtbares Nahtmaterial	Bitte angeben...		

Problem (2) Order of Appearance

【Table 20】List of stomach diagnoses

Table 20. List of stomach diagnoses - Other Diagnoses

Japanese	English	Czeck	Portugese	Russian
血管拡張症	Angioectasia	angiektazie	Angiectasia	Ангизктазия
良性腫瘍	Benign tumor	benigní nádor	Cancro Gástrico Superficial	Варикозное расширение вен
原因不明の出血	Bleeding of unknown	cizí těleso	Cicatriz	Гастростаз
Dieulafoy 病変	Dieulafoy lesion	časný karcinom žaludku	Compressão Extrínseca	Геликобактер пилори
憩室	Diverticulum	Dieulafoyova leze	Corpo estranho	Дивертикул
粘膜切除後癌遺残				
粘膜切除後再発癌				
悪性リンパ腫				
MALTリンパ腫				
早期胃癌	Early gastric cancer	divertikl	Divertículo	Доброкачественная опухоль
壁外性圧迫	Extrinsic compression	Helicobacter pylori	Estase gástrica	Инородное тело
瘻孔	Fistula	jizva	Fístula	Кровотечение из неустановленного источника
異物	Foreign body	kvácení neznámého pů	Gastropatia Papulosa	Папулезная гастропатия
胃排出障害	Gastric retention	papulózní gastropatie	Helicobacter pylori	Паразиты (необходимо добавить в список в не
H.pylori	Helicobacter pylori	paraziti (doporučuje se	Hemorragia de causa	Подслизистая опухоль
丘疹状の胃症	Papulous gastropathy	přístěl	Lesão de Dieulafoy	Поражение Дъелафуа
寄生虫	Parasites (should be	pooperační změny	Parasitas (deve ser acrescentada	Ранний рак желудка
術後	Post-operative	retence žaludečního	Pós-operatório	Рубец
瘢痕	Scar	submukozní nádor	Tumor Benigno	Свищ (фистула)
粘膜下腫瘍	Submucosal tumor	varixy	Tumor submucoso	Сдавление извне
静脈瘤	Varices	zevní útlak	Varizes	Состояние после операции

Problem (3) Difference in Layer Structures

Table 17. Reasons for lower gastrointestinal examination

Japanese

疾患 (Diseases)	属性 (Attributes)
ポリープ (Polyps)	疑い (Suspected)
大腸癌 (Colo-rectal cancer)	確定 (Established)
結腸閉塞 (Colonic obstruction)	除外 (Exclusion of)
憩室 (Diverticula)	経過観察 (Follow-up of)
炎症性の腸疾患 (Inflammatory Bowel Diseases:)	治療 (For therapy of)
クローン病 (Crohn's disease)	
潰瘍性大腸炎 (Ulcerative colitis)	
腸捻転 (Volvulus)	

English

Diseases	Attributes
Polyps	Suspected
Colo-rectal cancer	Established
Colonic obstruction	Exclusion of
Diverticula	Follow-up of
Inflammatory Bowel Diseases:	For therapy of
Crohn's disease	
Ulcerative colitis	
Volvulus	

Italian

MALATTIE	Attributi
Polipi	Sospetto di
Cancro colo-rettale	Conferma di
Ostruzione colica	Esclusione di
Diverticoli	Follow-up di
IBD: colite di Crohn	Per la terapia di
IBD: colite ulcerosa	
Volvolo	

Problems in Global Standardization

- ❖ **Is MST really interchangeable among different languages?**
- ❖ **With this aim in mind, we found 134 problems.**
- ❖ **They were summarized in 5 categories, of which 3 were thought to be solved by the coding of individual terms.**
- ❖ **The other problems must be solved by a higher organization that can control different language versions.**

Summary (1)

- ❖ **Though still with some immaturity, MST has been a rare example of terminology that has realized global standardization in the world of medicine.**
- ❖ **Its concept can be expanded to other fields of medical practice.**
- ❖ **The needs for interdisciplinary exchange of information are getting more acutely felt.**

Summary (2)

- ❖ **We hereby propose to establish, within IEEE, for instance, an organization that promotes standardization of the terminology that can transversely describe a patient, and that can control different societies and groups, as far as the terminology is concerned.**

28th IEEE EMBS Annual International Conference, Sept 1, 2006, New York City, USA

Thank You !