



# Nurses' Perceptions of Intensive Care Unit Orientation Patient Education Pamphlet

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## ABSTRACT

**Background:** Critical illness is a stressful time for patients and their support networks. Although patient-directed educational material to improve the understanding of critical illness exists, both patients and staff members are often unaware of these resources or how to find them.

**Objectives:** We aimed to evaluate the impact of the implementation of the American Thoracic Society's (ATS) "Managing the Intensive Care Unit (ICU) Experience: A Proactive Guide for Patients and Families", an ICU orientation pamphlet, on nurses' perceptions of the availability and effectiveness of patient and family educational resources.

**Methods:** In a safety-net urban institution, we surveyed medical ICU (MICU) nurses in February 2021 regarding their perceptions of the availability of patient and family educational materials and the time and quality of communication with families of critically ill patients. We then introduced the MICU nurses to the ATS ICU orientation pamphlet to complement patient and family education. Quick response (QR) codes were created, linking to the online versions of the ICU pamphlet, and made available in waiting rooms. Printed copies of the pamphlet were provided to families in the ICU introductory packet upon patient MICU admission. We informed nurses regarding the

(Received in original form December 20, 2022; accepted in final form May 16, 2023)

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**Author Contributions:** Conception, design, and analysis: V.K. Implementation, data interpretation, and manuscript writing, editing, and revisions: D.S.L. and V.K.

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This article has a related editorial.

ATS Scholar Vol 4, Iss 3, pp 332–343, 2023  
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DOI: 10.34197/ats-scholar.2022-0142OC

pamphlet content, website, and QR codes. A postintervention survey was administered 11 months after the initial survey. Changes between pre and postintervention responses were analyzed for significant differences. Debriefing sessions with the MICU nurses were conducted, and subsequent discussions identified opportunities to improve the available educational resources.

**Results:** At baseline, 28 of 67 (42%) MICU nurses responded to the survey. Although all nurses provided verbal education to patients and families, only 18% reported knowing about and using additional resources to supplement this education. The postintervention survey was completed by 39% of nurses; 39% of them reported using additional materials to supplement patient and family education. Reported awareness of the ATS ICU pamphlet increased from 4% before implementation to 23% after implementation ( $P=0.04$ ). MICU nurses offered suggestions to improve the pamphlet, which thematically fell into three categories: 1) opportunities to alter the ICU pamphlet, 2) opportunities to provide the pamphlet in varied formats, and 3) opportunities to add additional education topics.

**Conclusions:** Informing nurses about the ICU pamphlet improved the acceptance and use of the materials, but it was still not accepted by many nurses. Barriers to ICU nurses using patient education resources should be explored to facilitate quality materials reaching patients and complementing patient communication. QR codes may have offered a way to disseminate educational materials to patients and families in a manner not previously considered. The process of evaluating the ICU pamphlet for our institution led to a broader discussion of additional needs for patient and family educational materials for our patient population. We encourage institutions to evaluate the sufficiency of their patient and family educational materials for similar local benefits.

**Keywords:**

patient education; intensive care unit; critical illness education; patient and family communication

Critical illness is a time of considerable stress for patients and their families, including those who provide social and emotional support. Although environmental factors such as unfamiliar machines and noises in the intensive care unit (ICU) contribute partly to the stress among families of critically ill patients, the major sources of stress for families include seeing patients sedated or comatose, the inability of patients to speak, and the causes of admission (1). Patient and family needs for ICU educational materials have

been studied, and a proposed framework for categorizing the needed educational materials comprises three groups: 1) ICU arrival, 2) understanding the ICU and partnering in care, and 3) ICU transitions (2). The provision of patient education specific to the ICU can improve patient and family satisfaction, improve comprehension, and reduce the psychological burden of supporting a critically ill patient (3, 4).

Educational resources for patients and families may not be accessed by patients

even when made readily available. For example, printed health information pamphlets in clinic waiting areas are infrequently accessed by consumers, ranging from 3% to 10% of materials accessed (5, 6). Although there are standards to evaluate patient educational materials for content, reading level, and health literacy, such as the Agency for Healthcare Research and Quality's Patient Education Material Assessment Tool (7), many online patient education resources exceed acceptable reading levels (8, 9). Available ICU educational resources for patients and families may also be highly variable in terms of the content and quality of materials, on the basis of the source of the information (10, 11).

ICU nurses are integral in fostering an environment conducive for patients and their families to understand the processes of the critical care unit and engage in informed shared decision making with healthcare professionals. In the process of providing excellent patient education, nurses are encouraged to use supplemental materials in the planning and implementation phases of education, evaluate materials for readability, and individualize resources to patient and family needs (12). Although the need for patient and family engagement in ICU patient care is identified as a priority in critical care nursing (13), there seems to be a lack of publicly available curated resources that meet nursing guidelines for education and patient and family health literacy needs to facilitate this engagement. In addition, nurses may not adopt patient and family informational materials to complement communication for a variety of reasons, including the availability of materials, time to search for relevant materials, nursing experience or

knowledge about the available materials, and organizational barriers (14, 15).

The American Thoracic Society (ATS) created a patient-centered pamphlet to inform patients and families about what to expect when a patient is admitted to the ICU: "Managing the Intensive Care Unit (ICU) Experience: A Proactive Guide for Patients and Families" (16). The pamphlet was being developed before the coronavirus disease (COVID-19) pandemic but, because of restricted visitation policies in hospitals during the early stages of the pandemic, was published in May 2020 for use to facilitate discussions between patients' families and the healthcare team. We aimed to evaluate the impact of the ATS's ICU orientation pamphlet on medical ICU (MICU) nurses' perceptions of available and effective educational materials to enhance communication with patients and their families. Our survey asked MICU nurses to give their assessments of the pamphlet, specifically whether it would help focus questions from patients and families and serve as a point of reference for more in-depth conversations. We also describe suggested improvements to the ICU pamphlet for our patient population.

## METHODS

This study was a quality improvement project at an urban academic safety-net hospital with a 24-bed MICU. The MICU serves about 120 unique patients each month and about 1,000 in a year.

### Procedure

MICU nurses were introduced to the ATS ICU pamphlet through a preimplementation survey administered in February 2021 (details are provided below). The survey contained a specific statement—"Please click the following link to review the ATS website: [Managing the ICU Experience](#).

To continue, please confirm you reviewed the website”—for nurses to review the ICU pamphlet through the website (<https://www.thoracic.org/patients/patient-resources/managing-the-icu-experience>). From April to May 2021, MICU nurses were reminded of the presence and scope of the ICU pamphlet during their monthly staff meetings. By July 2021, a printed version of the ICU pamphlet was included in the admission orientation folder provided to patients or their families. The English and Spanish versions of the online pamphlet were made accessible by means of unique dynamic quick response (QR) codes (Denso Wave, Inc.). The QR codes were posted in the MICU waiting room on flyers and in MICU patient rooms, with links to both English and Spanish versions. In January 2022, six months after the QR codes and printed versions were made available to patients and their families and 11 months after the preimplementation survey was administered, a postimplementation survey was administered to MICU nurses.

The study was approved as a quality improvement project by the MetroHealth institutional quality officer, and therefore not subject to Institutional Review Board approval nor did it require informed consent.

### The ATS ICU Pamphlet

The preimplementation survey was used to introduce the MICU nurses to the ATS ICU pamphlet (16), which was subsequently adopted as a primary education resource for patients and families in the MICU. The pamphlet was developed by the ATS to fill the need for ICU orientation and education and was created and edited using the document “Patient Education Materials: Guidelines for the American Thoracic Society” (P-GATS), which is based on the Agency for Healthcare Research and Quality’s

Patient Education Material Assessment Tool recommendations (7, 17). The text in the pamphlet has a Flesch-Kincaid grade reading level of 8.7, with multisyllabic medical terms used and defined in simpler terms (18). The target reading level recommended in P-GATS is an eighth grade level. One author (V.K.) was involved in the final edits of the pamphlet. The educational materials are available online in written and audio formats. Printed formats are available in English, Spanish, and Portuguese, although the Portuguese written format was not used in this project.

### Pre- and Postimplementation Surveys

The preimplementation survey was administered to the MICU nurses in February 2021 electronically using Research Electronic Data Capture (REDCap) tools hosted at Case Western Reserve University (UL1TR002548), which were also used for data collection and management (19, 20). The survey consisted of 12 questions regarding nurses’ perceptions of communication with patients and families and the general availability of communication resources and guides. The questions included 11 closed-ended or Likert-type response questions regarding 1) methods of communication with patients and families; 2) time spent on communication with patients and families; 3) awareness of educational resources in general, particularly the ATS ICU pamphlet; and 4) perceived effectiveness of the pamphlet. In addition, an open-ended question was asked regarding ways to improve patient and family education in the ICU. The postimplementation survey was administered to the MICU nurses in January 2022 and consisted of the same questions as the preimplementation survey. Table 1 includes the survey questions and response format.

**Table 1.** Nursing survey with results, before and after the intervention

	Response Scale	Preimplementation (n = 28)	Postimplementation (n = 39)	P Value
1. How do you currently educate patients or families about the ICU experience?				
a. Verbal	Multiple choice (with multiple answers accepted)	27 (96%)	39 (100%)	0.42*
b. Internet		0 (0%)	4 (10%)	0.13*
c. Brochure		5 (18%)	9 (23%)	0.76*
d. Video		0 (0%)	1 (3%)	1.00*
e. Other <sup>†</sup>		0 (0%)	1 (3%)	1.00*
2. Do you have educational material (digital or print) readily available to provide patients or families?	No Not sure Yes	11 (39%)	18 (46%)	0.62 <sup>†</sup>
3. Are you aware of any educational materials (digital or print) for patients and families that are used to elucidate the ICU experience? <sup>‡</sup>	No Yes, describe	5 (19%)	8 (21%)	1.00*
4. On any given shift, how much time do you spend educating patients/families about ICU care?	<15 min 15–30 min 30–60 min 60–90 min >90 min	30–60 min (IQR, 15–60 min)	30–60 min (IQR, 15–90 min)	0.12 <sup>†</sup>
5. Did you know the American Thoracic Society (ATS) designed a booklet to educate patients and families, entitled “Managing the ICU Experience”?	No Yes but I have not seen the pamphlet Yes and I have reviewed the pamphlet	1 (4%)	9 (23%)	0.04 <sup>§</sup>
6. Did you know the ATS designed a website to educate patients and families about “Managing the ICU Experience”?	No Yes but I have not seen the site Yes and I have visited the site before	1 (4%)	6 (16%)	0.22 <sup>§</sup>

**Table 1. Continued.**

	Response Scale	Preimplementation (n = 28)	Postimplementation (n = 39)	P Value
7. Please click the following link to review the ATS website: Managing the ICU Experience. To continue, please confirm you reviewed the website.	I reviewed the ATS website I did not review the ATS website	26 (93%)	34 (87%)	0.69*
8. Do you think the ATS site (or paper booklet) "Managing the ICU Experience" will reduce the time you spend in describing/explaining aspects of ICU care with patients and their families?	Likert (1–5)	3 (IQR, 2–4)	3 (IQR, 3–4)	0.31†
9. In your opinion, what is the likelihood the ATS site or booklet, "Managing the ICU Experience," will help focus questions you field from patients or families pertaining to ICU care?	Likert (1–5)	3 (IQR, 3–4)	4 (IQR, 3–5)	0.18†
10. Do you think the "Managing the ICU Experience" resource will improve the quality of communication for patients and families?	Likert (1–5)	4 (IQR, 3–5)	4 (IQR, 3–5)	0.94†
11. How likely are you to recommend the ATS site (or paper booklet), "Managing the ICU Experience," to patients and their families?	Likert (1–5)	4 (IQR, 3–5)	4 (IQR, 3–4)	0.48†
12. Please free text your ideas on how to improve patient/family education in the ICU	Free text	—	—	—

*Definition of abbreviations:* ATS = American Thoracic Society; ICU = intensive care unit; IQR = interquartile range.

\*Analyses were performed using the Fisher exact test.

†Analyses were performed using the Wilcoxon rank sum test.

‡Other: draw pictures on paper or the board, sometimes will print things from nursing resource textbooks.

§Responses were recategorized as yes or no, and analyses were performed using the Fisher exact test.

### Data Analysis

Pre- and postimplementation survey responses were compared using the Fisher exact test or the Wilcoxon rank sum test, as appropriate. Because of anonymous survey responses and some turnover of ICU nursing staff over the study period, analyses were performed on unpaired data. A  $P$  value of  $<0.05$  was considered to indicate statistical significance. Data for the survey QR code scan counts and type of use were collected through the QR code website in December 2021 and again in June 2022.

### Postimplementation Follow-Up

Results of the postimplementation survey were provided to the MICU nurses during their monthly staff meetings in March and April 2022. During these debriefing sessions and from the postimplementation survey, qualitative comments were obtained by the authors from the MICU nurses regarding the ICU pamphlet. Written notes were used to summarize themes and comments.

## RESULTS

The preimplementation survey was administered to 67 MICU nurses, and 28 (42%) responded. The findings indicated that at baseline, nearly all MICU nurses orient patients and families via verbal communication, with only 18% using other education resources (all written brochures). Only 18% were aware of any educational materials of any media, and 4% were aware of the ATS ICU brochure. MICU nurses reported spending a median of 30–60 min (interquartile range, 15–60 min) per shift educating and orienting patients and families. Although nurses were, on average, neutral about whether the ICU pamphlet would reduce time spent educating or focus

patient and/or family questions for better understanding, they agreed that the pamphlet would improve patient and family understanding of the ICU and reported that they were likely to use the pamphlet.

On the basis of the results of this survey, the implementation of interventions included educating nursing staff members to direct patients and families to the ATS ICU pamphlet and placing flyers with QR codes linking to the pamphlet in the waiting area and patient rooms.

The postimplementation survey was administered to 67 nurses, of whom 41 were in the preimplementation survey group and 26 were nurses hired after January 2021. The postimplementation survey was completed by 39 (58%) MICU nurses. Awareness of the ICU pamphlet was noted to have improved from 4% to 23% of nurses ( $P=0.04$ ). Otherwise, there were no significant changes in nurses' responses to survey questions before and after implementation of the ATS ICU pamphlet (Table 1).

After six months of use of the QR codes, the English pamphlet QR code had been scanned a total of 36 times, 33 (92%) of which were from mobile phones and 3 (8%) from desktops; of these, 31 scans were unique (i.e., unique Internet protocol address). The Spanish pamphlet QR code had been scanned a total of 14 times, all of which were from mobile phones; of these, 8 scans were unique. At one year of QR code availability (June 2022), the English pamphlet QR code had been scanned a total of 66 times, of which 60 were unique scans. Of the total number of scans, 57 (86%) were from mobile phones and 9 (14%) were from desktops. At one year, the Spanish pamphlet QR code had been scanned a total of 17 times; of these, 11 were unique

scans. Of the number of scans, 100% were from mobile phones.

MICU nurses' qualitative comments regarding the ICU pamphlet were categorized into three major themes: 1) alterations of the pamphlet, 2) additional formats of the resource, and 3) additional topics for education. Examples of suggestions to alter the pamphlet include the inclusion of institution-specific details (e.g., visitation instructions, rounding hours, contact information for the health-care team) and the inclusion of a glossary of commonly used ICU terms. Suggestions for additional formats for educational resources included video formats with the provision of computers and printed pamphlets in family waiting areas for access to these resources. The last theme of comments, for additional education topics, identified gaps in educational resources that nurses would find helpful in communication with patients and their families. These encompassed disease-specific information resources; general hospital topics, such as explanations of handwashing and use of personal protective equipment, reasons for restricting oral intake, and causes of aspiration risks; and ICU-specific informational resource requests, including noninvasive ventilation strategies and causes of ICU delirium. Details of comments are summarized in Table 2.

## DISCUSSION

Our results show that there is a perceived need among MICU nurses for patient and family educational materials to facilitate discussions among nurses, patients, and families. After the implementation of the interventions, MICU nurses reported increased awareness of the ICU pamphlet and increased use of supplementary

educational materials for patients and families for understanding the ICU.

The ATS ICU pamphlet is one of the most comprehensive patient and family educational materials to address the important topic of orientation to the ICU in a current publication that was developed using P-GATS guidance and is targeted to an eighth to ninth grade reading level. For families of ICU patients, anxiety and needs satisfaction are improved by providing information and assurance and by administering a needs-based educational intervention early in the ICU admission, which may help tailor communications to meet family needs (21, 22). The pamphlet can aid in meeting ICU family needs by providing a description of the ICU environment and the interventions and procedures an ICU patient might experience and setting expectations for transition out of the ICU. The resource can be improved by providing explicit details of locally specific information, such as contact information and visitation allowances, as well as by tailoring information more to patient and family needs.

Educational resources are effective only when used by healthcare providers, patients, and families. Even when informational resources are made available, patients and families may not access these resources, because of barriers involving technology, language, health literacy, or emotional or psychological overload related to coping with an acute illness (23). Our study also highlights that this patient educational material was not readily used by ICU nurses, with barriers addressed by prior studies (14, 15). We strove to address these barriers by providing high-quality resources readily available to patients and families. The ATS ICU pamphlet was developed,



**Table 2.** American Thoracic Society intensive care unit orientation pamphlet postintervention qualitative comments

Category	Constructive Feedback
Alterations of pamphlet	<p>Institution-specific information, including visiting times, rounding times, contact information for healthcare team, setting up passwords for telephone conversation permissions</p> <p>Inclusion of a glossary of terminology used in the intensive care unit</p> <p>More graphics, less text</p> <p>Break it into smaller chunks of knowledge to provide to patients and families in more digestible amounts</p>
Additional formats of pamphlet	<p>Availability of video with educational materials</p> <p>More availability of printed pamphlets (in waiting room and in patient rooms)</p> <p>Tablets or computers available for patients and families to access educational materials</p>
Additional topics for education	<p>Disease-specific education resources</p> <p>More basic information</p> <ul style="list-style-type: none"> <li>• What vital signs are monitored</li> <li>• What blood tests are performed</li> <li>• Why patients are asked not to eat or drink</li> <li>• Risks for aspiration</li> <li>• Handwashing</li> <li>• Personal protective equipment</li> </ul> <p>More ICU-specific information</p> <ul style="list-style-type: none"> <li>• Noninvasive ventilation strategies</li> <li>• Information about common medications</li> <li>• Causes of ICU delirium</li> <li>• Common ICU procedures</li> </ul>

*Definition of abbreviation:* ICU = intensive care unit.

edited, and peer reviewed according to the standards of the P-GATS document for printed educational materials to adhere to accepted quality standards for patient resources (17). However, we may not have provided sufficient knowledge and experience with the ICU pamphlet to garner satisfactory nurse acceptance. This highlights the importance of evaluating patient educational materials for effectiveness and quality. Even if the pamphlet is developed with high standards of quality, the materials need to be familiar and memorable for those who use the resources and readable

and understandable for patients and families to meet health literacy needs and support ongoing engagement.

We also found that it is important to leverage technology to make educational materials more accessible. Digital health is a growing field that encompasses health information technology, mobile platforms, wearable devices, telehealth medicine, and personalized medicine. These technologies not only improve healthcare delivery but can improve patient education (24).

During the initial stages of the pandemic, visitor restrictions limited direct

interaction between healthcare teams and patients' families. Generating QR codes to direct patients and families to targeted online educational materials was helpful, although this approach may not have reached patients with technological disadvantages. Structured digital learning centers for patients and families have been proposed to address patient and family needs at different stages of critical illness to address a more patient-centric and consistent communication approach (2). Additional creative avenues may be explored to distribute curated, high-quality educational materials to patients and families tailored to their needs, learning styles, and topics of interest.

We acknowledge the limitations to our study. This was a single-center quality improvement study with a small sample size. The small number of survey respondents may have limited our ability to find significant differences before and after the implementation of the ICU pamphlet resource. The implementation in a single institution's MICU may limit generalizability to other ICU settings. However, the findings of this study add to the body of literature assessing patient and family educational materials for utility and effectiveness. As the survey responses were returned anonymously, the demographic characteristics of respondents are not available, and pre- and postimplementation responses from individual participants could not be matched in the analysis. Finally, the qualitative comments from the ICU nurses were most insightful but were not solicited according to rigorous qualitative research methods but as a natural part of the discussion with participants of this quality improvement project. These comments have enhanced the findings of this study.

Future directions for this endeavor include obtaining assessments from patients and families directly on the effectiveness of the ICU pamphlet, with particular attention to their satisfaction in communication, understanding of medical conditions and interventions, and expectations with discussions of goals of care and disposition planning. We also aspire to continue identifying and overcoming barriers for ICU nurses to access and use high-quality patient information materials to meet the needs of patients' families and improve communication between them and the healthcare team. In addition, although the ATS ICU pamphlet is available in audio and written formats, and in English and Spanish, communication could potentially be improved by offering educational materials in other formats (especially video) and additional languages, with different targets of healthcare literacy, and providing individualization for various cultural groups. The rigorous evaluation and assessment of these educational resources can help refine and improve available patient-directed information. The reporting of these appraisals in reputable scientific journals and websites can help inform the future development of resources according to patient and family needs.

### Conclusions

Our study highlights the importance of understanding the perceptions of ICU nurses of available educational materials and overcoming the barriers for ICU nurses to use high-quality and user-friendly patient resources to supplement the ongoing communication between patients and their healthcare teams. As our understanding of providing effective educational resources improves, so will the capability of patients and their families to participate in shared decision making.

## Acknowledgment

The authors thank Judy Corn, Dr. DorAnne Donesky, and Dr. Marianna Sockrider for their support with project conception; Judy Corn, Dr. Marianna Sockrider, and Dr. Catherine Chen for

manuscript review; and Patricia Pawlak and Echo Rossi for their role as nurses and administrative champions for this project.

**Author disclosures** are available with the text of this article at [www.atsjournals.org](http://www.atsjournals.org).

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