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Informatics and Nursing Sensitive Quality Indicators

Hello everybody, and welcome to our tutorial on Nursing Informatics and Nursing Sensitive Quality Indicators. My name is _____ and I will be taking you through this course. This tutorial will help you to understand what nursing-sensitive quality indicators are and how you can apply these indicators in your quality improvement efforts in your area of practice. We all have an obligation of ensuring that patients in our institutions are safe and are receiving quality healthcare services. Nursing sensitive quality indicators can help us to establish and monitor quality standards in our organizations. During this tutorial, you will learn the importance and application of quality indicators in nursing practice and how these indicators can be integrated with the health information system utilized in your organization.

The quality of healthcare services provided in healthcare settings directly influences organizational and patient outcomes, and Stalpers, Kieft, van der Linden, Kaljouw, and Schuurmans (2016) link it to positive patient outcomes, e.g., safety and high satisfaction levels. Quality indicators are commonly used to measure organizational performance in regards to the quality of health services provided by the organization. The American Nursing Association (ANA) defined Nursing-Sensitive Indicators (NSIs) as measures or indicators that inform on the quality of organizational structures, processes, and outcomes in nursing care. Nurses can utilize

these NSIs in quality improvement initiatives. Each of the nursing care elements has its quality measures. For example, nursing hours per patient days (HPPD), skill mix, and the level of education of registered nurses in the organization are commonly used as quality measures for organizational structure. Patient falls may be used as quality measures for both the nursing process and patient outcomes. Nursing interventions, on the other hand, can be used as quality indicators for nursing processes. Furthermore, quality indicators for patient outcomes include readmission rates, hospital-acquired infections, or the Pediatric Peripheral Intravenous Infiltration Rate. The American Nurses Association (ANA) developed NSIs in acute care settings in 1999 (Stalpers *et al.*, 2016). However, over the years, ANA has expanded and developed new NSIs for each nursing care element, including those for non-acute care settings and community-based health settings. Quality indicators establish methods through which quality of health services, process efficiency, and the effectiveness of nursing practices can be achieved.

According to the American Nursing Association, patient falls, or fall-related injuries can be used as quality indicators for process and outcome measures (AHRQ, 2013). Patient falls are one of the most common patient safety issues experienced in hospitals (Dellinger, 2017). They were the second most reported incident, according to a report by the National Joint Commission in 2017 (Agency for Healthcare Research and Quality, 2019). The rates of patient falls, or fall-related injuries can be used to measure the quality of patient safety in an organization. How do these measures indicate the quality of healthcare provided by an organization? High rates of patient falls mean that the nursing practices at the organization require change or improvement. The report by ANA on nurse-sensitive indicators demonstrates that nurses have a professional and ethical obligation of creating environments that are safe for patients (AHRQ, 2013). Falls can

cause patients to sustain physical injuries, have extended hospitalization periods, or/and death, depending on the severity of the patient's conditions. Death rates resulting from patient falls have doubled since 2000 (Dellinger, 2017). One out of every four adults sustains a fall every year. Over 27000 older adults die every year due to patient falls. The annual Medicare spending on fall-related injuries is \$31 billion. The total recorded cases recorded at the national level are, 29 million cases—seven million people out of the 29 million sustained injuries. The average cost of treating an injury resulting from a fall is US\$10,000. A survey conducted by the Center for Disease Control in 2014 reported that patient falls accounted for 2.8 million emergency visits and 800,000 of the country's total hospitalization (Dellinger, 2017). Preventing patient falls at the unit level will create safe environments for patients.

Monitoring patient falls is essential in creating an organizational culture of patient safety. Through monitoring, health professionals can track performance and employ strategies to improve patient practices within their settings. The core principle behind measuring a patient's falls is the ability to improve safety based on the outcomes of the quality measures.

Organizational leaders can tell whether there is a need to improve on nursing processing and practices and subsequently develop policies depending on the organizational needs. Continuous quality improvement initiatives help leaders to understand whether the implemented changes are being sustained or desired results have been achieved.

Data collection is a critical component in measuring and monitoring quality indicators. Health information systems are commonly used to collect and manage patient data in hospitals. Bedside nurses and front staff use electronic health records to conduct surveys and collect important

patient information. In an interview with a senior information system executive in a community hospital in my state, the information system manager acknowledged the role technology has played in data collection and reporting. Although traditionally used for collecting patient information, the system at his facility was actively being used in monitoring their key performance indicators. Health information systems facilitate the tracking of data and reporting on quality indicators and performance over time, which, in turn, enable organizations to make necessary changes and improve performance. The interviewee claimed that web-based data collection tools allow staff to access new populations and larger sample sizes easily, balance gender ratios, minimize data collection costs, and promote the timely collection of data. Although health information systems have eased data collection, they are not free from challenges. He cited unrepresentative samples, lower response rates, financial issues, limited access to electronic portals, and lack of follow up data. Lack of follow-up data was the main issue since patients only access the system when in need of a medical service. In most cases, data has to be collected before the implementation of a quality improvement program and after the implementation of an improvement initiative. Information from patients is readily available when patients are within the facility but not so much after discharges. Organizations can communicate on the need to change with stakeholders by using appropriate data collected from the information systems.

Nurses' and the Interdisciplinary Team's Role in Informatics

Nursing informatics involves the application of information technology in patient education, organizational management, and nursing practice. The nursing field mentioned above specialty

also entails activities such as data recovery, the use of decision support systems, electronic patient records, and telenursing. Nurses can use the systems to document patient care. The documentation of care involves assessing patients and entering the assessment data into the health system; this includes filling out clinical templates in clinical support systems (Alotaibi & Federico, 2017). Health information systems enable nurses to administer patient care (admission and discharges) and ward ordering. Most health information systems support efficient information sharing between health providers or between different health settings. Nurses can collect and analyze data on the systems as well as create comprehensive reports based on the qualitative and quantitative data that was retrieved from the systems. Electronic standardized communication procedures play a crucial role in improving interdisciplinary collaboration and communication. Nurses can efficiently coordinate patient care with physicians or other nurses across different shifts without the need to be physically present; this is specifically important during patient handoffs, transfers, and follow-up procedures. Health professionals can easily access and information at the point of care.

The Impact of Patient Care Technologies on Desired Outcomes

Health information systems are repositories of critical patient information that can be easily transmitted between authorized users. There is a varying degree of evidence regarding the significant transformations triggered by the use of HIS within the healthcare sector. Various studies show that these systems reduce human errors in clinical practice, improve clinical outcomes, and facilitate the coordination of care in an interdisciplinary setting. EHRs can reduce medication errors, improve patient safety, and promote positive patient outcomes. Jamoom and

his associates conducted a national survey to establish the perceptions of health providers on EHR adoption and their impact on organizational outcomes. The study participants reported that EHR systems improve patient care practices and clinical benefits (Health IT, 2019). EHRs facilitate access to complete and accurate patient information; this subsequently increases the ability of health providers to manage their patients efficiently. Standardized documentation procedures in EHR systems reduce information omissions and improve the handover processes. Patient information can be tracked and used to identify potential safety issues. For example, patients with chronic conditions are susceptible to adverse drug interactions. A health provider can retrieve information on the patient's drug history, allergic reactions, disease comorbidities, and medical history to reduce the probabilities of administering a drug that might elicit an adverse drug interaction. Barcode administration systems were specifically designed to reduce medication errors by ensuring the right patients receive the right medication (Alotaibi & Federico, 2017). A systematic review of quasi-experimental studies showed that barcode systems reduce medication errors by 50 to 80%. There is strong evidence that automated medication dispensers have reduced medication errors (Alotaibi & Federico, 2017). Compliance with the automated alerts, clinical guidelines, documentation templates, and other tools provided in Clinical Decision support systems encourage the use of evidence-based nursing processes and practices, which, in turn, trigger significant improvements in patient outcomes (Alotaibi & Federico, 2017).

Recommend the use of technology to enhance quality and safety standards for patients.

Electronic Health Records

The Center for Medicaid Services defines EHR as digital forms of patient records, including personal contact information, medical history, allergies, and test results. EHR systems are one of the significant components of health information systems that enable organizational leaders to organize and analyze vast amounts of patient information. Electronic Health Records can be used in surveillance and patient monitoring. A report published by the Human Health Services showed that 96% of hospitals in the United States had implemented electronic health records within the organizations in 2015 (Zadvinskis, Garvey Smith, & Yen, 2018). Electronic health records increase organizational productivity and reduce the time taken to document patient information and writing orders (Zadvinskis *et al.*, 2018). EHR systems facilitate the access to complete and accurate information, which are crucial in various clinical procedures. Furthermore, these systems have features that support clinical decision-making; this consequently facilitates the application of evidence-based information during the provision of healthcare (Health IT, 2019).

Justify how a nursing-sensitive quality indicator establishes evidence-based practice guidelines for nurses to follow when using patient care technologies to enhance patient safety, satisfaction, and outcomes.

Patient safety practices involve reducing or preventing harm caused by patients. Most of the patient falls are preventable. The Joint Commission establishes standards to ensure patient safety in health settings in the country. The National Patient Safety Goals mainly focus on promoting surgical safety, preventing hospital-acquired infections, medication errors, and preventing harms such as falls (Agency for Healthcare Research and Quality, 2019). Although non-punitive, all injuries resulting from falls are considered severe and have to be reported to the Joint

Commission. Over the years, intensive research has been conducted on quality improvement efforts resulting from fall prevention strategies. Data published by the AHRQ's National Scorecard showed that fall rates in US hospitals declined by 15% between 2010 and 2015. Fall prevention programs start with an assessment of the patient's risk of falling. The nursing-sensitive quality indicator (patient falls) can be used to define key elements of patient safety practices.

Quality indicators can be used to signal the increase or decrease of patient falls in the organization. Organizational leaders can use electronic health records or other health information systems to track records on the rates of patient falls over time within their organization. Health information tools are mainly used to collect and manage health data. Data collected on these systems can then be evaluated to determine the quality of nursing practices in the institution. Improvement of safety practices in health settings can only happen when stakeholders have shared knowledge of the organizational structure, processes, and outcomes; this can be achieved through conducting and reporting on the status of the same to stakeholders. Electronic health records can be useful in sharing and disseminating information to relevant stakeholders. Some systems have features that allow patients to log in and order prescriptions online. Patients can also log in and participate in a survey conducted at the system level to assess the safety culture in your setting from staff and patient's perspective. The AHRQ developed a toolkit for organizations to examine how current nursing practices at the hospital reduce patient falls in the organizations (AHRQ, 2019). The surveys will collect data on the nursing-sensitive quality indicators. The results from the survey will be used to identify areas of improvement within their

organizations. Organizational leaders can implement evidence-based guidelines on preventing patient falls based on outcomes from the quality indicators.

To sum up, nursing-sensitive quality indicators are used to measure organizational structure, process, and outcomes. The American Nursing Association constantly creates and expands quality indicators for each of these nursing elements. Each nursing element has its own set of quality indicators. Patient falls, and fall-related injuries are outcome indicators. These indicators can be used to inform on patient safety issues in a healthcare setting and nursing practices. To measure and monitor nursing practices, data on the quality indicators can be collected through health information systems. For example, to monitor patient safety practices at a hospital, data on the number of falls at a given period is collected and analyzed. Quality improvement interventions can then be initiated based on the outcomes of the collected data.

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