

# An Innovative Approach to Remote Electronic Health Onboarding Record Education Amid a Global Pandemic

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The COVID-19 pandemic required social and physical distancing to reduce the spread of disease. The reduction in meeting sizes made it difficult to offer traditional in-person EHR training to new and transferring employees. This paper aims to share how one nurse educator team used an innovative approach to transition traditional EHR onboarding education to synchronous remote learning during the global pandemic. Participants in the remote learning course ( $n = 94$ ) were compared with those who had previously completed the traditional course ( $n = 110$ ). Postcourse evaluations for each group were comparable. Remote learning participants found the technology conducive to training and reported higher scores for locating and reviewing patient information than those in the traditional course. Providing remote EHR education is comparable with traditional classroom education. Remote learning provided a safe, effective way to onboard new staff during the pandemic.

**KEY WORDS:** EHR, Employee Education, Onboarding, Remote Education, Training

The COVID-19 global pandemic affected 216 countries with more than 364 million confirmed cases globally and more than 800,000 deaths in the United States alone.<sup>1</sup> This led to guidelines for intentional social and physical distancing, which impacted onboarding new employees. A significant reduction in group gatherings nationwide was implemented to abide by these recommendations<sup>2</sup> and minimize exposure, as the number of COVID-19-related cases and deaths increased.<sup>3</sup> Although many educational facilities offered online classes, remote EHR training had not been implemented at this large academic children's hospital in the midwestern region of the United States. Due to the pandemic and subsequent distancing requirements, remote learning became necessary to effectively onboard new employees. Web-conferencing

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platforms, such as Skype for Business, provided the ability to teach EHR classes virtually.

The Nurse Educator – Informatics (NEI) team is a centralized team of nurses in the Nursing Informatics Department, responsible for creating and maintaining a curriculum for each EHR application and onboarding of all nurses, respiratory therapists, social workers, LPNs, medics, patient care assistants, mental health assistants, and medical assistants to the EHR. The EHR used at this organization is Epic. Typical class sizes can range from one to 20 learners, with two educators. With guidelines that limited meeting sizes, alternative training plans had to be implemented rapidly. A transition to remote learning allowed for the continual onboarding of new staff at our institution while maintaining social distancing guidelines.

## THEORETICAL FRAMEWORK

Adult Learning Theory was used to guide the remote learning EHR class development. According to Knowles et al,<sup>4</sup> adults are independent and responsible for their learning. They rely on their own experiences and become ready to learn when motivated to do so. For example, adults will be prepared to learn when they realize the content affects how they do their job and improves patient care. According to Malik,<sup>5</sup> remote learning would still have the same effects as classroom learning, as long as the curricula were updated exclusively for the remote learner and the major concepts of Adult Learning Theory were incorporated.

Adult Learning Theory includes significant characteristics that apply to remote learning. The curriculum applies to the employees' roles and responsibilities. Employees need to utilize what they learn in the basic EHR class and continue building this knowledge while caring for patients. This foundational EHR class includes content necessary for employees to understand documentation requirements based on hospital policies and regulatory documentation standards. Learners need independence in making their own decisions and taking responsibility for them while understanding why learning the content is essential. Emphasizing comprehensive documentation is a crucial point in the class introduction. Reviewing the purpose of documentation is necessary to introduce employees to the EHR to improve understanding.<sup>6</sup>

**PURPOSE**

Many universities have incorporated remote teaching into their curricula in various ways across the country.<sup>7</sup> Although remote learning is identified in the literature as an acceptable method of delivering education, there is limited knowledge of how organizations can use this method to onboard new employees. The purpose of this clinical paper is to disseminate the process and

findings of how one team used an innovative approach to transition traditional EHR onboarding education to remote learning.

**METHODS**

This paper presents an analysis of staff satisfaction and educational outcomes of remote EHR onboarding education and traditional education. Evaluations from traditional courses

**Epic Class Survey June 2019 -2020**

\* 1. My primary role is

\* 2. My primary Epic application is  
 Outpatient Clinics (Ambulatory)  
 Emergency/Urgent Care (ASAP)  
 Inpatient  
 Radiology (Radiant)  
 Surgery (OpTime)  
 Home Care Hospice  
 Other (please specify)

\* 3. Prior to this class, my Epic experience is:  
 none (I have never used Epic before)  
 as a student at NCH  
 in a different role at NCH  
 at another organization  
 Other (please specify)

\* 4. Please rate your level of agreement with the following statements

	Agree	Somewhat Agree	Neutral	Somewhat disagree	Disagree
The teaching methods (short lecture, class activities, games) kept me engaged in the class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The class activities reinforced my knowledge of new Epic concepts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have enough basic knowledge to begin to use Epic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to identify areas within the chart that are important for patient safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to locate and review patient information in Epic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please share any additional thoughts below

\* 5. Identify one or more things you liked about the class

\* 6. Suggest one or more ideas to improve the class

\* 7. My educator was.... (please choose all that apply)

**FIGURE 1.** Traditional course evaluation.

held in February 2020 were compared with virtual trainings conducted in April-May 2020. The NEI team developed the evaluations that were used in both groups. Results were anonymous, and no identifying information was collected. The project was reviewed and approved by the institutional review board.

## Measurement

Participants completed an NEI-developed course evaluation in the traditional course and the remote course. The evaluation consisted of eight questions on a 5-point Likert scale. The evaluation encompassed engagement, reinforcement

**Epic Class Survey for Remote Learning 2020**

\* 1. My primary role is

\* 2. My primary Epic application is  
 Outpatient Clinics (Ambulatory)  
 Emergency/Urgent Care (ASAP)  
 Inpatient  
 Radiology (Radiant)  
 Surgery (OpTime)  
 Home Care Hospice  
 Behavioral Health Inpatient  
 More than one application

\* 3. Prior to this class, my Epic experience is:  
 none (I have never used Epic before)  
 as a student at NCH  
 in a different role at NCH  
 at another organization

\* 4. Please rate your level of agreement with the following statements

	Agree	Somewhat Agree	Neutral	Somewhat disagree	Disagree
The teaching methods (short lecture, class activities, games) kept me engaged in the class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The class activities reinforced my knowledge of new Epic concepts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have enough basic knowledge to begin to use Epic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to identify areas within the chart that are important for patient safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to locate and review patient information in Epic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The training materials provided to me before class were clear and easy to follow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The technology used to present the training provided an optimal learning environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please share any additional thoughts below

5. If you had any difficulties with the technology used, please describe below:

\* 6. Identify one or more things you liked about the class

\* 7. Suggest one or more ideas to improve the class

\* 8. My educator was.... (please choose all that apply)

**FIGURE 2.** Remote course evaluation.

of knowledge, evaluation of basic knowledge to use the EHR, identified patient safety areas, and specified areas of patient chart review (Figure 1). The evaluation also included two open-ended questions exploring areas for improvement and positive components of the class. Two additional 5-point Likert questions were added to the virtual course evaluation (Figure 2). The questions addressed virtual class materials and any technical issues that occurred during training.

**EHR Remote Learning Development**

The NEI Curriculum Committee is responsible for creating and maintaining EHR curriculums. To successfully transition to a remote EHR class, the group reviewed the current curriculum and literature to identify necessary changes. Several components of the traditional course required updates for remote learning, such as how to document in the Medication Administration Record and fingerprint new hire employees for EHR authentication. Unit-based preceptors worked with new hire employees after class to complete fingerprinting, review safe medication administration practices, and practice using the Medication Administration Record and barcode scanners.

**Technical Considerations**

The NEI team identified several technical challenges as employees would no longer utilize computers in the informatics classroom. The team considered the variety of employees' personal computers and the need for EHR access on home

devices. Nurse Educator – Informatics team members trialed training environment login instructions on different devices and identified potential obstacles. New hire employees received login instructions via email and a paper packet, and a unique login for the remote training environment before the scheduled training. Nurse Educator – Informatics educators delivered the remote training via Skype for Business. The team considered other platforms; however, Skype for Business was the most accessible platform at the institution and allowed for screen sharing, communication via chat, and the ability for participants to call in for audio.

**Remote Teaching Strategy**

The NEI team created a synchronous remote teaching plan that included one primary educator for content and a secondary educator to assist with technical issues, monitor the Web-conferencing chatbox, and answer questions. These responsibilities are similar to the in-person class design; however, there was potential for technical problems during the remote course. The class size was limited to 10 employees to efficiently and effectively manage technical difficulties. Placing limitations on class size meant the NEI team had to increase the number of class offerings to accommodate the number of new employees.

**Approaches to Remote Learning/Teaching**

The NEI team identified several key concepts to increase the effectiveness of teaching remotely: (1) review the curriculum

**Table 1. Virtual Learning Considerations**

Web-Based Communication Considerations		
Traditional Course	Challenge	Virtual Solution
Visual cues of employees falling behind	Educator cannot see if employees are struggling.	<ul style="list-style-type: none"> <li>- Review curriculum slowly and purposefully.</li> <li>- Move slower and more purposely through the curriculum to allow the learner to follow along and process.</li> </ul>
Demonstration monitors in classroom and PC for each student	Employees need to toggle between Web-conferencing platform and the training environment.	<ul style="list-style-type: none"> <li>- Consider the number of different applications the employees are required to have open.</li> <li>- Minimize toggling between the Web-conferencing platform and the training environment.</li> <li>- Tell the learner explicitly when they should be watching the demonstration and when they should be working in the EHR.</li> </ul>
Ability to walk around class or point on the demonstration screen to point out interest points	Cannot physically point out information on a screen.	<ul style="list-style-type: none"> <li>- Use the mouse pointer to “show” the part of the screen where the learner should be looking, but also give verbal directions.</li> <li>- Remember that the learner will be processing what you say, while also scanning the screen to see where you are pointing.</li> <li>- Try not to move the mouse around too fast or too often.</li> </ul>
Question-and-answer dialogue throughout class	Audience is automatically muted during training; employees may not unmute themselves to ask a question.	<ul style="list-style-type: none"> <li>- Be sure to explicitly state things that are typically question/response type of sections if the learners cannot respond back.</li> <li>- Include pauses and time for employees to unmute or type in questions into the chat feature.</li> </ul>

slowly and purposefully in the remote environment to allow the learner time to process; (2) allow for lag time and maintain awareness of connectivity issues employees may be experiencing; (3) limit mouse movement during demonstrations, and (4) utilize the mouse to point to the areas of the screen where the remote learner should be looking, while simultaneously verbalizing the directions. Nurse Educator – Informatics educators instructed the employees to watch the educator review content (in Skype) and directed when to complete independent activities (in the EHR training environment) to decrease toggling between the Web-conferencing platform and the training environment. Employees were given defined amounts of time to complete practice documentation activities in the EHR training environment. Classes ranged from 2 to 4 hours with 10-minute hourly breaks, based on employee department and role.

### Virtual Learning Considerations

Remote learning, although effective, can produce challenges.<sup>8</sup> Challenges we considered are outlined in Table 1. The traditional class presentation needed several changes to be implemented for the remote EHR training to be successful. These changes included lack of visual cues to identify employees struggling, students toggling between the Web-based platform and the training environment, inability to physically point out information on the screen, and the limitations of asking questions due to being muted.

### End-User Communication

To improve communication, the NEI team created a communication checklist (Figure 3) to inform employees what to expect

and how to prepare for their remote learning. The checklist included instructions for accessing the class, items required to be completed before class (eg, downloading the application where they can access the EHR training environments used for class), and having access to a computer with audio and visual capabilities. The communication checklist contained areas for new-hire employees and transferring employees to reference.

## RESULTS

### Participants

The characteristics of employees in both training groups are described in Table 2. All participants were newly hired employees or employees transferring to a new department within the organization requiring EHR education. Participants were multidisciplinary and included nurses, respiratory therapists, social workers, LPNs, medics, patient care assistants, mental health assistants, and medical assistants. The total number of participants included in the evaluation of remote learning course effectiveness was comprised of 204 employees. The traditional group included 110 participants, whereas the virtual group included 94 participants. The majority of participants in both groups were RNs (n = 112). The “other” category included emergency medical technicians and research coordinators. Epic experience varied among users. Almost one-third of attendees in both groups used Epic at another organization. Those with “other” Epic experience included prior Epic use in the same role but a different department. Inpatient and emergency care were the most common areas of use for Epic before this course. Competency documenting in Epic was not evaluated before class.

**End-User Communication Checklist:**

Paper Communication- New Employees Only:

- Welcome letter stating to check email for EHR training requirements
- Acceptable devices that can be used for training (organizational provided device, personal device, tablet, Mac, PC, Chromebook, etc.)
- Instructions for accessing organizational email and common troubleshooting processes
- Activity packets for training

Electronic Communication- Transfer and New Employees:

- Date, time
- Instructor-led training, not self-paced
- Acceptable devices that can be used for training, including internet requirements
- Name and contact information of instructors
- Class assignment and training environment
- Hyperlink to applications
- Instructions to test applications before class
- Web-based meeting invitation instructions; including directions to accept the meeting so that instructor was aware that the employee received the communication. \*\*
- Instructions to print activity packets if a transfer employee

\*\*If the employee did not accept the web-based invitation, a follow-up email to the employee and his/her leadership team would be sent with read receipt option selected.

**FIGURE 3.** End-user communication checklist.

**Table 2. Epic Class Demographics**

	Traditional Learning (n = 110)	Virtual Learning (n = 94)
Primary role		
RN	56%	53%
LPN	6%	4%
Mental health technician	11%	18%
Patient care assistant	17%	16%
Respiratory therapist	3%	0%
Other	7%	9%
Epic experience prior to class		
Used at another organization	31%	27%
None	30%	26%
In a different role	29%	21%
Student	8%	8%
Other	2%	16%
Primary Epic application		
Inpatient	46%	63%
Ambulatory	11%	9%
Emergency/urgent care	34%	16%
Surgery	2%	0%
Homecare/hospice	2%	3%
Other	6%	10%

Forty-six percent (n = 94) of the total number of participants completed the virtual evaluation, and 54% (n = 110) of the participants completed the traditional evaluation. Overall, the scores were comparable. Group differences in the overall mean score are illustrated in Figure 4. Participants in the remote course reported a higher average score (4.92)

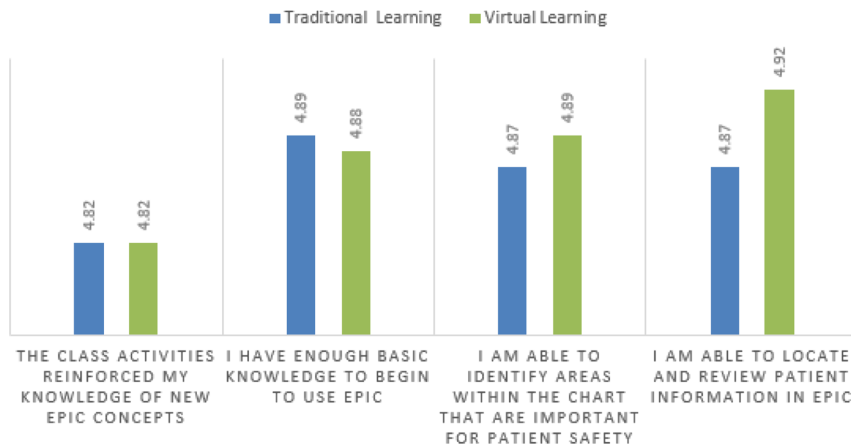
related to locating and reviewing the patient information than those in the traditional course (4.87). Almost all remote course participants (97%, n = 91) felt the technology provided an optimal training environment. Nearly half (42%, n = 40) had no suggestions for improvement, and overall, there were few technical issues (28%, n = 26). Most of the technical issues were secondary to Skype connectivity issues. Only 20% (n = 19) of respondents participating in the remote class indicated a preference for a traditional format.

**DISCUSSION AND LIMITATIONS**

The COVID-19 pandemic changed the organizational approach to onboarding new employees. Due to this, the NEI team implemented remote EHR training to support employee safety and conform to social and physical distancing guidelines. The NEI team worked collaboratively to establish a remote training plan that integrated the traditional classroom curricula. Feedback, accountability for learning, and educator support were all essential considerations to support knowledge retention.<sup>7,9</sup> To experience an enriched learning environment, employees needed to have the opportunity to ask questions, apply the concepts learned, and actively participate in discussions. Employees were able to communicate directly with educators via Skype.

Despite an overwhelmingly positive experience, some limitations were identified during implementation. Time for planning was limited due to the urgency in converting traditional class curricula to remote curricula. Another limitation included the technology platform (Skype) used for classes. Due to the shift in the organization's workforce moving to work from home, there was a significant strain on the organization's servers that caused delays and connectivity issues. An additional limitation the team encountered was a lack of experience and

**EPIC training evaluations**



**FIGURE 4.** Overall evaluation scores between two groups.

knowledge of features in the Web-conferencing platform. Other virtual classroom platforms may have improved the technical issues encountered.

During traditional classes, educators observed employees actively participating by completing assigned activities in the training environment. To ensure participation during the virtual course, the NEI team checked employee documentation to validate participation. The educator provided remediation to employees who did not participate if necessary.

There is limited literature on the effectiveness of remote learning and the use of remote technology for healthcare education.<sup>8</sup> Although there are many logistic and financial benefits to online learning, special consideration should be taken to ensure knowledge retention.<sup>7</sup> Employees benefit from educational delivery methods that enable them to participate, question, and apply concepts. Educators need to actively engage employees and provide real-time responses, to improve learning benefits during remote courses. The remote curricula should include opportunities for employees to apply recently learned knowledge and improve knowledge retention.<sup>9</sup>

## CONCLUSION

The COVID-19 pandemic led to limitations on group gatherings and social distancing recommendations. Despite this, it was necessary to continue onboarding employees to the EHR. The NEI team implemented an innovative approach to providing virtual EHR onboarding classes. In this experience, in-person and virtual EHR onboarding classes were equivocal in curricula and employee satisfaction. Our experience demonstrates that it is possible to have EHR onboarding classes in a virtual setting while still maintaining the same level of education. Employee feedback suggests satisfaction remained the same with virtual classes.

Transitioning to virtual learning for our EHR onboarding classes allowed our institution to abide by the recommended

social/physical distancing guidelines,<sup>2,3</sup> while still providing employees with the essential education to perform their job and avoid delays in onboarding. COVID-19 required immediate changes in many hospital operations. Leveraging the resources already available to the team, such as Skype, ensured there was no additional cost associated with the transition to remote onboarding. Being innovative and agile allowed the NEI team to rapidly adapt and develop a new remote EHR onboarding process that has proven to be equally successful as our in-person classes while onboarding employees promptly. In the future, the NEI team intends to use and evaluate current technologies designed to support virtual learning and consider self-paced learning modules, while using a hybrid approach to EHR onboarding. This hybrid approach will include remote classes and traditional in-person classes as class size and social distancing limitations allow.

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