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ABSTRACT

BACKGROUND: Online modules and assignments are commonly used for continuing education among residents. Ensuring ease of distribution and access to learning modules, assignments and simulations allows for the efficient completion of these tasks.

OBJECTIVE: The purpose of this quality improvement project is to propose a new method for distribution of educational material and assignments to improve resident satisfaction and ease of completion as well as tracking completion by the program manager.

METHODS: A survey was sent to the 2020-21 academic year OBGYN residents regarding the current in-hospital folder-based distribution of resources. Based on the survey feedback, a checklist was designed in a web-based program (New Innovations). A repeat survey was sent out to current OBGYN residents in the 2021-22 academic year to assess resident satisfaction with the new distribution system.

RESULTS: The checklist-based system proposed in this project utilizing a web-based system resulted in improved resident satisfaction and reported ease of use compared to the in-hospital folder-based computer system, with 86% preferring the web-based checklist.

KEYWORDS: resident education, online learning

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INTRODUCTION

Residency is a time of rapid interpersonal growth and learning. The transition to residency is an overwhelming time for incoming interns, and with each year come new responsibilities and the task of adapting to a new role. In addition to balancing patient care, strengthening surgical skills and furthering independent personal growth, continued learning remains an essential component of resident education in Obstetrics and Gynecology (OBGYN). In-person learning curricula are often supplemented with electronic materials and hands-on simulation. The distribution of learning modules, assignments and simulations to residents is important in ease of access and efficient completion of projects.

The use of online modules and assessments in resident education is not a new system. In a systematic literature review, de Leeuw et al define e-learning as: "an approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction and that facilitates the adoption of new knowledge, skills and/or behavior/attitude."[1]

E-learning presents an opportunity for a learner-centered model, putting the learner in control of their education.[2] With electronic content, learners can control the pace, time and often media which allows a tailored learning experience.[2] Content is standardized with e-learning as compared to lectures which may vary with each presentation.[2]

Online modules also allow easier access to a large quantity of information and can track and report learners progress.[2] However, there are barriers that may make access for learners and staff difficult.[3] One such barrier stems from poor communication and difficulty sharing information. With limited direction and lack of institutional support, e-learning tool implementation is rarely successful.[3] In a time of rapid role change and constant pressure to perform, slight technical issues and inconvenience with access to required learning modules may quickly result in the learner becoming overwhelmed and frustrated, which further exacerbates negative attitudes.[3] An integrated strategy is needed, with online education supplementing the core curricula[2] and necessitates ease of use for learners accessing the system. The OBGYN residency program at Reading Hospital currently uses a centralized server-based system. This is a folder-based system hosted by the hospital network in which information for the residency program is collated. Both administrative staff and residents can edit and have individual folders, which results in duplicates of information and difficulty with maintaining organization. This project aims to ameliorate difficulty in navigating the folder-based system to find documents or lists of modules required prior to advancement to the new post-graduate year (PGY) by having a checklist broken down by PGY level easily accessible for residents. New Innovations[TM] is a web-based program that can be used for tracking resident metrics, including duty hours and rotation curriculums. By creating a centralized repository identifying and linking to tasks with the ability to upload documents, the New Innovations[TM] checklist allows residents to identify assignments, manage due dates, and minimizes email burden to and from the program manager.

METHODS

A brief survey was sent out to the OBGYN residents at the beginning of the academic year (2020-2021) regarding the current folder-based distribution of resources. Questions on this survey included: post-graduate year, number of emails received for assignments being overwhelming, difficulty of navigating the folder-based drive to find tasks, and if checklists were an organizational tool. Survey completion was anonymous. An opportunity for free response comments was also provided.

Working with the OBGYN program manager, a checklist was designed in New Innovations[TM] with an itemized list of tasks required prior to promotion to the next post-graduate year. These tasks include

FIGURE 1. Example of PGY2 Checklist Design using New Innovations[a].

[a] Reproduced with permission from New Innovations

simulations, shadowing experiences, online modules, completion of certification exams (level/step, fundamentals of laparoscopic surgery) as well as CREOG in-service exam and mock-oral completion. If a task requires a certificate of completion, an option to "upload your files" was added. For modules or online assignments, a hyperlink was embedded to link directly to the appropriate webpage, cutting down on difficulty with web navigation for the residents. During bi-annual meetings with the program director, this checklist serves as an up-to-date reflection of resident progress and allow for more focused discussion of outstanding areas for completion. The New Innovations[TM] task checklist was implemented during the 2021-2022 academic year. This checklist was presented at a resident meeting with instructions on access navigation and use. Figure 1 shows an example of portion of the advancement checklist for a PGY2 resident.

After several months of resident use, another survey was sent to gauge response to the New Innovations[TM] checklist. Questions on this survey included: post-graduate year, number of emails received for assignments being overwhelming, difficulty of navigating New Innovations[TM] to find tasks, ease of use with checklist formatting, and for PGY 2 or higher residents if the New Innovations[TM] checklist was preferable to the previous folder-based distribution of advancement tasks. Survey completion was anon-

Table 1. Survey Results for the Folder-Based System

Question	Agree	Disagree	Total Responses
The folder-based system is difficult to navigate	12	1	13
Feeling overwhelmed with number of emails received for pending assignments	11	2	13
I do NOT have difficulty finding assignments in the folder-based system	0	13	13
I use checklists to stay organized	11	2	13

Table 2. Survey Results for Web-Based Checklist on New Innovations

Question	Agree	Disagree	Total Responses
New Innovations checklist is difficult to navigate	0	12	12
Feeling overwhelmed with number of emails received for pending assignments	7	5	12
I do NOT have difficulty finding assignments on New Innovations	10	2	12
I find the checklist format easy to use	12	0	12
I prefer the New Innovations checklist to the folder-based system for distribution of assignments	6	1	7

ymous. An opportunity for free response comments was also provided. Only PGY2 or higher residents were asked to complete the comparison as they were the last academic class to have used the folder-based system given implementation of the New Innovations[TM] checklist in the following academic year. SQUIRE 2.0 guidelines were followed in the writing of this manuscript.[4]

RESULTS

The results from the preliminary survey performed at the beginning of academic year 2020-2021 highlighted the current frustrations and difficulties residents faced with the folder-based distribution system (*Table 1*). The total response rate was 13 of 17 residents (76%). When asked if the folder-based system was difficult to navigate, 12 of 13 participants answered yes (92%). Additionally, 11 of 13 (85%) agreed that they were overwhelmed with the number of emails received with assignment reminders. All responders indicated they did have difficulty finding assignments, modules, or simulations on the folder-based system, indicating a need for an alternative method of assignment distribution. 11 of 13 (85%) responders noted that they personally use checklists to stay organized, which prompted designing the checklist-like approach in New-Innovations.

The New-Innovations checklist was launched for use during the 2021-2022 academic year. Instruction on locating the checklist was provided during resident orientation as well as an all-resident meeting at the beginning of the academic year. After allowing for several months of use, another survey was distributed to the current resident group (*Table 2*). The total response rate was 13 of 18 residents (72%). All responders disagreed with the statement that the New Innovations[TM] checklist was difficult to navigate, which is in stark contrast to the 92% who responded difficulty navigating the folder-based system. 58% (7 of 12) of responders endorsed feeling overwhelmed with the number of emails regarding pending modules/assignments since implementing the New Innovations[TM] checklist, which is a decrease from the 11 of 13 (85%) reported with the folder-based system. All responders agreed that the checklist format of New Innovations[TM] was easy to use. 6 of 7 PGY2+ residents (86%) preferred the New Innovations[TM] checklist to the folder-based system for distribution of learning material. Notable free responses included the sentiment that the New Innovations[TM] checklist was "super helpful in organizing tasks during intern year," and one resident reported being "really happy with how streamlined the learning checklists are now."

DISCUSSION

In a time of rapid interpersonal growth and mounting responsibilities, streamlining distribution of online learning and continuing education activities is paramount to ensure timely completion by residents. A checklist-based system as proposed in this Quality Improvement project utilizing a web-based system, New Innovations™, resulted in improved resident satisfaction and ease of use compared to an un-organized folder based in-network computer system. An additional advantage of the web-based checklist is that it can be accessed off-campus, while the folder-based system can only be edited from an in-network computer on campus.

Some limitations of this QI project include lack of 100% response rate from all residents in the program. Additionally, the cohort of residents surveyed changed between academic years, with the pre-intervention PGY4 class graduating prior to implementation of New Innovations™ checklist and were not included in the post-intervention survey. Additionally, the incoming PGY1 class post-intervention did not utilize the folder-based system so the sample size of residents that could compare the folder-based system and the web-based checklist was decreased.

Based on the results of the survey and the feedback provided by current residents, the use of a web-based checklist is a valuable and effective method for communicating information to residents and allows for easy tracking of deadlines. Given the success of this checklist among the OBGYN residency, other residency and fellowship programs may benefit from implementation of their own web-based checklist.

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