Questionnaire data

**2018 Endoscopy Unit Quality Control Survey Items**

*\*Please check the response that applies to you*

**1. Basic information**

1) What is the scale of the hospital you work at?

□ Clinic □ Hospital □ General hospital □ Tertiary hospital □ Health screening center □ Other ( )

2) Where is your hospital located?

□ Seoul □ Busan □ Incheon □ Daejeon □ Gwangju □ Daegu □ Ulsan □ Gyeonggi □ Gangwon □ Chungcheong □ Jeolla □ Gyeongsang □ Jeju □ Other ( )

**2. Personnel**

1) How many endoscopists currently work in the endoscopy unit? ( )

: Among them, how many are GI endoscopy specialists? ( )

: Among them, how many are certified endoscopists[[1]](#footnote-1)? ( )

2) How many nurses currently work in the endoscopy unit? ( )

3) How many nursing assistants currently work in the endoscopy unit? ( )

4) How many assistants currently work in the endoscopy unit? ( )

**3. Facility**

1) What is the number of endoscopy examination rooms?

: All examination rooms ( )

: Examination rooms exclusive for endoscopy (therapeutic endoscopy) ( )

2) What is the average size of each examination room? ( ) m2

3) Is there a recovery room separated from the examination room? □ Yes □ No

3.1) What is the size of the recovery room? ( ) m2

3.2) How many beds does the recovery room have? ( )

3.3) Is oxygen supply available at each bed in the recovery room? □ Yes □ No

4) Is there nursing personnel assigned exclusively to the recovery room? □ Yes □ No

5) How many nursing personnel are assigned exclusively to the recovery room?

□ Nurses ( )

□ Nursing assistants ( )

□ Other assistants ( )

6) What is the ratio of personnel assigned exclusively to the recovery room (nursing personnel) to number of patients?

① < 1:10

② 1:10~1:15

③ 1:15~1:30

④ > 1:30

6.1) What is the ratio of personnel assigned exclusively to the recovery room (nursing personnel) to number of patients you believe is appropriate?

① < 1:10

② 1:10~1:15

③ 1:15~1:30

④ > 1:30

7) What is the ratio of number of beds in the recovery room to number of patients?

① < 1:10

② 1:10~1:15

③ 1:15~1:30

④ > 1:30

7.1) What is the ratio of number of beds in the recovery room to number of patients you believe is appropriate?

① < 1:10

② 1:10~1:15

③ 1:15~1:30

④ > 1:30

8) Is ECG/BP/OS monitoring equipment available at all beds in the **recovery room**?

□ Yes □ No

8.1) If not, how many of each is available?

□ ECG ( )

□ BP ( )

□ OS ( )

9) Is ECG/BP/OS monitoring equipment available at all beds in the endoscopic **examination room**?

□ Yes □ No

9.1) If not, how many of each is available?

□ ECG ( )

□ BP ( )

□ OS ( )

10) Does the hospital have a log book and records on regular inspection of endoscope and main equipment?

□ Yes □ No

11) Does each examination room have an adequate ventilation system? □ Yes □ No

12) Does the endoscopy unit have portable oxygen tanks that can be used at any time (used for patient transport)?

□ No □ Yes (How many: )

13) Does the endoscopic examination room have a dehumidification system using CO2? □ Yes □ No

14) Are the endoscopic examination rooms divided by partitions or curtains instead of being separate rooms?

□ Have separate rooms

□ Divided by partitions or curtains

15) Does the hospital have separate patient dressing rooms for different genders? □ Yes □ No

16) Are there bathrooms inside the endoscopy unit? □ Yes □ No

17) Does the endoscopy unit have a pre-examination patient waiting area?

□ No □ Yes (Number of seats: )

18) Does the hospital have training programs for new endoscopy equipment and devices? □ Yes □ No

**4. Outcome indicators**

1) How many endoscopic procedures were performed between 2013 and 2017 (5 years)?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | | **2013** | **2014** | **2015** | **2016** | **2017** | **Total** |
| General | | | | | | | |
| Gastroscopy | Sedation |  |  |  |  |  |  |
| Non-sedation |  |  |  |  |  |  |
| Colonoscopy | Sedation |  |  |  |  |  |  |
| Non-sedation |  |  |  |  |  |  |
| Therapeutic endoscopy | | | | | | | |
| Gastroscopy | ESD |  |  |  |  |  |  |
| EMR |  |  |  |  |  |  |
| Polypectomy |  |  |  |  |  |  |
| Colonoscopy | Polypectomy |  |  |  |  |  |  |
| EMR |  |  |  |  |  |  |
| ESD |  |  |  |  |  |  |

2) Do you record examination-related complications in the endoscopy outcome report? □ Yes □ No

3) Do you record the operating time of **gastroscopy** in the endoscopy outcome report? □ Yes □ No

4) Do you record the major medical history of the patient (hypertension, diabetes, cardiovascular disease, etc.) in the endoscopy outcome report?

□ Yes □ No

5) Do you record the medication history of the patient (anti-thrombotic agents, etc.) in the endoscopy outcome report? □ Yes □ No

6) Do you record the withdrawal time during **colonoscopy**? □ Yes □ No

6.1) If yes, what is the percentage of colonoscopy procedures in the past 1 month that required a withdrawal time of 6 minutes or more? ( )%

7) Do you record cecal intubation rate during colonoscopy? □ Yes □ No

7.1) If yes, what is the latest confirmed cecal intubation rate? ( )%

8) Do you regularly measure polyp detection rate? □ Yes □ No

8.1) If yes, what is the last measured value? ( )%

9) Do you regularly measure adenoma detection rate? □ Yes □ No

9.1) If yes, what is the last measured value? ( )%

10) In colonoscopies performed during the past year, approximately what percent of the cases had colon cleanliness that was “adequate” or better? ( )%

11) Do you keep monthly (annual) statistics on endoscopy-related complications? □ Yes □ No

12) What is the number of endoscopy-related complications for the past 5 years?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | 2013 | 2014 | 2015 | 2016 | 2017 |
| Bleeding | Gastric | Diagnostic[[2]](#footnote-2) |  |  |  |  |  |
| Therapeutic[[3]](#footnote-3) |  |  |  |  |  |
| Colon | Diagnostic |  |  |  |  |  |
| Therapeutic |  |  |  |  |  |
| Perforation | Gastric | Diagnostic |  |  |  |  |  |
| Therapeutic |  |  |  |  |  |
| Colon | Diagnostic |  |  |  |  |  |
| Therapeutic |  |  |  |  |  |
| Sedation accident  (hypotension/respiratory depression, etc.) | | |  |  |  |  |  |
| Falls | | |  |  |  |  |  |
| Deaths | | |  |  |  |  |  |
| Other safety-related accidents | | |  |  |  |  |  |

**5. Disinfection**

1) What do you use in the pre-washing stage for endoscopy?

□ Sterilized water

□ Enzyme-based cleanser

1.1) If you are using enzyme-based cleanser, what is the cleanser (enzyme-based cleanser) you are currently using?

( )

2) What disinfectants do you currently use? (multiple answers possible)

□ Glutaraldehyde

□ Ortho-phthalaldehyde (OPA)

□ Peracetic acid

□ Electrolyzed acid water

□ Other ( )

3) Is there someone currently working who is assigned specifically to disinfection? □ Yes □ No

3.1) How many people and what are their qualifications?

□ Nurses ( )

□ Nursing assistants ( )

□ Other assistants ( )

3.2) What do you think is the appropriate number of personnel to assign specifically for disinfection?

□ ( ) persons per 100 cases of examinations per day

4) Is there a cleaning room that is separated from the examination room?

□ Separate room

□ Divided by partitions or curtains

□ No separate disinfection room

5) Does the disinfection room have an adequate ventilation system? □ Yes □ No

5.1) Please check all that apply:

□ Ventilation hood

□ Ventilation window

□ Other: ( )

6) Is the endoscopic equipment used in the examination placed in an exclusive box or basket for transporting to the cleaning room? □ Yes □ No

7) Is the area where the endoscopy equipment is washed divided into clean and contaminated zones?

□ Separate room

□ Divided by partitions or curtains

□ Not separated

8) Is the endoscopy equipment being transported between the examination and cleaning rooms have a contaminated path prior to cleaning and a clean path after washing? □ Yes □ No

9) What type of brushes do you use for cleaning?

□ Use a disposable brush only once

□ Reuse a disposable brush after disinfection

□ Reuse a reusable brush after disinfection

10) What type of water do you use in the rinsing step after disinfection?

□ Filtered or sterilized water

□ Unfiltered but drinkable water

□ Tap water

11) Do you have an automatic disinfector?

□ Yes (Number of disinfectors: )

□ None

12) Does the hospital have bacterial culture test guidelines for quality control of endoscopy disinfection? □ Yes □ No

13) Does the hospital perform bacterial culture test for quality control of endoscopy disinfection?

□ Not at all

□ Irregularly, whenever deemed necessary

□ Regularly (□ once □ twice □ three times □ four or more times a year)

14) Are you checking the minimum effective concentrations of high-level disinfectants?

□ No

□ Once a day, prior to the start of examinations

□ Several times a day, prior to the start of examinations on each day, and before and after changing the disinfectant

15) How is the time for changing the disinfectant determined?

□ Change every morning regardless of how many rounds of disinfection

□ Change according to how many rounds of disinfection

□ Change after directly checking the minimum effective concentration with a strip

16) Please check all personal protective equipment currently used by disinfection workers during washing?

□ Protective mask

□ Protective cap

□ Waterproof gown

□ (Rubber) gloves

□ Goggles

□ Closed-toe shoes

□ Ear plugs

□ Other ( )

17) Did disinfection workers (except for licensed nursing personnel) receive disinfection training? □ Yes □ No

17.1) Where did disinfection workers receive their disinfection training?

□ KSGE or its satellite office

□ Headquarters or satellite offices of Korean Nurses Association/Korean Society of Gastrointestinal Endoscopy Nurses

□ Regional cancer centers (National Cancer Center sponsored)

□ Korean Society of Digestive Endoscopy and satellite offices

□ Other (Other societies/associations not mentioned above or internal training) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

18) Which guidelines does your institution use?

□ KSGE Guidelines for Endoscope Reprocessing

□ Guidelines of Cleaning and Disinfection in Gastrointestinal Endoscope for Clinicians

□ Internal disinfection guidelines

□ Others: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. Sedation**

1) Which drug(s) do you use for sedation endoscopy (diagnostic)?

(1) Sedative

① Midazolam

② Propofol

③ Midazolam + Propofol

④ Others (Etomidate, etc.): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2) Analgesic

① None

② Meperidine

③ Fentanyl

④ Others: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) Do you make decisions based on American Society of Anesthesiologist (ASA) classification as a part of the assessment prior to sedation endoscopy and keep records of the results? □ Yes □ No

2.1) In what fraction of patients do you perform ASA classification assessment?

① < 1/4

② 1/4 ~ 1/2

③ 1/2 ~ 3/4

④ > 3/4

3) Do you check the Mallampati score as a part of the assessment prior to sedation endoscopy and keep records of the results? □ Yes □ No

3.1) In what fraction of patients do you perform Mallapati score assessment?

① < 1/4

② 1/4 ~ 1/2

③ 1/2 ~ 3/4

④ > 3/4

4) Do you supply oxygen prior to the administration of the sedative? □ Yes □ No

4.1) When do you begin supplying oxygen?

① Immediately before the endoscopic examination

② 1-5 minutes before the endoscopic examination

③ 5-15 minutes before the endoscopic examination

④ 15-30 minutes before the endoscopic examination

5) Who makes the decisions on the type of sedation-inducing drug, initial dose, additional dose, and dosing interval during sedation endoscopy?

① Endoscopist

② Endoscopy-assisting doctor (not an anesthesiologist)

③ Anesthesiologist

④ Nurse with sedation training

⑤ Other (Nurse with no sedation training, nursing assistant, general assistant, etc.): \_\_\_\_\_\_\_\_\_\_\_\_\_\_

6) How many assisting personnel, besides the endoscopist, are present during diagnostic sedation endoscopy?

① No additional personnel

② 1 nursing personnel

③ ≥ 2 nursing personnel

④ Other (Doctor, general assistant, etc.): \_\_\_\_\_\_\_\_\_\_\_\_\_\_

7) Have the assistants received sedation training? □ Yes □ No

7.1) Where did the assistants receive their sedation training?

① Propofol sedation training sponsored by the Korean Medical Association

② KSGE seminar or session on sedation during satellite lecture and workshop

③ Sedation training sponsored by the headquarters or satellite offices of Korean Nurses Association/Korean Society of Gastrointestinal Endoscopy Nurses

④ Other (Other societies/associations not mentioned above or internal training): \_\_\_\_\_\_\_\_\_\_\_\_\_\_

8) Do you monitor oxygen saturation levels during sedation endoscopy? □ Yes □ No

9) Do you supply oxygen when hypoxia occurs during sedation endoscopy? □ Yes □ No

10) In what fraction of patients do you regularly measure blood pressure during sedation endoscopy?

① < 1/4

② 1/4 ~ 1/2

③ 1/2 ~ 3/4

④ > 3/4

11) In what fraction of patients do you regularly monitor ECG during sedation endoscopy?

① < 1/4

② 1/4 ~ 1/2

③ 1/2 ~ 3/4

④ > 3/4

12) In what fraction of patients do you assess levels of consciousness\* during sedation endoscopy?

① < 1/4

② 1/4 ~ 1/2

③ 1/2 ~ 3/4

④ > 3/4

\* Examples of levels of consciousness are as follows; minimal sedation (anxiolysis), normal response to verbal stimulation; moderate sedation (conscious sedation), purposeful response to verbal or tactile stimulation; deep sedation, purposeful response after repeated or painful stimulation; general anesthesia (unarousable even with painful stimulus)

13) How often do you check vital signs in the recovery room after the examination?

□ Heart rate: ( ) beats/minute

□ Blood pressure: ( ) minute

□ Respiratory rate: ( ) minute

□ State of consciousness: ( ) minute

14) How do you respond to paradoxical response?

① Additionally administer the same sedative

② Additionally administer another sedative

③ The patient is reexamined under a non-sedation state after recovery through the use of an antagonist

④ Others:

15) Are sedative antagonists, such as flumazenil and naloxone, available inside the examination room?

□ Yes □ No

16) How often do you use antagonists during sedation endoscopy?

① < 1/4

② 1/4 ~ 1/2

③ 1/2 ~ 3/4

④ > 3/4

17) Under which circumstances do you usually use an antagonist during sedation endoscopy?

① Always

② Hypoxia

③ Paradoxical response

④ Others:

18) Is CPR equipment available inside the examination room? □ Yes □ No

19) Do you keep documents or logs with records of sedation endoscopy-related complications that occurred in the past 1 year or more? □ Yes □ No

20) Do you recommend that the patient should be accompanied by a guardian when being discharged after sedation endoscopy according to standardized discharge criteria\*? □ Yes □ No

\*Example of standardized discharge criteria (Modified Aldrete scale)

|  |  |  |
| --- | --- | --- |
|  |  | Score |
| Activity | Moves 4 limbs voluntarily or to commands | 2 |
|  | Moves 2 limbs voluntarily or to commands | 1 |
|  | Unable to move limbs | 0 |
| Breathing | Able to breathe deeply and cough freely | 2 |
|  | Dyspnea or limited breathing | 1 |
|  | Apnea | 0 |
| Circulation | Blood pressure < 20% of pre-sedation level | 2 |
|  | Blood pressure 20 – 49% of pre-sedation level | 1 |
|  | Blood pressure > 50% of pre-sedation level | 0 |
| Awareness | Wide awake 2 | 2 |
|  | Responds to calling | 1 |
|  | Does not respond | 0 |
| Arterial O2 saturation | Saturation > 95% in room air | 2 |
|  | Needs oxygen tomaintain saturation>90% | 1 |
|  | Saturation < 90% with oxygen | 0 |

Additional questionnaire data

**2. Personnel**

6) Does the hospital have regulations regarding endoscopy-related training for personnel working in the endoscopy unit (doctor, nursing personnel, and assistants)?

□ Yes □ No

6.1) Endoscopy technique □ Yes □ No

6.2) Endoscopy assistance □ Yes □ No

6.3) Sedation □ Yes □ No

6.4) Disinfection □ Yes □ No

**3. Facility**

1) Do you regularly check the temperature and humidity inside the endoscopy unit every day? □ Yes □ No

2) Do you have and use a protocol for patient identification prior to the examination, such as verifying their name and date of birth?

□ Yes □ No

5) Is the examination room equipped with an oxygen supply apparatus and suction equipment? □ Yes □ No

10) Does the hospital have regulations regarding putting on and taking off personal protective equipment and a dress code for medical personnel in each area within the endoscopy unit (examination room, cleaning room, etc.)?

□ Yes □ No

11) Do you wear personal protective equipment inside the examination room? □ Yes □ No

11.1) Please select all personal protective equipment currently used by the medical staff inside the examination room.

□ Protective mask

□ Protective cap

□ Waterproof gown

□ Gloves

□ Goggles

□ Closed-toe shoes

□ Other ( )

24) Does the hospital have a separate preparation room for preparing, formulating, and storing injectable medications?

□ Yes □ No

26) Does the hospital have an independent area to conduct training for patients and personnel who work inside the endoscopy unit (conference room)?

□ Yes □ No

26.1) Does the hospital have an independent area to conduct training for patients and personnel who work outside the endoscopy unit (conference room)? □ Yes □ No

**5. Infection**

1) Does the hospital have regulations regarding proper hand washing (how and when)? □ Yes □ No

2) Does the hospital have regulations regarding storage, management, administration, and disposal of injectable medications (intravenous administration including disposable syringe and labeling)? □ Yes □ No

3) Does the hospital have regulations regarding the management of disposable and reusable items? □ Yes □ No

4) Does the hospital have regulations regarding the use and management of items used during endoscopy, such as lubricating gel, gauze, water administered to the patient by endoscopy, coloring agent, gas, and defoamer, including their preparation, storage, and disposal?

□ Yes □ No

5) Does the hospital have guidelines regarding cleanliness and disinfection of the endoscopy unit environment, including the examination room?

□ Yes □ No

4.1) Are the examination and cleaning rooms cleaned prior to the start of workday? □ Yes □ No

4.2) Are the examination and cleaning rooms cleaned and disinfected at the end of the workday? □ Yes □ No

4.3) What do you use for disinfection?

□ Cleanser

□ Disinfectant

□ Cleanser + Disinfectants

□ Other ( )

1. Endoscopist license certified by organization other than KSGE [↑](#footnote-ref-1)
2. After diagnostic endoscopy [↑](#footnote-ref-2)
3. After therapeutic endoscopy [↑](#footnote-ref-3)