

## Establishment of a Daily E-mail Learning Program Using Intranet and It's Initial Evaluation

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**Background/Aims:** We started a daily web-based E-mail learning program about gastrointestinal (GI) endoscopy. We surveyed the opinion of the E-mail recipients about the usefulness of the daily E-mail learning program.

**Materials and Methods:** Using the intranet system, PDF-file based education materials about interesting endoscopic cases were sent to 144 members of Samsung Medical Center every day. It included every resident of the Department of Medicine, and every fellow of the Division of Gastroenterology. They were invited to answer the questionnaires using E-mail.

**Results:** A total of 92 subjects replied the questionnaire (response rate: 64%). About half of the members (47%) answered that they read the education material in the morning. They answered that they read about more than 75% of the material (48%). It took less than 5 minutes to read a daily material (87%). However, only 13 percent answered that they have sent questions to the editor of the program via E-mail. The members wanted more information about GI pharmacologic treatment (54%). Also, they wanted more cases of benign and malignant upper GI diseases (54%).

**Conclusions:** In our endoscopy unit, we have successfully established a daily E-mail learning program. It seems to be very useful for teaching and learning interesting cases during busy working hours. (**Korean J Helicobacter Up Gastrointest Res 2015;15:174-177**)

**Key Words:** Endoscopy; Learning; Electronic mail

### INTRODUCTION

In the past, medical education was typically involved in individual apprentices laboring under senior doctors. The advantages of these apprentices of institutional medical training led to the growth of medical schools along proprietary (physician-owned) model. One of the limitations of this classic educational method was its difficulty in delivering face-to-face learning experience to many students due to costs or long distance.

Over the past few years, communication and information technology has been repositioned as an integral component of the medical school environment. Most medical schools provide extensive computer networks for their students, and these are increasingly becoming a central component of the learning and teaching environment.<sup>1</sup> The main advantage of web-based educational programs is to its wide acceptance, comprehensive availability,

portability, and easy update.<sup>2</sup> However, it does not address all the parts of medical education such as text, lectures, small-group discussion, or problem-based learning. In addition, evaluation of web-based education is in early stages and there is no evidence that students learn more from web-based programs than by traditional methods.<sup>3</sup> The methodology of raising learner's motivation is needed to develop appropriately.

Recently, web-based system for training and dissemination of a magnification chromoendoscopy classification in gastrointestinal (GI) part was reported to be useful for endoscopic or other image based diagnostic procedures.<sup>4</sup> We can easily find many web based information related to GI endoscopic educational programs such as continuing medical education, e-journal, PubMed, and etc.<sup>5,6</sup> As far as we know, however, there is no study about learner's evaluation of web-based education program in GI endoscopy.

In June 2008, we started a daily web-based E-mail learning program about GI endoscopy. The aim of the present study is to evaluate the learners' responses about the usefulness of daily E-mail program.

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## MATERIALS AND METHODS

Starting from June 2, 2008, daily education materials about GI endoscopy were sent to residents, fellows, and junior faculty members in the Division of Gastroenterology, Samsung Medical Center. The education materials (called EndoTODAY) were made in the PDF format, and delivered early in the morning 5 times a week via the intranet system called Single. The contents of the daily material were usually endoscopic pictures, information about the clinical course and the final results, related references, and clinical interpretation of the cases. The subjects of endoscopic case were changed every day. The primary target of the intranet-based education was GI fellows. In addition, we developed a webpage (<http://endoedu.com>, changed into <http://endotoday.com> since June 30, 2012) to provide easy access to previous education materials.

We surveyed the opinion of the E-mail recipients about the usefulness of daily E-mail learning program. A questionnaire composed of 13 questions (Table 1) was sent to 144 E-mail recipients. Response of each question was analyzed using chi-square test.  $P < 0.05$  was considered statistically significant.

## RESULTS

### 1. Baseline characteristics

A total of 92 subjects replied the questionnaire (response rate: 64%). The subjects (n=92) were consisted of residents in Department of Medicine (n=41), fellows in the Division of Gastroenterology (n=17), GI staff faculties (n=24), and nurses and trainees of other departments (n=10).

### 2. How often is the e-mail-based education material read?

Most e-mail recipients (94%) started to get the education material from the staff faculty member (JHL) without previous asking. About half of the recipients (47%) answered that they read the education material in the morning and 25% answered that they read the material during free time in their daily schedule (Fig. 1). About half of the recipients (48%) answered that they read about more than 75% of the material. It took less than 5 mi-

**Table 1.** Response to the Questionnaire about Daily E-mail Learning Program (EndoTODAY) (n=92)

No.	Questionnaire	n (%)
1	How to contact an e-mail about EndoTODAY?	
	A. Educator directly sending E-mail without asking	86 (94)
	B. Asking educator to send E-mail	6 (6)
2	When do you read the EndoTODAY?	
	A. Every day in the morning	43 (47)
	B. Every day in the lunch	1 (1)
	C. Every day in the afternoon	1 (1)
	D. Every day in the evening	2 (2)
	E. Every day in the free time	23 (25)
	F. Once in a couple of day	16 (17)
	G. Not read	6 (7)
3	How much do you read the contents among all the EndoTODAY received?	
	A. Less than 10 percentile	10 (11)
	B. More than 10 percentile, less than 25 percentile	9 (10)
	C. More than 25 percentile, less than 50 percentile	13 (14)
	D. More than 50 percentile, less than 75 percentile	16 (17)
	E. More than 75 percentile	44 (48)
4	How much do you take the time to read the EndoTODAY?	
	A. Less than 1 minute	13 (14)
	B. More than 1 minute, less than 3 minutes	43 (47)
	C. More than 3 minutes, less than 5 minutes	24 (26)
	D. More than 5 minutes, less than 10 minutes	12 (13)
	E. More than 10 minutes, less than 20 minutes	0
	F. More than 20 minutes	0
5	Does the information of EndoTODAY help your clinical practice?	
	A. Never	2 (2)
	B. A little	18 (20)
	C. More or less	16 (17)
	D. Frequently	42 (46)
	E. Very frequently	14 (15)
6	If it helps, which one of parts (the knowledge of textbook or clinical interpretation about cases) helps your clinical practice?	
	A. The knowledge of textbook	8 (9)
	B. Clinical interpretation	81 (88)
	C. Both	3 (3)
7	Did you send directly an e-mail question about cases to educator?	
	A. Yes	13 (14)
	B. No	79 (86)
8	Did you attend another lecture by E-mail?	
	A. Yes	9 (10)
	B. No	83 (90)
9	Did you contact the EndoTODAY on internet website ( <a href="http://endoedu.com">http://endoedu.com</a> )?	
	A. Yes	34 (37)
	B. No	58 (63)
10	Which of GI parts do you need more information in EndoTODAY?	
	A. Benign diseases of UGI	24 (26)
	B. Malignant diseases of UGI	26 (28)
	C. Benign diseases of LGI	14 (15)
	D. Malignant diseases of LGI	10 (11)

**Table 1.** Continued

No.	Questionnaire	n (%)
	E. Pancreatic and biliary diseases	13 (14)
	F. Hepatic diseases	5 (6)
11	Which of parts do you recommend for improving contents of EndoTODAY?	
	A. Legal advice about medical dispute	2 (2)
	B. The knowledge about endoscopic devices	6 (7)
	C. Know-how about clinical approach to foreign patients	8 (9)
	D. GI pharmacologic treatment	50 (54)
	E. Clinical part related to medical insurance in Korea	24 (26)
	F. Etc	2 (2)
12	Do you think EndoTODAY is an important method of studying in the future?	
	A. Negative	0
	B. Neutral	11 (12)
	C. Positive	42 (46)
	D. Strong positive	39 (42)
13	Please, describe other comments about EndoTODAY.	

GI, gastrointestinal; UGI, upper GI; LGI, lower GI.

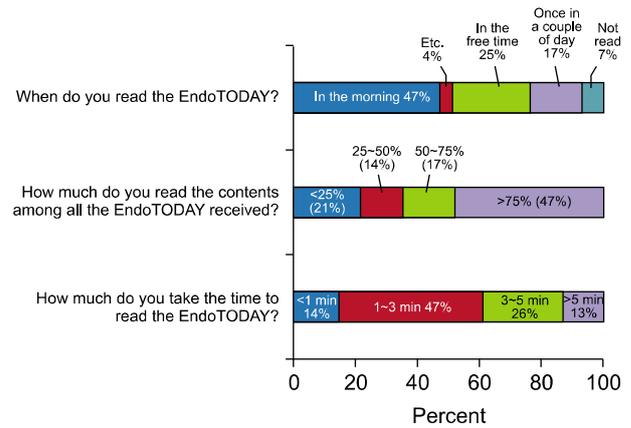
nutes to read a daily material (87%). In the subgroup analysis, residents in the Department of Medicine read less amounts of education materials than other recipients (Fig. 2).

### 3. Response on clinical usefulness

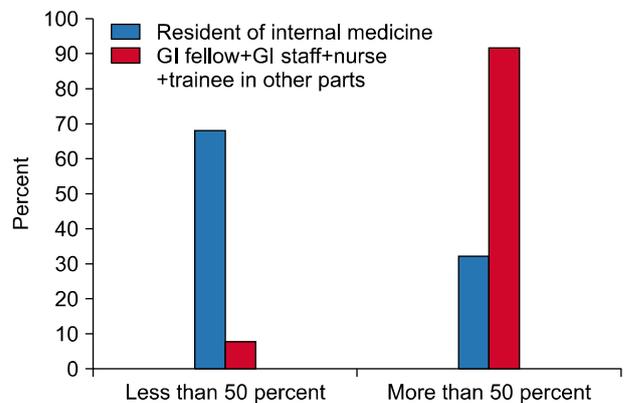
Fifty-two subjects (61%) answered that e-mail learning program helped clinical practice frequently (88% in fellows and staff faculties vs. 71% in residents and nurses,  $P=0.047$ ). Eighty eight percent answered that the clinical interpretation of the interesting case gave more useful information than the textbook-based knowledge. Most subjects (86%) did not send e-mail question about cases to educator. Only 14 percent answered that they have experience of sending e-mail questions to the program organizer.

### 4. Response to the future contents

The e-mail recipients wanted more information about benign upper GI diseases (26%), malignant upper GI diseases (28%), benign lower GI diseases (15%), malignant lower GI diseases (11%), hepatic and pancreatobiliary diseases (20%). Other than clinical case-based education, the e-mail recipients wanted more material about GI pharmacologic treatment (54%), medical insurance-related contents (26%). Most subjects (88%) answered e-mail learning



**Fig. 1.** Analysis of basic questions in e-mail learning program (question number: 2~4).



**Fig. 2.** How much do you read the contents among all the EndoTODAY received? GI, gastrointestinal.

program will be another important educational method in the future.

## DISCUSSION

Web-based medical educational program using Canadian system CoSy was first introduced to public health in 1992 and computer conferencing can be useful method for distance education and independence of time constraints.<sup>7</sup> Web-based learning program has continued to be developed to many different ways such as continuing medical education programs, biomedical materials, podcasting and etc.<sup>8-10</sup> Moreover, there were many web-based programs with multimedia in GI educational programs. There was a recent report that computer-aided learning program of capsule endoscopy due to rapid expansion in use of cap-

sule endoscopy helped to improvement in lesion recognition ability.<sup>11</sup>

One of the major limitations of the web-based education program is that if the students don't pull the material, it is almost useless. We need some kind of push-based education system to motivate the students. So, we started sending daily education materials about GI endoscopy using intranet e-mail system to residents, fellows, and junior faculty members. When they log on the intranet system every morning, they can see the daily education material in just a few minutes.

In the present study, we evaluated the initial response of the recipients. About half of the members (47%) answered that they read the education material in the morning. They answered that they read about more than 75% of the material (48%). It took less than 5 minutes to read a daily material (87%). These results are higher than our expectation.

We need to develop the contents of the e-mail-based education program further. Especially, almost half of the recipients wanted more material about GI pharmacologic treatment (54%). In addition, about half members needed to learn more information about upper GI diseases than other part. That finding may be postulated as follows; the first, the prevalence of stomach cancer was higher than western countries.<sup>12,13</sup> The second, a screening for gastric cancer have been conducted since 1999 as a part of the National Cancer Screening Program in Korea.

This is the first preliminary study that was evaluated usefulness about e-mail-based learning program on GI endoscopic cases. However, because the present study was based on a simple questionnaire, it is not clear how efficient was our program to deliver knowledge than other education methods. It can be an important future study topic.

In conclusion, we have successfully established an e-mail based education system and a web-page about GI endoscopy. It seems to be a very useful method for teaching and learning interesting cases during busy working hours.

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