

# PEnQuIN

PEDIATRIC ENDOSCOPY QUALITY IMPROVEMENT NETWORK

## Supplementary Appendices

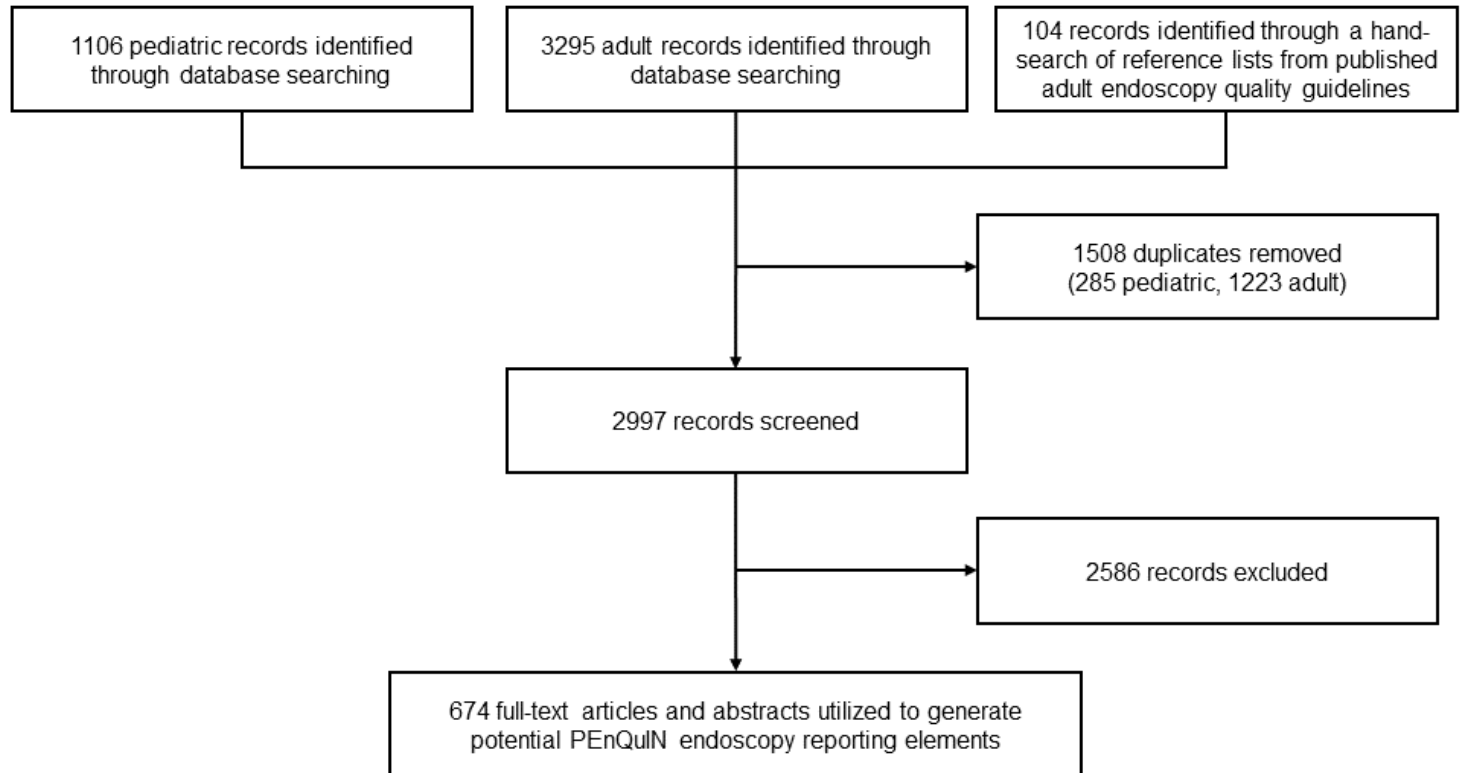
Pediatric Endoscopy Quality Improvement Network (PEnQuIN)

Pediatric Endoscopy Reporting Elements: A Joint NASPGHAN/ESPGHAN Guideline

# Supplementary Appendix 1

This search strategy was developed by a Reference and Instruction Librarian in collaboration with the PEnQuIN co-chairs.

**Figure 1:** Flow diagram of records



**Table 1:** Overview of pediatric search results (July 24, 2018)

Database	Database Date	Date	Number
Medline	Ovid MEDLINE® Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® 1946 to July 23, 2018	1990 - July 24, 2018	463
Embase	Embase Classic+Embase 1974 to 2018 Week 30	1990 - July 24, 2018	552
Cochrane	EBM Reviews - Cochrane Central Register of Controlled Trials, June 2018	1990 - July 24, 2018	91

**Table 2:** Overview of adult search results (July 24, 2018)

Database	Database Date	Date	Number
Medline	Ovid MEDLINE® Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® 1946 to July 23, 2018	2015 - July 24, 2018	929
Embase	Embase Classic+Embase 1974 to 2018 Week 30	2015 - July 24, 2018	2025
Cochrane	EBM Reviews - Cochrane Central Register of Controlled Trials, June 2018	2015 - July 24, 2018	341

**Table 3: Search strategies**

**Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, and Daily 1946 to July 23, 2018**

#	Searches	Results
1	endoscopy, digestive system/ or esophagoscopy/	21704
2	gastroscopy/ or endoscopy, gastrointestinal/	33231
3	exp colonoscopy/ or duodenoscopy/	30071
4	((gastrointestinal adj2 endoscop*) or (intestin* adj2 endoscop*) or colonoscop* or duodenoscop* or eosophagoduodenoscop* or eosophagogastrroduodenoscop* or eosphagoscop* or esophagoduodenoscop* or esophagogastrroduodenoscop* or esophagoscop* or gastroscop* or oesophagoduodenoscop* or oesophagogastrroduodenoscop* or oesophagoscop* or proctoscop* or rectoscop* or sigmoidoscop* or (upper adj2 endoscop*)).tw,kf.	54044
5	or/1-4	107863
6	quality control/ or quality of health care/ or diagnostic errors/ or safety/ or "adverse effects".fs.	1756617
7	(quality assurance* or (quality adj2 measure*) or (quality adj2 metric*) or quality control* or (endoscop* adj2 quality) or quality improvement* or "quality of health care" or health care quality or "key performance" or adverse device* or adverse event* or adverse effect or adverse effects or adverse reaction* or diagnostic error* or diagnosis error* or safety).tw,kf.	744332
8	intubation, gastrointestinal/ or ("cecal intubation rate" or "cecal intubation rates" or "caecal intubation rate" or "caecal intubation rates" or "cecal intubation time" or "caecal intubation time" or "cecum intubation rate" or "cecum intubation rates" or "caecum intubation rate" or "caecum intubation rates" or "cecum intubation time" or "caecum intubation time" or "CIR" or "digestive tract intubation*" or gastrointestinal intubation* or "ileum intubation rate" or "ileum intubation rates" or "ileum intubation time" or "ileal intubation rate" or "ileal intubation rates" or "ileal intubation time").tw,kf.	10858
9	intraoperative complications/ or postoperative complications/ or intestinal perforation/	365706
10	(complication* or perforation*).tw,kf.	906154
11	professional competence/ or clinical competence/ or benchmarking/	116929
12	(benchmark* or competenc* or wait* time*).tw,kf.	116209
13	or/6-12	3265413
14	standard of care/ or quality indicators, health care/ or (standard or standards or indicator* or measure or measures).tw,kf.	2029106
15	5 and 13 and 14	4072
16	limit 15 to (english language and yr="1990 -Current")	3616
17	16 not ((exp animals/ not humans/) or (rodent* or mice or mouse or murine* or rat or rats).ti.)	3528
18	17 not (case reports/ or (case report or case reports or case series or case study or case studies or clinical series).ti.)	3307
19*	exp child/ or infant/ or infant, newborn/ or pediatrics/	2324308
20*	(infan* or newborn* or "new born*" or perinat* or neonat* or baby or baby* or babies or toddler* or minors* or boy or boys or boyfriend or boyhood or girl* or kid or kids or child* or schoolchild* or adolescen* or juvenil* or youth* or teen* or pre-pubesc* or prepubesc* or "under* age*" or pubescen* or pediatric* or paediatric* or peditric* or prematur* or pre-term or preterm*).mp. or (child* or adolesc* or pediat* or paediat*).jn.	4162959
21*	19 or 20	4162959
22**	18 and 21	463
23†	limit 18 to (english language and yr="2015 -Current")	929

\*Limits for pediatric search; \*\*Pediatric search results; †Adult search results

### Embase Classic and Embase 1947 to 2018 Week 30

#	Searches	Results
1	digestive tract endoscopy/ or esophagogastrroduodenoscopy/ or esophagoscopy/	28510
2	gastrointestinal endoscopy/ or gastroscopy/	51460
3	intestine endoscopy/ or colonoscopy/ or duodenoscopy/ or rectoscopy/ or sigmoidoscopy/	82960
4	((gastrointestinal adj2 endoscop*) or (intestin* adj2 endoscop*) or colonoscop* or duodenoscop* or eosophagoduodenoscop* or eosophagogastrroduodenoscop* or eosphagoscop* or	98964

	esophagoduodenoscop* or esophagogastroduodenoscop* or esophagoscop* or gastroscop* or oesophagoduodenoscop* or oesophagogastroduodenoscop* or oesophagoscop* or proctoscop* or rectoscop* or sigmoidoscop* or (upper adj2 endoscop*).tw,kw.	
5	or/1-4	178051
6	quality control/ or health care quality/ or adverse event/ or diagnostic error/ or safety/	691482
7	(quality assurance* or (quality adj2 measure*) or (quality adj2 metric*) or quality control* or (endoscop* adj2 quality) or quality improvement* or "quality of health care" or health care quality or "key performance" or adverse device* or adverse event* or adverse effect or adverse effects or adverse reaction* or diagnostic error* or diagnosis error* or safety).tw,kw.	1140635
8	digestive tract intubation/ or ("cecal intubation rate" or "cecal intubation rates" or "caecal intubation rate" or "caecal intubation rates" or "cecal intubation time" or "caecal intubation time" or "cecum intubation rate" or "cecum intubation rates" or "caecum intubation rate" or "caecum intubation rates" or "cecum intubation time" or "caecum intubation time" or "CIR" or "digestive tract intubation*" or gastrointestinal intubation* or "ileum intubation rate" or "ileum intubation rates" or "ileum intubation time" or "ileal intubation rate" or "ileal intubation rates" or "ileal intubation time").tw,kw.	7453
9	complication/ or perforation/	152709
10	(complication* or perforation*).tw,kw.	1298246
11	competence/ or benchmarking/	28126
12	(benchmark* or competenc* or wait* time*).tw,kw.	149247
13	or/6-12	2853067
14	standard/ or (standard or standards or indicator* or measure or measures).tw,kw.	3060716
15	5 and 13 and 14	7238
16	limit 15 to (english language and yr="1990 -Current")	6655
17	16 not (((exp animal/ or nonhuman/) not human/) or (rodent* or mice or mouse or murine* or rat or rats).ti.)	6536
18	17 not (case report/ or case study/ or (case report or case reports or case series or case study or case studies or clinical series).ti.)	5868
19	exp child/ or pediatrics/	2779517
20	(infan* or newborn* or "new born*" or perinat* or neonat* or baby or baby* or babies or toddler* or minors* or boy or boys or boyfriend or boyhood or girl* or kid or kids or child* or schoolchild* or adolescen* or juvenil* or youth* or teen* or pre-pubesc* or prepubesc* or "under* age*" or pubescen* or pediatric* or paediatric* or peadiatric* or prematur* or pre-term or preterm*).mp. or (child* or adolesc* or pediat* or paediat*).jn.	4642765
21	19 or 20	4642765
22	18 and 21	552
23†	limit 18 to (english language and yr="2015 -Current")	2025

\*Limits for pediatric search; \*\*Pediatric search results; †Adult search results

## Database(s): EBM Reviews - Cochrane Central Register of Controlled Trials June 2018

#	Searches	Results
1	endoscopy, digestive system/ or esophagoscopy/	749
2	gastroscopy/ or endoscopy, gastrointestinal/	1541
3	exp colonoscopy/ or duodenoscopy/	1961
4	((gastrointestinal adj2 endoscop*) or (intestin* adj2 endoscop*) or colonoscop* or duodenoscop* or eosophagoduodenoscop* or eosophagogastroduodenoscop* or eosphagoscop* or esophagoduodenoscop* or esophagogastroduodenoscop* or esophagoscop* or gastroscop* or oesophagoduodenoscop* or oesophagogastroduodenoscop* or oesophagoscop* or proctoscop* or rectoscop* or sigmoidoscop* or (upper adj2 endoscop*).tw,kw.	7208
5	or/1-4	9076
6	quality control/ or quality of health care/ or diagnostic errors/ or safety/	4451
7	(quality assurance* or (quality adj2 measure*) or (quality adj2 metric*) or quality control* or (endoscop* adj2 quality) or quality improvement* or "quality of health care" or health care quality or "key performance" or adverse device* or adverse event* or adverse effect or adverse effects or adverse reaction* or diagnostic error* or diagnosis error* or safety).tw,kw.	201259
8	intubation, gastrointestinal/ or ("cecal intubation rate" or "cecal intubation rates" or "caecal intubation rate" or "caecal intubation rates" or "cecal intubation time" or "caecal intubation time" or "cecum intubation rate"	1081

	or "cecum intubation rates" or "caecum intubation rate" or "caecum intubation rates" or "cecum intubation time" or "caecum intubation time" or "CIR" or "digestive tract intubation*" or gastrointestinal intubation* or "ileum intubation rate" or "ileum intubation rates" or "ileum intubation time" or "ileal intubation rate" or "ileal intubation rates" or "ileal intubation time").tw,kw.	
9	intraoperative complications/ or postoperative complications/ or intestinal perforation/	16640
10	(complication* or perforation*).tw,kw.	65275
11	professional competence/ or clinical competence/ or benchmarking/	3118
12	(benchmark* or competenc* or wait* time*).tw,kw.	5122
13	or/6-12	269910
14	standard of care/ or quality indicators, health care/ or (standard or standards or indicator* or measure or measures).tw,kw.	225222
15	5 and 13 and 14	877
16	limit 15 to (english language and yr="1990 -Current")	756
17	16 not ((exp animals/ not humans/) or (rodent* or mice or mouse or murine* or rat or rats).ti.)	756
18	17 not (case reports/ or (case report or case reports or case series or case study or case studies or clinical series).ti.)	753
19*	exp child/ or infant/ or infant, newborn/ or pediatrics/	66404
20*	(infan* or newborn* or "new born*" or perinat* or neonat* or baby or baby* or babies or toddler* or minors* or boy or boys or boyfriend or boyhood or girl* or kid or kids or child* or schoolchild* or adolescen* or juvenil* or youth* or teen* or pre-pubesc* or prepubesc* or "under* age*" or pubescen* or pediatric* or paediatric* or peadiatric* or prematur* or pre-term or preterm*).mp. or (child* or adolesc* or pediat* or paediat*).jn.	237882
21*	19 or 20	237882
22**	18 and 21	91
23†	limit 18 to (english language and yr="2015 -Current")	341

\*Limits for pediatric search; \*\*Pediatric search results; †Adult search results

# Supplementary Appendix 2

**Table 1:** Ratings of all endoscopy reporting elements across each round of the Delphi process

REPORTING ELEMENT	Rating Mean (SD)		
	ROUND 1	ROUND 2	ROUND 3
<b>ROUND 1 (n=25)</b>			
<b>Achieved Consensus</b>			
• Type of procedure(s)	6.00 ± 0.00	---	---
• Date and time of procedure(s)	5.81 ± 0.63	---	---
• Name of responsible staff endoscopist	5.85 ± 0.61	---	---
• Name(s) of other providers involved in performing the endoscopic procedure, including trainee(s)*	5.85 ± 0.37	---	---
• Patient name and medical record number	5.92 ± 0.27	---	---
• Indication(s) for the procedure(s)	5.69 ± 0.88	---	---
• Documentation of sedation/anesthetic plan (i.e., level of sedation to be targeted: general anesthesia, deep, moderate, minimal sedation or no sedation)	5.08 ± 1.38	---	---
• Type of endoscope(s) used	5.73 ± 0.53	---	---
• Anatomic extent of examination	6.00 ± 0.00	---	---
• Method by which 'anatomic extent of examination' was confirmed	5.27 ± 1.00	---	---
• Completeness of examination	5.38 ± 0.94	---	---
• Quality of bowel preparation*	5.73 ± 0.83	---	---
• Quality of visualization	5.35 ± 0.63	---	---
• Relevant findings (including no findings)	5.85 ± 0.37	---	---
• Photodocumentation of relevant findings*	5.73 ± 0.53	---	---
• Ancillary equipment used*	5.32 ± 1.11	---	---
• Endoscopic interventions performed*	6.00 ± 0.00	---	---
• Results of therapeutic interventions*	5.96 ± 0.20	---	---
• General details of pathology specimens*	5.88 ± 0.33	---	---
• Anatomic location(s) of pathology specimens*	5.54 ± 0.90	---	---
• General details of other specimens*	5.62 ± 0.64	---	---
• Diagnostic impression (including normal)	5.60 ± 1.04	---	---
• Adverse events and resulting interventions (or statement of no adverse events)	5.92 ± 0.27	---	---
• Reason for premature termination of procedure*	5.96 ± 0.20	---	---
• Post-procedural management recommendations	4.73 ± 1.40	---	---
<b>Eliminated (n=19)</b>			
• Location of patient	4.42 ± 1.17	---	---
• Name(s) of referring doctor(s)*	3.92 ± 1.26	---	---
• Name(s) of assistant(s)	3.96 ± 1.68	---	---
• Name(s) of other providers involved in administering sedation/anesthesia, including trainee(s)*	3.81 ± 1.83	---	---
• The person from whom consent was obtained	4.15 ± 1.46	---	---
• Relevant medical history	3.92 ± 1.85	---	---
• Patient symptoms	4.12 ± 1.61	---	---
• Comorbidities	3.96 ± 1.89	---	---

• Allergies	3.65 ± 1.79	---	---
• Pre-procedure focused physical examination	2.92 ± 1.38	---	---
• Documentation of NPO status	3.15 ± 1.38	---	---
• Measure of patient complexity	4.04 ± 1.56	---	---
• Documentation of monitoring during sedation/anesthesia	3.08 ± 1.55	---	---
• Assessment of intra-operative patient comfort when sedation is endoscopist-directed, or no sedation is used	4.08 ± 1.47	---	---
• Documentation of procedural team pause / time-out	3.65 ± 1.74	---	---
• Endoscope(s) serial number(s)	4.08 ± 1.83	---	---
• Type of bowel preparation used*	3.92 ± 1.58	---	---
• Assessment of patient experience with bowel preparation*	3.46 ± 1.42	---	---
• Appended pathology report(s)*	3.38 ± 1.70	---	---
<b>ROUND 2</b>			
<b>Achieved Consensus (n=3)</b>			
• Changes to planned procedure(s)	5.12 ± 1.14	5.85 ± 0.78	---
• Patient date of birth	4.85 ± 1.41	4.80 ± 1.80	---
• Sex of patient	5.08 ± 1.29	5.15 ± 1.41	---
<b>Eliminated (n=5)</b>			
• Location of procedure	4.77 ± 1.07	3.50 ± 1.53	---
• Type and dose of other medications and/or agents administered*	4.46 ± 1.42	4.04 ± 1.93	---
• Documentation of communicated discharge information to patient and/or caregiver	4.38 ± 1.42	3.69 ± 1.69	---
• If endoscopy completed within target timeframe as per institutional guidelines	--	2.62 ± 1.58	---
• Details regarding plans for conveying pathology results*	4.35 ± 1.55	3.85 ± 1.91	---
<b>ROUND 3</b>			
<b>Achieved Consensus (n=2)</b>			
• Documentation of informed consent/assent	4.92 ± 1.32	4.08 ± 1.98	4.73 ± 1.97
• Type (anesthesiologist or endoscopist-directed) and level of sedation/anesthetic administered. If endoscopist-directed, medication names and dose(s) administered	4.73 ± 1.54	4.73 ± 1.64	4.50 ± 2.20
<b>Eliminated (n=3)</b>			
• Name and type of provider responsible for administration of sedation/anesthesia*	4.65 ± 1.72	4.19 ± 1.88	3.15 ± 2.26
• Pertinent negatives*	4.85 ± 1.32	4.27 ± 1.71	3.31 ± 2.20
• Procedure time	4.23 ± 1.50	4.19 ± 1.63	3.62 ± 2.17
<b>Did not reach criteria for elimination or consensus (n=6)</b>			
• Procedural urgency	4.88 ± 1.18	4.36 ± 1.70	4.23 ± 2.20
• Endoscope(s) model name(s)	4.69 ± 1.57	4.31 ± 2.00	4.08 ± 2.19
• Number of pathology specimens per anatomic location(s)	4.85 ± 1.26	4.62 ± 1.53	3.62 ± 2.14
• Size of pathology specimens (if applicable)	4.84 ± 1.31	4.4 ± 1.63	3.65 ± 2.31
• Details of follow-up plan (including no follow-up required)	4.73 ± 1.40	4.35 ± 1.81	4.19 ± 2.10
• Patient disposition	4.81 ± 1.33	4.27 ± 1.91	3.92 ± 2.24

\*If applicable

NPO: Nil per os