

## Determination of the Effectiveness Of Electronic Health Records To Document Pressure Ulcers

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**A**doption of the electronic health record (EHR) has increased in the United States to approximately 17% and continues to rise steadily (Poon et al., 2010). Nursing documentation has shifted from the written medical record to the EHR because its use is beneficial to health care quality and safety. Basic EHR systems have been defined by the Institute of Medicine (2003) as:

- (1) A longitudinal collection of electronic health information about a person, or healthcare provided;
  - (2) immediate electronic access to a person or population level information by authorized users;
  - (3) provision of knowledge and decision-support that enhance the quality, safety, and efficiency of patient care; and
  - (4) support of efficient processes for healthcare delivery.
- (p. 1)

Throughout health care facilities, various forms of EHR systems have different functions. Most EHRs represent medical concepts that form the content area and are based on professional nursing organization standards, regulatory requirements, and other evidence-based practice (EBP) sources. EHRs rooted in EBP have eight core functions: decision support, health information and data, results management, order entry, electronic communication and connectivity, patient support, administrative processes, and population health management (Jamal, McKenzie, & Clark, 2009). An EHR refers to an information repository

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in which patient data are stored in digital form. It contains retrospective, concurrent, and prospective information, and its primary purpose is to support continuing, efficient, integrated quality health care. The combination of structured data and the development of a robust national vocabulary delivers a consistent representation of what providers do during the delivery of health care. Standardized documentation allows the use of data from EHRs to learn about health care, preventive actions, and outcomes of nursing interventions. Moreover, EHRs can facilitate communication between health care professionals (HCPs), promote safety, reduce costs, and facilitate EBP (Poon et al., 2010; Wrenn, Stein, Bakken, & Stetson, 2010).

The template in the EHR can allow physicians and other HCPs to see the information they most need. Also, documentation takes less time. Description about patient assessment results is one advantage of the EHR. Another advantage is improved communication among HCPs be-

cause data are readily available and can improve patient care quality. The EHR allows physicians to have access to patient health information and data to facilitate timely clinical decisions. The records can be viewed by physicians when and where they are needed, which allows for the prevention and treatment of pressure ulcers. Other benefits include availability of data for health service researchers and public health officials. In order to coordinate with public health monitoring, quality monitoring, and research, the EHR provides easier access to collect information (Holroyd-Leduc, Lorenzetti, Straus, Sykes, & Quan, 2011).

Nurses play an important role in the adoption, assessment, and use of EHRs. Törnvall, Wilhelmsson, and Wahren (2004) found nurses responded positively to the structured form of the EHR because documentation was facilitated, clinical decisions were documented, and patient care was assessed. Mahler and colleagues (2007) demonstrated the quality of nursing documentation improved after introduction of a

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## Introduction

Nursing documentation has shifted from the written medical record to the electronic health record (EHR) because use of the EHR is considered to be beneficial to the quality and safety of health care. After implementation of the EHR, improved communication between certified nursing assistants, dietary staff, social workers, and nurses should result in more timely referrals, treatments, and changes in care plans. The EHR provides a comprehensive template to remind nurses to record the pressure ulcer stage, size, location, risk assessment, nursing diagnoses, goals, and planned interventions.

## Purpose

The purpose of this pilot project was to track the EHR documentation of pressure ulcers on a medical-surgical unit and compare the EHR with the written medical record.

## Method

A pilot study was completed at a 560-bed hospital located in Miami, FL. A convenience sample of 139 medical and surgical patients who met the inclusion criteria was used. Recorded data on pressure ulcers were reviewed retrospectively. Data collection included patient demographics, Braden Scale scores, presence of pressure ulcer, and detailed documentation of pressure ulcer on both the EHR and written medical record. A descriptive study design was completed to compare the EHR to the written medical record.

## Findings

Eleven patients ( $N=139$ ) developed pressure ulcers. Inconsistencies were found in the nursing documentation of pressure ulcers when comparing the EHR to the written medical record.

## Conclusions

Results of this pilot study illustrated that patients' records (EHR and written) are not reflective of routine hospital policies for the documentation of pressure ulcers. Education related to the use of the EHR for pressure ulcer documentation should be reinforced among nurses. In addition, a need exists for guidelines to standardize and routinely evaluate EHR documentation in clinical practice.

(Alderden, Whitney, Taylor, & Zaratkiewicz, 2011). Schuurman and colleagues (2009) conducted a study to determine the cost for prevention and treatment of pressure ulcers from a hospital perspective. Findings indicated the same intervention (repositioning, mobilization) is more expensive in the treatment group than in the prevention group as it takes more nursing time to perform the intervention in patients with pressure ulcers. These results are consistent with other studies (Padula, Mishra, Makic, & Sullivan, 2011; Richardson, Gardner, & Frantz, 1998).

## Documentation of Pressure Ulcers

Part of the solution to the problem of pressure ulcers was the provision of guidelines. According to 2007 National Pressure Ulcer Advisory Panel (NPUAP) guidelines, initial assessment of pressure ulcers includes the location, stage, measurement, presence of sinus tracts, undermining, tunneling, exudates, and necrotic tissue. To evaluate healing, a systematic and routinely scheduled reassessment is necessary. Documentation of pressure ulcer reassessment must be completed periodically and recorded, preferably on a table or chart. According to the guidelines, pressure ulcers should be described uniformly to facilitate communication among staff and ensure adequate monitoring of progress toward healing. To determine adequacy of the treatment plan, caregivers must monitor pressure ulcers at consistent intervals. Assessment and documentation should be conducted at least every shift, unless there is evidence of deterioration, in which case both the pressure ulcer and patient's overall management must be reassessed immediately.

Frequently, documentation among providers is inconsistent and can lead to a delay in proper treatment of the ulcer. Previous studies demonstrated documentation of pressure ulcers is inadequate. One retrospective study (Pieper, Mikols, Mance, & Adams, 1990) of 167 charts compared information recorded in nurses' notes to

computer-based nursing documentation system, and legal requirements for documentation were fulfilled.

## Pressure Ulcers

Pressure ulcers are costly. In Maryland, where pressure ulcers are regarded as hospital-acquired complications, the incremental cost was \$17,495 per case in fiscal year 2008 (Fuller, McCullough, Bao, & Averill, 2009). Other authors documented increased costs of \$2,384 per case (Pappas, 2008). This includes addi-

tional nursing time, supplies for dressings, medications, nutritional services, and physician fees. Beginning on October 1, 2008, the Centers for Medicare and Medicaid Services (2007) implemented a 0% complication rate for a number of clinical diagnoses, including a stage III and IV pressure ulcer acquired during a hospitalization. This ruling has led hospitals throughout the country to emphasize pressure ulcer prevention and improve understanding of risk for hospital-acquired pressure ulcers because prevention is more cost effective than treatment



the standards of wound care. Nurses' notes were examined for documentation of pressure ulcer location, color, wound measurement or description of size, drainage characteristics, odor, evidence of healing, and the nature of the surrounding tissue. Results demonstrated documentation did not adhere to the standards. Only 16.86% of the notes contained actual wound measurement and 20.05% had size descriptions. Only 12.64% described evidence of healing.

Gunningberg, Fogelberg-Dahm, and Ehrenberg (2009) found low accuracy in nurses' and physicians' documentation of pressure ulcers when compared with the physical examination of patients. Descriptions of wound size and other characteristics were flawed, assessments were not documented correctly, and pressure ulcer prevention strategies were recorded poorly. Comprehensiveness was lacking in the documentation of pressure ulcer care.

Stremitzer, Wild, and Hoelzenbein (2007) sought to determine the variability and accuracy of assessment by physicians and nurses working with patients with chronic wounds. Results showed documentation of wound size and depth varied between physicians and nurses for the same ulcer. In an effort to decrease the rate of hospital-acquired pressure ulcers, Ballard and colleagues (2008) conducted a study to develop a focused, aggressive plan to reduce the rate of hospital-acquired pressure ulcers in intensive care settings. Researchers first examined nurses' assessment and documentation. Results revealed routine skin assessments and documentation were inconsistent. One strategy was to redesign risk assessment and documentation by developing a wound chart similar to a medication administration record (MAR). As a result, the nurses were able to chart a careful skin assessment on the wound MAR upon patient admission.

Documentation is critical in defending nurse actions and determining if the standard of care was provided to a patient. The obligation to document care is a legal one that

includes patient safety issues. In a court of law, the patient's health record serves as the legal record of the care or service provided. Apart from the provision of patient care, high-quality documentation can help nurses to exchange information about their patients' health status. Clear nursing documentation includes the background of care, diagnosis, planned and performed interventions, and patient education (Saranto & Kinnunen, 2009).

### Problem Statement

Poor pressure ulcer documentation can cause significant human and financial costs associated with the occurrence of pressure ulcers. Limited documentation or absence of ongoing documentation of the skin assessment can result in a lengthened hospital stay, potentially increased pain due to lack of treatment, increased cost due to the increase in complications or consequences, and increased human resources to care for the skin breakdown once it advances. Pressure ulcers reduce quality of life and pose a considerable worldwide economic quandary (Pham & Stern, 2012).

Pressure ulcer treatment requires consistent objective assessments and documentation for proper treatment to be maintained. In many instances, providers' documentation varies or there is inadequate documentation regarding wound condition, treatment, and preventive measures. These deficiencies have consequences for the quality and safety in care because errors could occur and continuity of patient care may be hampered. Patient records need to reflect valid, reliable data on pressure ulcers and actions taken for prevention and treatment. However, a small body of literature (Abramson et al., 2011; Borycki, Kushniruk, Kuwata, & Kannry, 2011; Zlabek, Wickus, & Mathiason, 2011) provides preliminary evidence of the impact of an EHR on the provision of safe, quality care to hospitalized patients. Few studies specifically focused on impact of the EHR on health care-related outcomes, specifically pressure ulcers (Gunningberg, Dahm, &

Ehrenberg, 2008; Gunningberg et al., 2009). Therefore this pilot study will track the EHR documentation of pressure ulcers on a medical-surgical unit.

## Methods

### Subjects and Setting

This pilot study was completed at a 560-bed medical center in Miami, FL. A convenience sample of medical-surgical patients enrolled in a larger study related to pressure ulcer support mattresses was used. Of the 139 patients enrolled in the study, 60 had medical diagnoses and 79 were surgical patients. Participants, including 81 women and 58 men, had a mean hospital length of stay of 5.5 days. All eligible patients met the following criteria: (a) weighed more than 70 pounds but less than 500 pounds, (b) remained on the mattress for a minimum of 2-10 days, and (c) admitted to the hospital for a medical diagnosis or surgical procedure. Permission to complete the study was approved by the institutional review board at the University of Miami and all EHRs were readily accessible to the investigators.

### Instrumentation and Data Collection

A chart audit form was developed by the researcher and used to review documentation for each of the enrolled patients (see Figure 1). One graduate nursing student performed the paper-based record audit with the guidance of the project coordinator. One researcher and one graduate nursing student independently audited electronic records for the presence of pressure ulcers. Data were collected daily from the EHR for each patient and included the following: (a) current score on the Braden Scale for Predicting Pressure Ulcer Risk and (b) skin assessment and wound assessment documentation. To compare the documentation between the EHR and the paper-based record, a paper-based chart review was conducted for the same group of patients.

Nursing documentation from the EHR was reviewed to identify any



**FIGURE 1.**  
Chart Audit Form

EHR Audit	Written Record Audit
Wound site: _____	Location: _____
Dressing type: _____	Wound type: ("○"below)
Dressing status: _____	Pressure ulcer: Stage _____
Assessment deferred until dressing change: _____	Arterial    Venous    Diabetic    Surgical
Wound type: _____	Other: _____
Granulation: _____	Size (cm) (LxW): _____ Depth (cm): _____
Hardening around wound: _____	Tunneling (cm): _____
Wound odor: _____	Undermining (cm): _____
Wound color: _____	Data first observed: _____ Granulation: _____
Drainage amount: _____	Exudate: ("○"below)
Drainage color: _____	Odor:    None    Slight    Moderate    Foul
Measured: date: L(cm):      W(cm):      D(cm):	Type:    None    Bloody    Serosanguineous
Staging assessment: _____	Purulent/Foul
Pressure ulcer stage: _____	Wound bed: ("○"below)
Physician notified: _____ Date notified: _____	Normal for skin      Slough
Photo taken: _____ Date taken: _____	Pink/beefy red tissue    Black/Brown (eschar)
Comment: _____	Granulation tissue
	Surrounding skin color: ("○"below)
	Normal for skin      White/Gray pallor
	Pink                    Dark red/Purple
	Bright red            Black/Brown
	Wound edges/surrounding tissue: ("○"below)
	Normal for skin                    Hardness/Induration
	Peripheral tissue edema      Rolled edges
	Maceration
	Photo taken date: _____
	Wound location circled: ("○"below)
	Yes      No

notes about pressure ulcers. If nursing notes were written, the audit was completed using the audit instrument. All written medical records were reviewed for admission assessment notes, progress notes, wound photographs, and any nursing notes pertaining to pressure ulcers. If photographs were available, they were copied to a digital disk. Patient records (EHR and written medical record) were independently compared to the hospital's wound care policy. The current hospital wound care policy read as follows:

- An assessment of each patient and documentation upon admission, every shift, and at discharge for potential or actual impaired

skin integrity should be recorded.

- All patients with community-acquired and/or health care-acquired wounds will have the wounds isolated and photographed to establish a baseline measure of the wound's appearance and location, and to document the progression of the wound. Photographs of all skin alterations will be taken on admission, every Wednesday, and on the day of discharge.

### Data Analysis

Descriptive data were analyzed using the Statistical Package for the Social Sciences Version 17.0 for

Windows. The NPUAP classification system (see Table 1) for physical examination of patients was used to determine the staging of pressure ulcers during audits.

### Results

Eight EHRs and seven written medical records were identified with nursing notes about pressure ulcers. Of those, only four cases of pressure ulcers were documented on the same patient. Four pressure ulcer documentations in the EHR were not identified in written medical records, while three pressure ulcer documentations in written medical records were not identified in the EHR.



TABLE 1.  
National Pressure Ulcer Advisory Panel (NPUAP) Classification System

Stage	Sign and Symptoms
Suspected Deep Tissue Injury	Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer, or cooler as compared to adjacent tissue.
Stage I	Intact skin with non-blanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area.
Stage II	Partial-thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum-filled blister.
Stage III	Full-thickness tissue loss. Subcutaneous fat may be visible but bone, tendon, or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunneling.
Stage IV	Full-thickness tissue loss with exposed bone, tendon, or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunneling.
Unstageable	Full-thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green, or brown) and/or eschar (tan, brown, or black) occurs in the wound bed.

Source: NPUAP, 2007.

### Quality of Written Records of Pressure Ulcers

The overall quality of nursing documentation for pressure ulcers was poor. Of the 139 patient records, seven had photographs of the wound and its location. However, the size of the pressure ulcers was not documented. One record had no description of the wound except the location, and two cases had no description of the size or depth of the wound.

### Quality of EHR Documentation of Pressure Ulcers

Numerous deficiencies were noted in the EHR documentation for pressure ulcers. Of the eight records with documentation of pressure ulcers, none were consistent. For example, in one record, documentation was identified for 16 days; however, only one assessment was described as a stage II pressure ulcer, with all the other notes showing either a non-pressure-related

ulcer or no documentation at all. Other discrepancies in documentation were seen in most of the other records. For instance, some nurses documented pressure ulcers on the incision template. There was no template for descriptions of pressure ulcers. Therefore, even though nurses recorded the presence of pressure ulcers, they did not provide a thorough description of staging or size of the pressure ulcers. In addition, researchers observed night shift nurses documented more poorly than day shift nurses when comparing each category of pressure ulcer documentation (see Table 2). For example, the location of pressure ulcer was documented 48 times in day shift; while the location was documented three times in night shift. Wound color of pressure ulcer was documented 30 times in day shift, while only 13 times in night shift. However, each category of pressure ulcer should be documented 91 times in both day shift and night shift.

### Nursing Documentation Comparison: EHR vs. Written Record

Four records in the EHR indicated the presence of pressure ulcers, but no photographs were available in the written medical record or specific information in the paper-based records. Conversely, three photographs of pressure ulcers were found in written medical records but no evidence of documentation in the EHR. Eleven patients with pressure ulcers were identified either by the EHR or written record (see Table 2 regarding use of the EHR). The total hospitalization was 91 days, which included both day shift (7:00 a.m. to 7:00 p.m.) and night shift (7:00 p.m. to 7:00 a.m.). Fifteen cases of pressure ulcers were identified. Four patients had two pressure ulcers while others had one pressure ulcer. Therefore, pressure ulcer descriptions, which included location, size, stage, granulation, wound color, wound odor, drainage amount, wound edges/surrounding tissue, tunneling, undermining, dressing status, physician notification, and photo taken, should have been documented 254 times. However, the most frequent recording was the location of pressure ulcers (83 times). The second most frequent recording was the dressing status (69 times). The other aspects of pressure ulcer descriptions only were recorded 0-43 times. Photographs taken to document the wound did not track the healing progress of the wound. Based on the same group of patients and the hospital wound policy, photographs should have been entered in the medical record 45 times. However, only 10 photographs were found in the written records and the wound description in all 10 written records was lacking.

### Discussion

Findings demonstrated documentation of pressure ulcers was incomplete or inaccurate in both the EHR and the written medical record. The most frequent incongruences included the location, appearance, and size of the pressure ulcers; and the frequency of recording or assessing the



TABLE 2.  
Nursing Documentation for All Pressure Ulcers

	EHR (N=11)			Written Record Documented Photos (n=11)	Documentation in EHR as an Incision vs. Pressure Ulcer
	Day Shift (7:00 a.m. to 7:00 p.m.)	Night Shift (7:00 p.m. to 7:00 a.m.)	Total Pressure Ulcers Documented		
Required Number of Pressure Ulcer Documentations	91	91	254*	45	
<b>Pressure Ulcer (cases)</b>			15**	10	
Location	48	35	83	10	5
Size	0	0	0	0	0
Stage	9	7	16	6	0
Granulation	26	15	41	0	0
Wound color	30	13	43	8	0
Wound odor	22	11	33	7	0
Drainage amount	19	10	29	4	0
Wound edges/surrounding tissue	22	10	32	5	0
Tunneling	0	0	0	0	0
Undermining	0	0	0	0	0
Dressing status	36	33	69	0	5
Photo taken	3	4	7	10	0
Physician notified	4	4	8	0	0

\* Some patients have documentation for two pressure ulcers on each shift.

\*\* The total number of pressure ulcer cases was 15.

patient risk. Neither the EHR nor the written medical record provided thorough data on pressure ulcers.

According to the 15 cases of pressure ulcer identified through this study, the photography of pressure ulcer appearance should be done 45 times in the written medical record. However, only 10 photos were found in the written medical record. The use of photography by health care providers to document pressure ulcers should be the preferred method to assess wound size and evaluate treatment. The use of digital technology/photos can help clinicians evaluate the healing processes of pressure ulcers (Rennert, Golinko, Kaplan, Flattau, & Brem, 2009).

Authors determined all nursing staff members who took the pictures did not measure the wound (see Figure 2). The NPUAP strongly encourages that a pressure ulcer protocol include clear patient identifica-

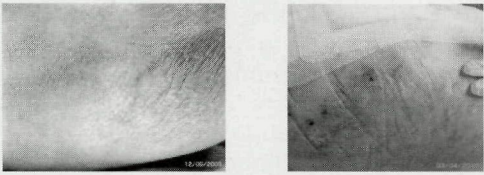
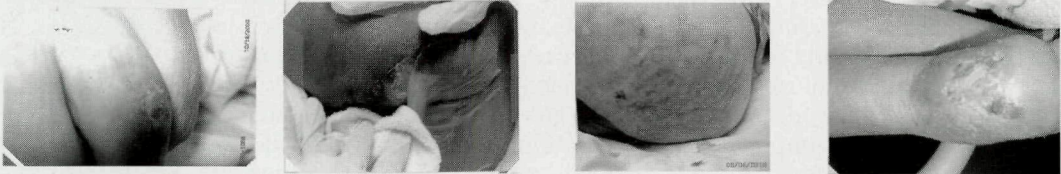
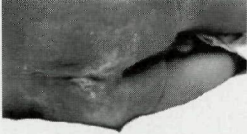
tion, date and time of the photo, markings for a sample measure (e.g., a 10 cm strip of paper tape) in each frame, and that the photographs become part of the medical record (European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel, 2009). Additionally, although the current hospital policy requires photographs of all wounds to be taken on patient admission, every Wednesday, and on day of discharge, all seven written medical records with identified pressure ulcers had only one picture during the whole hospitalization. Thus, pressure ulcer healing processes were not evident and wound treatment was not recorded. The lack of consistent photographs inhibited researchers' ability to audit for pressure ulcer wound healing assessments. Thus, serial digital photography should be used more frequently to track pressure ulcers for healing or treatment processes.

A discrepancy existed in the EHR on evaluation of presence of pressure ulcers among different nurses. Five nurses documented redness or skin rash instead of stage I pressure ulcer in the wound description template. However, other nurses documented stage I pressure ulcer for the same patient. These inaccuracies may be explained by the nurses' lack of knowledge about the signs of early tissue damage or the importance of maintaining skin integrity. These findings are consistent with reports by Gunningberg and Ehrenberg (2004). They also found the quality of nursing documentation lacked accuracy in assessing stage I pressure ulcers.

Authors found the required number of pressure ulcer documentations was not in accordance with the actual number of pressure ulcer documentations. For example, based on the 15 cases of pressure ulcer discov-



**FIGURE 2.**  
**Example of Pressure Ulcer Photos Taken by Nursing Staff\***

<p><b>Stage 1 Pressure Ulcer</b></p>				
<p><b>Stage 2 Pressure Ulcer</b></p>				
<p><b>Stage 3 Pressure Ulcer</b></p>				

\* Not documented with a strip of paper tape measurement.

ered in this study, the required number of pressure ulcer documentations for characteristics of pressure ulcers should be 254. However, the location of the pressure ulcers was only documented 83 times; similarly, the size of pressure ulcers had zero documentation. Perhaps one explanation for missing documentation may be that nurses assessed patients and gave verbal report during shift changes. Also, possibly descriptive pressure ulcer charting is neglected because of the time it takes, especially with increased patient acuity and the nursing shortage. In addition, it may indicate deficient knowledge or an inability to express basic nursing care in writing. Yet, for legal implications as well as effective monitoring and treatment of pressure ulcers, accurate and complete documentation of pressure ulcers is critical (Florczak et al., 2012).

Other results showed night shift nurses had less documentation for each characteristic of pressure ulcers compared to day shift nurses (location, stage, granulation, wound color, wound odor, drainage amount, wound edge/surrounding tissue, and dressing status). Perhaps this is due to

chronic sleep deprivation of night shift staff which can have significant negative effects on job performance and social functioning (de Cordova, Phibbs, Bartel, & Stone, 2012; Smith, Cullnan, & Eastman, 2008). Finally, findings showed five nurses documented pressure ulcers on the incision page in the EHR. That is, they were not familiar with the electronic forms for pressure ulcer documentation. The use of an EHR is more important for improving quality than its presence or absence. That is, adopting an EHR alone is insufficient to improve quality (Blair & Smith, 2012; Kelley, Brandon, & Docherty, 2011). Instead, nurses must be familiar with the function and use it correctly to increase the quality of documentation. Thus, an expert in nursing informatics may be needed to educate staff nurses periodically to assure they document accurately in minimal time. It is also possible that electronic assessment forms are not designed correctly based on professional nursing organization standards. Thus, an expert team that understands system functionality, data requirements, workflow process, and nursing process are essential

when designing or redesigning an electronic record. Barthold (2009) and Douglas (2001) suggested a council based on Magnet® criteria be used to define the standards; the council should be chaired by a staff nurse who will assist in the design of the electronic forms with the appropriate data elements.

The shortcomings of the EHR and written records highlight the need for specific standardized guidelines to record pressure ulcers. Increasing the accuracy of data collection to identify the early signs of pressure ulcers will improve the quality of care for hospitalized patients. Increased education and training to improve staff nurses' knowledge are high priorities to improve clinical practice. Accurate documentation is a prerequisite for patient safety and workflow efficiency, and it helps the nurse provide better care (Gunningberg & Ehrenberg, 2004; Stevens & Milne, 2007).

**Future Study**

The most important findings were the identification of inaccuracies in the documentation of pres-



sure ulcer in both the EHR and written medical record. A large study should be performed across all care settings in the United State to allow more thorough evaluation of problems of pressure ulcer documentation. In addition, this pilot study provided valuable insights for future studies. The results revealed some nurses were not familiar with the template in the EHR. A future study may focus on discovering the factors and barriers faced by nurses during use of the EHR. This would provide more information to improve the quality of nursing documentation.

## Limitations

Although the sample size was small ( $N=139$ ), it did allow identification of inaccuracies in the EHR and written record. The sample, which included only medical and surgical patients, lacked a variety of patients from different departments. Therefore, generalizability of the findings was limited. Regardless of these limitations, findings shed light on the issue of pressure ulcer documentation in health care settings and the factors that impact the problem. Additionally, researchers were able to describe the need to improve the quality of pressure ulcer documentation and demonstrated the need to increase patient safety, enhance workflow efficiency, and help nurses provide better care.

## Nursing Implications

For optimized efficiency of the EHR documentation in patient care, it is not only important to include all nursing forms but also to ensure the electronic system is aligned with nurses' documentation practice. Continuous education and mentor support are essential to ensure nurses' effective usage of the EHR.

## Nursing Informatics Implications

Even though this study has limited generalizability to other health care sites, findings may have implications for supporting nurses' involvement in EHR design. The most important role for nurses in the

design of EHRs is to deliver the essential nursing content to EHR developers. Based on the result of the current study, EHR developers can work with direct-care nurses to facilitate a computerized environment that supports nursing workflow. The purpose for nurses' participation in EHR development is to enhance nursing practice and patient outcomes by assisting EHR developers to interpret correctly the meaning of domain content by clarifying any ambiguity in domain content representation, and verify newly developed modes of documentation (Blavin, Buntin, & Friedman, 2010).

## Nursing Education Implication

The findings may have implications for creating teaching modules for undergraduate nursing students and staff nurses. For instance, the modules can give a picture of the wound, and the nurse or student can be asked to examine and assess wound characteristics. After initial examination, the student or nurse can be asked to document wound characteristics in the designed EHR. An essential goal for using simulations in teaching is to mirror the real world in a safe environment that supports learning from mistakes and allows for error. A simulated scenario thus should be as close as possible to the clinical reality for students or nurses to allow transfer of skills learned in the academic setting into a practice environment (Rutherford-Hemming, 2012). The results of the current study could be helpful for creating different scenarios.

## Conclusion

The results of this pilot study illustrated neither the EHR nor written patient records are reflective of routine hospital policies for the documentation of pressure ulcers. Education related to the use of EHR for pressure ulcer documentation should be reinforced among nurses. In addition, guidelines are needed to standardize and routinely evaluate EHR documentation in clinical practice. **MSN**

# Instructions For Continuing Nursing Education Contact Hours Determination of the Effectiveness of Electronic Health Records to Document Pressure Ulcers

Deadline for Submission:  
February 28, 2015

MSN J1302

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## Objectives

This continuing nursing educational (CNE) activity is designed for nurses and other health care professionals who are interested in electronic health record (EHR) documentation. For those wishing to obtain CNE credit, an evaluation follows. After studying the information presented in this article, the nurse will be able to:

1. Describe the development of the EHR.
2. Identify issues related to inconsistencies with documentation of pressure ulcers.
3. Discuss a study examining nursing documentation of pressure ulcers from the EHR.
4. Explain the nursing implications of the EHR documentation in patient care.

*Note: The authors, editor, and education director reported no actual or potential conflict of interest in relation to this continuing nursing education article.*

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