“Health” and “literacy” are two important words that affect the way individuals make decisions about their health care. The two terms have merged into one important concept, health literacy, which has evolved into an area of interest in the nursing research arena. A conceptual review is needed to explore definitions of the concept, its characteristics, understand its historical use, and review current theories. The concept of health literacy will be explored to further understand implications for nursing practice and its effects on patients and their outcomes.

The Institute of Medicine (IOM) reports 90 million American adults lack basic health literacy (IOM, 2012). Low health literacy – which is due to the lack of knowledge about the human body, the course of a disease, or how lifestyle changes can affect health outcomes – has been linked to poor disease management, increased hospitalizations, and poor adherence to medication regimens (U.S. Department of Health and Human Services [DHHS], 2011).

Research suggests that low literacy levels may increase with age, as people over 60 have difficulty reading and understanding the instructions for taking medications and instructions for future appointments (Lanning & Doyle, 2010). White and Asian/Pacific Islander adults have higher literacy levels than Black, Hispanic, and American Indian/Alaska natives according to the National Center for Education (2006). Women had higher basic health literacy compared to 16% of men with below basic health literacy levels (National Center for Education, 2006).

The Joint Commission (2012) created national safety goals to address issues that may cause harm to patients and interrupt the continuum of care. When a patient has difficulty understanding health care information or is unable to effectively communicate issues to the health care provider, patient safety is compromised. Awareness of the health literacy issue gives health care professionals the opportunity to support patients and families in overcom-

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Teach to Inspire

This week in my undergraduate med-surg class, I was teaching my students about diabetes. I posed the following question: “What is the most effective way to prevent complications in your patient with diabetes?” The students responded with, “good nursing teaching.” What happened next surprised me, led to a classroom debate, and caused me to ponder the students’ answer. From my perspective, the obvious answer was “maintain the patient’s blood sugar within normal limits.”

Any experienced med-surg nurse can tell you that patients with diabetes experience fewer complications from their disease when they keep their glucose levels within normal limits. My persistent (and somewhat argumentative) students insisted that patients wouldn’t be able to accomplish normal blood glucose levels without education from a nurse. They said without the teaching of a nurse, the patient wouldn’t know what normal blood sugar levels should be, proper diet, signs and symptoms of hyper/hypoglycemia, medication usage, how to inject insulin, ways to test blood sugar, why foot and eye exams are necessary, and the plethora of other knowledge necessary for people with diabetes to remain complication free.

And the nursing students were right.

The importance and value of patient education cannot be underestimated. The knowledge we possess as nurses needs to be imparted to the patients and families we encounter every day in order to improve health. Sometimes, unlike the young students in my classroom, the longer a nurse has practiced, the more skeptical he or she becomes about the effectiveness of teaching. The patient suffering from obesity continues to make poor food choices. The patient struggling with alcohol consumes more alcohol. The patient newly diagnosed with lung cancer goes outside for another cigarette. It can be discouraging as a nurse to continue to educate without the expected outcomes.

Nonetheless, Aristotle said, “We are what we repeatedly do. Excellence, therefore, is not an act but a habit.” As medical-surgical nurses, we need to keep teaching, training, and promoting excellence in health. When the patient with congestive heart failure returns to your clinic again in fluid overload because he forgot to take his prescribed diuretic, teach him one more time the importance of his medications, educate him again on healthy low-sodium food choices, ask if he remembers how his heart functions, show him again how to read the labels on his medicine bottles, and talk with his wife and answer her questions.

Teach just one more time. Educate with compassion again. Instruct with patience to impart knowledge. We are med-surg nurses, and the most effective way to keep people as healthy as possible is to inspire them with the knowledge to make healthy choices. Never stop learning and never stop teaching.

Molly McClelland, PhD, MSN, RN, CMSRN, ACNS-BC
MedSurg Matters! Editor
Nurses Taking Action to Target Malnutrition

Maybe Florence Nightingale really did get it. Her philosophy during the Crimean War included good hygiene and keeping the patients fed and tended to. This principle is still a cornerstone for restoring health despite the rampant advances in technology. Nightingale’s Environmental Care model emphasized the provision of a quiet and warm environment, tending to patient’s dietary needs by assessment, documenting time of food intake, and evaluating its effects on the patient. Nightingale (1860) stated in her nursing notes that nursing is an act of utilizing the environment of the patient to assist him or her in recovery, that it involves the nurse’s initiative to configure environmental settings appropriate for the gradual restoration of the patient’s health, and that external factors associated with the patient’s surroundings affect life or biologic and physiologic processes and the patient’s development.

In the current state of health care, the prevention and treatment of hospital malnutrition offers an opportunity to optimize the overall quality of patient care, improve clinical outcomes, and reduce costs. Malnutrition is pervasive in our American lifestyle and continues to go unrecognized and untreated in many hospitalized patients. The results of malnutrition directly impact all aspects of patient recovery; the end result is an increase in resource utilization and health care dollars, as complications related to malnutrition can increase length of stay and readmissions, as well as delay healing. Effective management of malnutrition requires collaboration among multiple clinical disciplines. In many hospitals, the dietitian predominantly manages malnutrition. The nurse screens the patient at the time of admission, and if a trigger is met, sends a consult to the dietitian for follow up. With shorter inpatient stays, the dietitian may eventually get to the patient, but precious time may pass with delayed nutrition attention, as the priority of care may preclude early intervention. Follow-up care after discharge may fall by the wayside. Properly tending to the patient’s nutritional needs requires an interprofessional approach.

Beth Quatrara, DNP, RN, ACNS-BC, CMSRN, along with Melissa L. Parkhurst, MD, and Kelly A. Tappenden, PhD, RD, FASPEN, charter steering committee members of the Alliance to Advance Patient Nutrition, presented these concerns and the opportunity to correct this epidemic at the Academy of Medical-Surgical Nurses (AMSN) Annual Convention in Nashville, TN, in September 2013. AMSN is the nursing leader on the Alliance to Advance Patient Nutrition, and in an effort to improve the care of malnourished patients, is sharing strategies that nurses can implement to actively address the nutritional challenges in our patients.

So, what can you do to reduce malnutrition in your organization?

• Assume a more active role in assuring early identification and care of patients who trigger positive malnutrition screening.
• Understand risk factors such as inflammatory processes that demand nutrient absorption as well the under-consumption or intake of nutritionally deplete meals.
• Develop and implement organizational policies that allow nurses to provide nutrition care, such as returning low-risk patients to previously established feeding orders following temporary delays, and intervening with a standardized nutrition care plan while awaiting a prescriptive plan from the RD team.
• Create focused meal times, managing environments and staff meal times, intervening with nutrition therapies as appropriate, and designating a nutrition care

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Deltoid Intramuscular Injections and Obesity

**Objective**

The purpose of this continuing nursing education article is to increase nurses’ and other health care professionals’ awareness of the impact of obesity on administering deltoid intramuscular injections. After studying the information presented in this article, you will be able to:

1. Describe intramuscular (IM) injections and techniques used to ensure the needle reaches the deltoid muscle.
2. Explain the effects of injecting vaccine or other medication into the subcutaneous tissue, rather than the deltoid muscle.
3. Identify methods used to determine needle-length for injections in obese individuals.

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

This educational activity has been co-provided by Anthony J. Jannetti, Inc. and AMSN.

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**Impact of Obesity on IM Injection Technique**

With obesity on the rise in all developed countries, questions arise as to whether or not the standard needle-length of 25-38 mm (1-1.5 inches) used in IM administration will deposit the medication into the muscle of obese individuals (Zaybak, Günes, Tamsel, Khorshid, & Eser, 2007). According to Zaybak and colleagues (2007), intramuscular injections are defined as injections in which the needle pierces the muscle by at least 5 mm (1/5 inch). As SCT increases, there is concern that using a standard needle-length may not be adequate in this population (Koster et al., 2009).
In the last six years, researchers have begun to address the issue of intramuscular needle-length in obesity. Zaybak and colleagues (2007) conducted a study to measure SCT in dorsogluteal and ventrogluteal sites to determine the optimal needle-length for intramuscular injections in overweight (body mass index [BMI] is 25-29.9), obese (BMI is 30-34.9), and extremely obese (BMI greater than 35) adults. These researchers wanted to determine if the dorsogluteal and ventrogluteal muscles were reached when using the standard needle-length of 38 mm (1.5 inches). One hundred and nineteen (N = 119) participants ranging in age from 21-69 years (59 females, 60 males) were included in this study. Ultrasound technology was utilized to measure SCT (defined as the distance from the skin surface to the muscular fascia) in the dorsogluteal and ventrogluteal muscles. Results showed that SCT varied between the dorsogluteal and ventrogluteal sites with increased SCT noted in the ventrogluteal site in all the weight categories studied. The findings indicated SCT was not related to age but gender; SCT was found to be higher in women than in men. A standard needle-length of 38 mm (1.5 inches) did not reach the dorsogluteal or the ventrogluteal muscle in 98% of female participants. Whereas, in the male subjects, the standard needle-length did not reach the dorsogluteal muscle in 37% of the participants, and the ventrogluteal muscle was not reached in 57% of the male subjects (Zaybak et al., 2007).

Currently, one of the most common uses of the IM injection is for immunization administration into the deltoid muscle. To optimize immunogenicity and reactogenicity of vaccines, it is imperative to use a proper injection technique into the appropriate intramuscular layers (Cook, Williamson, & Pond, 2006).

Cook and colleagues (2006) used the BMI to measure the adiposity index of patients. Study participants included 256 adults ranging in age from 65 to 89 years (122 females and 134 males). Ultrasonography was utilized to measure IM penetration of the deltoid muscle by 5 mm (1/5 inch) or more when the angle of the injection was 90 degrees. The researchers demonstrated that the BMI provides a direct measure of being overweight, is a marker for fat mass, and is considered to be more exact in determining body fat than other weight-stature indexes, such as arm circumference measurements, skinfold assessments, and use of calipers (Cook et al., 2006). Noting that reactogenicity and immunogenicity of vaccine therapy are impacted by successful intramuscular penetration, these authors recommend that the BMI be used as a factor in determining needle-length for deltoid intramuscular injection. The study concluded that to achieve a penetration of the deltoid muscle of 5 mm or more, a 25 mm- (1 inch-) long needle would achieve the desired results in both males and in females with BMI less than 35. A 32 mm- (1.25 inch-) long needle would be required in females with a BMI equal or greater than 35 (Cook et al., 2006).

Koster and colleagues (2009) conducted a study to determine the correct needle-length for IM injections of vaccines in adolescents of different body weights. The study examined if the appropriate needle-length requirement for IM immunizations could be determined by arm circumference, body weight, BMI, and/or BMI percentile. Of the 141 adolescents (77 females and 64 males) between the ages of 11 and 15 years of age who participated in the study, 26% weighed less than 40 kg, and 20% were between 60 and 108 kg (Koster et al., 2009).

Using ultrasonography, the depth of the deltoid muscle and underlying bone of participating adolescents was measured to estimate the appropriate needle-length for IM immunization. The two IM administration method techniques of bunch and flatten were used in this study. Bunching (pinching or squeezing) the muscle between the thumb and finger before injection is the technique commonly used in the United States. The flattening technique, commonly used in Europe, is the spreading or stretching of the skin overlying the muscle before injection. Koster and colleagues (2009) concluded that body weight is a reliable indicator of the required needle-length in this population. For an IM deltoid immunization, a 16 mm- (5/8 inch-) long needle is acceptable for adolescents weighing less than 60 kg, and a 25 mm- (1 inch-) long needle is appropriate for those weighing 60-70 kg when using either the bunch or flattened technique.

The adolescent subjects of a study by Middleman and colleagues (2010) were obese with a BMI greater than 30 kg/m² and had received a hepatitis B vaccine in the deltoid muscle. The study sought to explore why these particular subjects were achieving lower titers than their counterparts of average weight. Though admitting that the sample size (N = 24) was small, the authors reached the conclusion that needle-length impacts immune response. Use of the 1.5-inch needle as opposed to the 1-inch needle resulted in significantly higher antibody titers. The observation is made that, due to the increased rate of obesity worldwide, more evidence-based research should be conducted to ensure that young adults receive effective immunization.

Gaps in Nursing Education And Clinical Practice

As early as 2002, studies in the nursing literature recognized that, in addition to the age of the patient, the size of the muscle and the weight of the subject need to be considered when administering IM injections (Nicoll & Hesby, 2002). Petousis-Harris (2008) evaluated body weight along with needle angle and technique, stressing that a longer needle will increase reactogenicity, and that a shorter needle will result in the medication being injected subcutaneously. Malkin (2008) associated correct needle-length with proper delivery of medication and noted that pain and other complications may result from using a needle that is too short.

Carter-Templeton and McCoy (2008) reviewed and compared IM administration description and illustrations provided in the fundamental text-
books commonly used in nursing education. The textbooks reviewed were: *Fundamentals of Nursing* by Potter and Perry (2008), *Fundamentals of Nursing: Human Health and Function* by Craven and Hirnle (2008), *Fundamentals of Nursing: Standards and Practice* by DeLaune and Ladner (2006), *Fundamentals of Nursing: The Art and Science of Nursing Care* by Taylor, Lillis, and Lemone (2005), and *Fundamentals of Nursing: Thinking & Doing* by Wilkinson and Van Leuven (2007). Several variations in the teaching of IM injection administration were identified among the five textbooks reviewed (Carter-Templeton & McCoy, 2008). In their review of the nursing fundamental textbooks, it was found that no specific guidelines for choosing a needle size for intramuscular injections in obese individuals were discussed. Much of the information was generic with no specificity to deltoid injections. Since Carter-Templeton and McCoy's review of texts, new textbooks and subsequent editions of other texts are starting to mention consideration should be given to using longer needles in obese individuals. For example, Potter and Perry (2008) acknowledged that a longer needle is necessary for IM than for a subcutaneous injection to ensure penetration of the muscle tissue. They indicate that a 3-inch needle might be needed for a very obese person, while a 0.5- to 1-inch needle would be adequate for a thin person. Craven and Hirnle (2008) give the needle-length as between 1 and 3 inches, the latter to be used for larger adult clients. In showing the complications associated with IM medication administration there is no mention of the needle-length as a consideration, except that a short needle (1.25-inch) should be used on the deltoid or ventrogluteal sites to prevent bone injury (Craven & Hirnle, 2008).

Similarly, Lynn (2008) does not associate complications with needle-length, indicating only that care must be given to use proper technique. The author presents a table illustrating possible needle-length in reference to the site/age of the client. She advises that obesity and emaciation should be factors in the choice of needle-length, but no further detail is offered. Berman and Synder (2012) mention that needle size should be chosen according to muscle development and client weight. While they mention that in the deltoid muscle a 1-inch needle is common and a very obese individual may require a longer needle, very obese is not defined.

Overall, the textbooks under consideration offer no in-depth procedural steps when determining the most effective needle-length to be used in IM injections. There is no discussion of how the prevalence of obesity in both adults and children could impact the choice to be made regarding needle-length.

**Nursing Implications and Conclusion**

A review of the literature shows that there are discrepancies in IM administration practice. There is no commonly accepted method of deltoid IM injection for a person with a high BMI. The medical literature recommends an individual's BMI identification as the primary indicator for needle-length size selection in IM administration (Cook et al., 2006; Koster et al., 2009; Middleman et al., 2010). The nursing literature revealed an individual's BMI was rarely considered in IM practice guidelines (Carter-Templeton & McCoy, 2008; Cocoman & Murray, 2008; Nicoll & Hesby, 2002; Wynaden et al., 2006). Clinical practice has not shifted toward applying current research evidence-based theory into IM injection practices (Plotkin, Orenstein, & Offit, 2008). While best-practice guidelines have been published, albeit with the traditional needle size, a standardized method for administering deltoid IM medications to patients who are obese does not exist.

Further research on selection of appropriate needle-length based on BMI to develop a standardized method for deltoid IM injections is needed. Nurses need to make informed decisions in selecting the appropriate needle-length to reach the muscle mass, ensure vaccine reactogenicity, and prevent complications related to inappropriate IM injections. BMI charts should be made available in clinical practice areas.

**References**


Nutrition

continued from page 3

nurse in each clinical area to monitor and evaluate implementation of the policy.

- Introduce the patient nutrition awareness movement and familiarize the clinical leaders in your organization with the Alliance to Advance Patient Nutrition website (www.malnutrition.com).

In the current health care environment, nurses typically screen patients only on admission. Often the patient does not fall completely into the malnutrition category that triggers a consult. Take a look at your organizational nutrition screening tool and see if the metrics are sensitive enough to capture early malnutrition. In many cases, a patient is on the borderline and falls into the malnutrition category during the hospitalization without recognition by health care professionals. Complications such as pressure wounds, venous thromboembolism, edema, and infections can occur related to inadequate nutrition. When malnutrition is discovered too late, other adversities such as comorbidities, increased length of stay, increased hospital costs, and poor patient outcomes can occur. Rescreening patients at regular intervals is the key to identify malnutrition and implement an early action plan to avoid complications.

Be the catalyst at your organization in the efforts to reduce the risks of malnutrition. Visit the Alliance to Advance Patient Nutrition online and share the information and resources found there with your interdisciplinary teams. Be a leader in the national movement to improve patient nutrition by implementing the six principles listed in the Alliance Interdisciplinary Call to Action (see Table 1). And, most of all, be a proud member of your professional organization, AMSN, for leading the nursing charge in getting back to be a proud member of your professional organization, Interdisciplinary Call to Action (see Table 1). And, most of all, a leader in the national movement to improve patient nutrition and have resources found there with your interdisciplinary teams. Be the catalyst at your organization in the efforts to reduce the risks of malnutrition. Visit the Alliance to Advance Patient Nutrition online and share the information and resources found there with your interdisciplinary teams. Be a leader in the national movement to improve patient nutrition by implementing the six principles listed in the Alliance Interdisciplinary Call to Action (see Table 1). And, most of all, be a proud member of your professional organization, AMSN, for leading the nursing charge in getting back to

<table>
<thead>
<tr>
<th>Table 1. Alliance Interdisciplinary Call to Action: Six Principals to Improving Nutrition</th>
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<tbody>
<tr>
<td>1. Create an institutional culture where all stakeholders value nutrition.</td>
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<td>2. Redefine clinicians’ roles to include nutrition care.</td>
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<tr>
<td>3. Recognize and diagnose all malnourished patients and those at risk.</td>
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<tr>
<td>4. Rapidly implement comprehensive nutrition interventions and continued monitoring.</td>
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<td>5. Communicate nutrition care plan.</td>
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<td>6. Develop a comprehensive discharge nutrition care and education plan.</td>
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Andie Melendez, MSN, RN, HTCP, CHTP, is a Clinical Nurse Specialist, University of Maryland Baltimore Washington Medical Center, Glen Burnie, MD. She is the AMSN Associate Clinical Representative to the Alliance to Advance Patient Nutrition, and has served as a member and chair of the AMSN Clinical Practice Committee.
Inpatient diabetes management can be analogous to assembling a complicated puzzle, with the puzzle pieces representing the actions needed to achieve optimal diabetes care. The medical-surgical nurse has the responsibility of fitting the pieces together and completing the puzzle in a way that achieves the goal of stable inpatient blood glucose control. Nurses assume the responsibility of ensuring that the patient is able to safely manage his or her diagnosis and medications prior to discharge. Diabetes education is a multidisciplinary effort that should begin at admission and be revised as needed until discharge. This is especially important for those patients new to insulin or who are recently diagnosed with diabetes (Seley et al., 2012).

Case Study

Ed Griffin, a 46-year-old Black man, was admitted to a medical-surgical unit for hyperglycemia after presenting to the emergency department with complaints of excessive thirst and frequent urination. His serum glucose in the emergency department was 534 mg/dl and his glycated hemoglobin (HgA1C) was 12.6%.

Ed is married and has two children; he smokes a pack of cigarettes every day and drinks beer on occasion. He is employed as a salesman with a large region that requires him to spend much of his workday on the road traveling from client appointment to client appointment. As a result, he does not exercise on a regular basis and his meals usually are of the fast food/easy to obtain variety. He has no comorbidities.

Upon further evaluation, Ed was diagnosed with type 2 diabetes mellitus and placed on a regimen of 20 units of glargine (Lantus®) insulin in the evening, 7 units of novolog (Aspart®) insulin with meals, and glucophage (Metformin®) 500 mg twice a day. Because Ed does not have a primary care physician, he will receive follow-up care in the hospital’s medical clinic.

Diabetic Education

Teaching diabetes self-management to inpatients is influenced by a patient’s co-morbidities, family relationships, and the stress that illness and the hospital environment can impose upon a patient. Incorporating all of the essential information a newly diagnosed patient needs to learn for a safe discharge from the hospital is difficult and time-consuming. A common approach is to provide sufficient, need-to-know information – often referred to as “survival skills” – with the hope that the patient receives more thorough outpatient Diabetes Self Management Education (DSME) at a later time (see Table 1). A referral for outpatient DSME or home health follow-up should be a standardized part of the discharge process from an inpatient facility.

The American Association of Diabetes Educators (AADE), in addition to other diabetes experts, recommends that areas of diabetes knowledge, or “survival skills,” are taught prior to hospital discharge (Seley et al., 2012). Survival skills include: (a) symptoms of hyper- and hypoglycemia with prevention and treatment strategies, (b) blood glucose monitoring, (c) safe medication management, (d) sick day guidelines, and (e) safe disposal of needles and lancets. Current trends in health care reveal shorter hospital stays with competing priorities, creating time constraints for delivering thorough patient care and education. Even though nurses value education as important to both patients and their families, it can easily fall to the wayside. Unfortunately, survival skills are often taught when the patient is dressed and ready to leave the hospital at discharge (Seley et al., 2012).

Ed Griffin’s case study can be used as an example of how nurses can provide the AADE survival skills for a safe transition from hospital to home. Mr. Griffin must learn survival skills during his estimated 2-day stay in the hospital. He is anxious about his diagnosis and changing his habits to match his lifestyle as a traveling salesman.

Self-management education should start on admission by first seeking out Ed’s thoughts and feelings about having diabetes and assessing his motivation and readiness to learn. Asking Ed to share what he knows about diabetes is a good way of assessing his knowledge base and allows for an easy transition into patient teaching. Utilizing every opportunity for teachable moments and reinforcing material throughout the day when the nurse is doing routine care can save time and improve patient learning. For example, when administering Ed’s diabetes medications, the nurse could give him the opportunity to ask questions and explore thoughts about his regimen. During glucose testing, the nurse should ask Ed to verbalize his glucose target range and the actions to take if his results are higher or lower than the target range. Providing written information from the American Diabetes Association (ADA) or other sources offers reinforcement of diabetes education content. The nursing staff should communicate patient education efforts during shift handoff to aid in continuity of care and should document the patient education to ensure completeness of education upon discharge.

Follow-up with the primary care physician and endocrinologist within one month is recommended for hospitalized patients with hyperglycemia. Provide contact information upon discharge in written form, and impress upon the patient the need to adhere to scheduled appointment times.

Mr. Griffin’s family could be encouraged to participate with Ed in outpatient diabetes self-management classes.

Diabetes and Driving

The ADA publishes yearly guidelines that provide the most current research and recommendations for medical professionals. In 2012, the ADA originally published recommendations that addressed diabetes and driving (Lorber et al., 2013). These recommendations apply to Ed because he...
Table 1.
Survival Skills (Need-To-Know Before Discharge)

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<tr>
<th>Mr. Griffin is diagnosed with type 2 diabetes and is questioning his diagnosis and how he needs to care for himself. The nurse should include in his teaching:</th>
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<tr>
<td>- The physiologic reasons for type 2 diabetes.</td>
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<tr>
<td>- Risk factors for diabetes, such as genetics, activity levels, food habits/intake, and smoking.</td>
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<tr>
<td>- Home glucose testing with details of target ranges, as well as recognition, prevention, and treatment strategies for hypoglycemia and hyperglycemia.</td>
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<tr>
<td>- Information on healthy eating choices and consistent food patterns; request a nutrition consult for more specific information.</td>
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<tr>
<td>- Being active/physical activity.</td>
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<tr>
<td>- Sick day management.</td>
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<tr>
<td>- Medications: orals and insulin.</td>
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<tr>
<td>- Be able to state the name of oral medication, when to take medication, and duration of action.</td>
</tr>
<tr>
<td>- Be able to state the name, action, peak, and duration of prescribed insulin.</td>
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<tr>
<td>- Demonstrate drawing up and administering insulin with either a syringe or insulin pen more than once during hospital stay. Discussion should also include timing and anatomic location for insulin administration.</td>
</tr>
<tr>
<td>- Follow-up with the primary care physician within one month is recommended for hospitalized patients with hyperglycemia.</td>
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</table>

drives long distances for his occupation. He must take his new diagnosis of diabetes into consideration when planning road trips. While most individuals with diabetes are able to safely operate a vehicle without risk of injury, a certain amount of planning and preparation must be done to ensure their safety and the safety of the public.

Individuals with diabetes who use insulin can have restrictions placed on their driver’s licenses regarding what type of vehicle they can drive and under what conditions they may operate a vehicle. Drivers who have experienced hypoglycemia while driving may be subjected to an evaluation of their fitness to drive, even if the hypoglycemia did not result in a motor vehicle accident. In some states, it is mandatory that the physician report whether or not hypoglycemic episodes occurred while driving because the individual may pose a threat to the public. If a driver is mandated to complete a medical evaluation due to a diabetes diagnosis, his or her driving privileges may be suspended until he or she is medically cleared to drive. It is possible to receive a waiver for the evaluation if the hypoglycemic episode is attributed to a change in medication or if hypoglycemia only occurs while sleeping. Individuals with diabetes should inquire about driving regulations in their state (Lorber et al., 2013). According to the Centers for Disease Control and Prevention (CDC, 2011), the most significant factor associated with accidents among drivers who have diabetes is a recent history of severe hypoglycemia, regardless of the type of diabetes or the treatment used.

People who are at risk for hypoglycemia while driving are advised to do the following: (a) always carry a blood glucose meter and snacks, including a fast-acting glucose source (such as glucose tablets or paste), juice, regular or non-diet soda or hard candy, and snacks that contain complex carbohydrates, fats, and protein (such as peanut butter or cheese crackers); (b) never begin an extended drive with low normal glucose of 70-90 mg/dL without carbohydrate consumption to avoid a drop in blood glucose levels while driving; (c) stop the vehicle as soon as any symptoms of low blood glucose are experienced, perform glucose monitoring and treat as appropriate; and (d) not resume driving until blood glucose has returned to normal levels and cognition have recovered (Lorber et al., 2013).

Nurses involved in diabetic teaching should be aware of the ADA guidelines as well as their state’s driving restrictions so that they can educate patients and help them to strategize ways to manage their symptoms to avoid hypoglycemic incidents while driving. This information can be incorporated into diabetes education that patients receive prior to discharge.

Conclusion

So what happened to Ed Griffin? Ed was very motivated to learn about his diagnosis and how to make lifestyle modifications to control his diabetes and continue his present employment. He valued his driving privileges and became knowledgeable about the driving rules and regulations present in his state. Ed continued his diabetic education with an outpatient DSME. He collaborated with his dietitian to learn healthy food choices available to him while on the road. Ed made small changes in his diet and activities while traveling and was eventually able to manage his glucose levels with glucophage (Metformin®), diet, and activity. Ed’s blood glucose values are improving and he states he has more energy due to the changes that he has made to his lifestyle. Ed learned how to better control his health and is a positive role model to his children.

References


Suggested Reading


Debra Nelson-Slemmer, BSN, RN, CDE, is a Certified Diabetes Education Instructor, Gutman Diabetes Institute, Einstein Healthcare Network, Philadelphia, PA.

Elizabeth Thomas, MSN, RN, ACNS-BC, is a Medical-Surgical Clinical Nurse Specialist, Einstein Healthcare Network, Philadelphia, PA. She is a member of the MedSurg Matters! Editorial Committee.
Health literacy is the ability to understand written, spoken, and numeric information and to make health care decisions based on an individual’s interpretation of this information. Health literacy skills include performing Internet searches, reading health prevention pamphlets, measuring medication doses, and understanding and complying with verbal or written health care instructions (National Center for Education, 2006). Cognitive and social skills can impact the motivation and ability of an individual to gain access, to understand, and to use information in ways that promote and maintain health (Rowlands, 2009). Nutbeam (2009) suggests that the cognitive and social skills involved in health literacy are a path to improve access to health care and to empower patients to take control of their health by making appropriate decisions.

**Historical Use of the Concept**

Literacy can be traced back to the times of the Egyptians and Greeks when communication shifted from oral to written expression (Speros, 2005). The concept of health literacy was first noted in the United States in 1974 in a paper that raised awareness of health education standards in grade schools (National Network of Libraries of Medicine, 2011). In the 1980s and 1990s, an emphasis was placed on health education initiatives for patients. Doak and Root were the first to conduct research that suggested there were problems with patients understanding health care materials (Mancuso, 2008).

Most recently, Healthy People 2020 (DHHS, 2010) promoted guidelines for individuals to make quality health care decisions. The Agency for Healthcare Research and Quality (AHRQ) commissioned the University of Carolina at Chapel Hill to develop a health literacy precautions toolkit to guide health providers in assessing patients on all literacy levels, raise awareness of the problem, and remove barriers to learning (AHRQ, 2010). Figure 1 includes the AHRQ toolkit guidelines to facilitate individuals to make quality health care decisions. The toolkit discusses misconceptions regarding individuals with limited health literacy. If these guidelines are followed, a healthy environment is created that will enable individuals of all literacy levels to succeed (AHRQ, 2010).

**Health Literacy Theories**

Theories about literacy were developed in the 1980s as guidance for educational program content (Nutbeam, 2009). The Missouri Health Enrichment Learning Center, in conjunction with the Missouri Foundation of Health, found that most patient education initiatives in use were not theory-based and did not lead to positive patient outcomes (McEwen & Willis, 2011). The collaboration of community and academic stakeholders resulted in the culmination of the Health Literacy Missouri Initiative. The focus of the initiative was to enhance awareness of health literacy through education, coupled with community collaboration. Social and economic factors affect literacy, and community involvement in a health literacy program can have a positive effect on health outcomes (Ross & Culbert, 2009). The Health Literacy Missouri Initiative focused on developing a theory-based logic model that uses three tiers (see Figure 2) to provide information to the community and enhance awareness and access to health care.

Nutbeam’s model of health literacy (2009) focuses on three levels of health literacy (functional, interactive, and critical levels) with corresponding goals. The levels and the corresponding goal for each level are included in Table 1.

<table>
<thead>
<tr>
<th>Guidelines</th>
<th>Patient Goals</th>
<th>Outcomes</th>
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<tr>
<td>“ASK THREE”</td>
<td>What is the problem? What do I need to do? Why is it important for me to do this?</td>
<td>Patients will build trust with physicians, which improves care, quality, safety, and satisfaction.</td>
</tr>
<tr>
<td>Make an action plan.</td>
<td>Patients will create goals with providers’ guidance.</td>
<td>Patients will create a specific goal that they would most likely implement.</td>
</tr>
<tr>
<td>Improve medication adherence and accuracy.</td>
<td>Provide easy-to-read pill charts with specific days and times to take meds.</td>
<td>Compliance will be tracked and encouraged at each visit.</td>
</tr>
</tbody>
</table>

Source: Adapted from AHRQ, 2010.
The Theory of Planned Behavior (TPB) (Aizen, 2006). This theory is applicable to health literacy because it focuses on understanding the attitudes, behaviors, and outcomes of individuals across a variety of settings (IOM, 2009). The elements of the theory include intention (readiness to perform), attitude (positive or negative feeling about the new behavior), and behavior (perception of ability to perform the new behavior). The individual’s sense of control is the highlight of the TPB model. The goal of the TPB model is to understand how intention can develop into changed behavior despite challenges in the process (McEwen & Willis, 2011).

Characteristics of Health Literacy

The four characteristics associated with the concept of health literacy are reading skills, comprehension skills, numeracy skills, and communication skills (Oldfield, 2005). Reading skills involve being focused, recognizing words and examining the way the sentence is structured, and utilizing this structure to conceptualize new information. Comprehension skills are necessary so the reader can understand what is being read and make sense of the information presented (Oldfield, 2005). An individual’s previous experience and being familiar with the language of the written or spoken information enhances comprehension. When an individual has numeracy skills, they are capable of completing simple mathematical computations. Numeracy is needed to follow directions on prescription labels, to prepare appropriate doses of medication, and to understand blood pressure or cholesterol levels (Speros, 2005). Reading, writing, speaking, and listening encompass communication skills, which are valuable and necessary tools to understand information. Access to preventative health information on the Internet is rapidly becoming necessary so the reader can understand what is being read.

Identification of Health Literacy

Assessment tools are needed to quantify information about a person’s health literacy level and the demographics associated with health literacy (Mancuso, 2008). The Single Item Literacy Screener (SILS) is a single item instrument designed to identify patients who need help with reading health-related information. The instrument asks one question: “How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?” Individual responses range from “1” (never) to “5” (always). If an individual scores this question as a “2,” this is identified as a potential need for assistance (Morris, MacLean, Chew, & Littenberg, 2006).

The Test of Functional Health Literacy in Adults (TOFHLA) was one of the first quantitative methods of assessing health literacy (Oldfield, 2005). The TOFHLA consists of a 50-item reading comprehension test that omits words in a sentence. The test-taker must select the appropriate word to complete the sentence from a set of multiple-choice answers. In addition, there is a 17-item numeracy component that determines the test-taker’s ability to follow directions on medication labels, monitor blood glucose, and keep track of appointments. The reader is allowed approximately 30 minutes to complete the test. Individual scores may range from 0-50, with a higher score being indicative of increased health literacy. The s-TOFHLA is a shortened version of the TOFHLA, which takes only seven minutes to complete and is considered the gold standard in measuring health literacy (Oldfield, 2005).
The Rapid Estimate of Adult Literacy in Medicine (REALM) is a two- to three-minute reading recognition test that can be administered by a nurse. The REALM test measures the participant’s ability to interpret health care terms and health-related materials. A score of 18 or below indicates a third grade reading level, 19-44 indicates a fourth to sixth grade reading level, and a 61 or above indicates a ninth grade reading level (Safeer, 2005). The REALM is used interchangeably or in conjunction with the s-TOFHLA.

Indications for Nursing Practice

Every medical-surgical nurse needs to identify patients with limited health literacy for health education to be effective in assisting patients to self-manage their disease processes. The objectives of Healthy People 2020 (DHHS, 2010) include decreasing health disparities and offer suggestions on improving communication between health care providers and the patients they serve. These objectives suggest there should be collaboration between health care providers and patients as they make health care decisions. Printed materials should be accurate, easily accessible, and at a sixth to seventh grade reading level (National Institutes of Health, 2011). Strategies to enhance health literacy should be deliberate and patient-specific to facilitate health care decisions. Health literacy should be a routine assessment so that education can be provided based on that assessment (Mancuso, 2008).

Medical-surgical nurses should take a leading role in initiating research and promoting public awareness of the vital important topic of health literacy. The medical-surgical nurse should have a clear understanding of a patient’s perspective of his or her health or current illness and intervene with health education that is at a health literacy level suitable for the patient.

Conclusion

Health literacy is a concept that has a direct relationship with a patient’s health status and health experience. Higher readmission rates and poorer outcomes are more common in patients with low health literacy than patients with a high literacy level (DHHS, 2010). When a medical-surgical nurse provides patient education based on health literacy principles, he or she is giving holistic care (Hasnain-Wynia & Wolf, 2010). Understanding the concept of health literacy, clarifying its meaning, and developing strategies to assess and evaluate a person’s health literacy level are key factors in addressing health care disparities and providing holistic health care.

References

Only 1/3 of veterans get specialized care in a military or VA system.

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Legal Issues and Disaster Preparedness: Are You Ready For a Community Disaster?

Having grown up in New Orleans, storm preparation is a way of life. My father was a New Orleans Fire Chief and I worked in a hospital in the beautiful Garden District. When storm alerts came, we started the preparation of gathering up all the old ladies, kids, aunts, uncles, nieces, nephews, cousins, and pets. My husband and mother were in charge of leading the pilgrimage to our designated safe haven as soon as possible. My dad and I stayed behind to “wait out the storm.” We stayed in touch as long as communication was possible and contacted each other the minute it became available. Dad and I worked through many storms together and fortunately we both missed working for Katrina. However, our previous experiences led us to believe that we were prepared for anything. Of course, we were wrong. We were not prepared and neither was our organization, community, parish, state, or nation.

This year marks one year since Hurricane Isaac, the eighth anniversary of Hurricane Katrina (in the Gulf South, we just say, “The Storm”), and it has been 12 years since that horrific day in September that will forever sadden our hearts. Dad and I have long since retired from our city duties, but he and I are still responsible for making sure that the family, friends, church, neighbors, and pets are prepared. We have all learned that it’s everyone’s responsibility to take care of their own property and then assist anyone who can’t do it alone. After everything is secure at home, then head for safer ground.

Now that the pictures, videos, and valuable documents are all secure and the motor home is gassed up ready for a quick getaway, what do I need to know about being prepared as a med-surg nurse? What are the Federal Emergency Disaster Preparedness Issues that I need to tackle as a certified legal nurse consultant? What resources are available to health care professionals to develop a disaster plan? Do I truly understand the United States Emergency Management System? Following the legal actions against local facilities, doctors, and nurses in the aftermath of Katrina, do I truly understand the ethical issues involved in disaster management? What have I learned from my personal experience of working through storms, working after a storm as devastating as Katrina, and educating staff members on how to prepare for the next “Big One?”

As I researched this topic, it was evident that resources are of abundance. Due to the need to provide so much information, this article will address the major authorities for health care emergency disaster preparation and the legal issues. My next column will discuss ethical issues and preparing staff members for an emergency disaster such as a hurricane.

Legal Nursing

Health Care Disaster Preparedness

The main resource and official regulatory organization for the United States is, of course, Homeland Security. The National Response Framework (NRF) was updated in 2013 to provide context for how a community should respond because the governmental responses cannot meet all the needs of those affected by terrorist attacks, natural disasters, and other catastrophic events. The NRF is a guide published by the Federal Emergency Management Agency (FEMA) and Homeland Security that serves as a guide for the nation to respond to all types of disasters and emergencies. In 2001, The Joint Commission published (revised in 2003), Health at the Crossroads: Strategies for Creating and Sustaining Community-Wide Emergency Preparedness Systems. This publication sought to simplify the application of state of the art standards to ensure the provision of safe, high-quality health care and the health of the American people. The Joint Commission and Homeland Security mandate that every facility participate in community preparation and forge partnerships to ensure an exemplary effort from all resources.

In an attempt to ensure sound timely preparation efforts, the U.S. Department of Health and Human Services (HHS) and Centers for Medicare and Medicaid Services (CMS, 2013) developed an Emergency Preparedness Checklist titled Survey & Certification: Emergency Preparedness for Every Emergency. This checklist is a must-read for any nursing manager or administrator. CMS supports The Joint Commission and Homeland Security mandate for community participation by stating, “The response to an emergency can impact the entire community and can involve numerous medical and public health entities, including health care provider systems, public health departments, emergency medical services, medical laboratories, individual health practitioners, and medical support services.” Simply put, a coordinated response is essential for survival.

In the aftermath of Katrina, I witnessed this firsthand. New Orleans is divided by the Great Mississippi River; we have all seen the pictures of what happened in downtown New Orleans following the levee break. I live on the other side of the Mississippi River; the stories from our side of the river were never told. When we evacuated for the storm, my mother-in-law (in her mid to late 80s) refused to leave her assisted living facility. After begging and pleading for her to come with us, we finally realized that we would have to leave her behind. Two days following the storm, she was able to contact us and inform us that the company that owned and operated the assisted living facility had abandoned them. My dad, my husband, and I packed food and water in ice chests and snuck in the back way, used our badges to get past the military, and set out to rescue my mother-in-law. We were not prepared for what was waiting us – a community of elderly, overheated, dehydrated, exhausted, and hungry people begging for any type of assistance. We gave them everything we had in the car; they poured out of the building with pots and pans scooping up our ice, food, and water. I looked at my dad
with tears in my eyes and he looked at me and we both said, “We can’t leave them like this.” The National Guard was assisting the hospital a few blocks away. We went to the hospital, explained what we had found, and they were extremely quick to respond. The National Guard brought them to the hospital, and the hospital fed and housed them. This facility responded to its community’s needs. Unfortunately, this story and hundreds like it were never told on CNN.

**Legal Issues in Disaster Preparedness in Health Care**

In 2009, the Public Health Law Program, with Centers for Disease Control and Prevention, published *Frequently Asked Questions about Federal Public Health Emergency Law* (National Association of County & City Heath Officials, 2009). The article addressed the following legal issues involved in emergency disaster preparedness:

- Legal Authorities
- Public Health Emergency Procedures
- Isolation and Quarantine Issues
- Workforce Issues

The most significant legal authority for health care providers is the Public Readiness and Emergency Preparedness (PREP) Act. The PREP Act authorizes the Secretary of HHS to issue a declaration to provide immunity from tort liability (except for willful misconduct) for claims. This is the legal authority utilized by the defense of the facilities in the Katrina Law Suits. The families representing the patients that died during the aftermath of “The Storm” claimed that their family members had been euthanized. The facilities, doctors, and nurses involved in the lawsuits stated that they were providing palliative care. The PREP Act—Federal Emergency Management Agency (FEMA). (2013). National response framework. Retrieved from http://www.fema.gov/national-response-framework. It is our responsibility to ensure that our families, employers, community, city, state, and nation coordinate our resources and responses to terrorist attacks, natural disasters, or other large emergencies with public and private sector partners. In order to protect ourselves from potential legal action, we must adopt the mission of our Homeland Security. Our duties are wide-ranging, but our goal is clear: a safe, more secure America, which is resilient against terrorism and other potential threats.

**References**


**Suggested Readings**


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**Save the Date for Sunny Orlando**

The 23rd AMSN Annual Convention is set for Florida this year. Mark your calendars and plan to join us at the Hilton Orlando from September 11-14, 2014. Network with your colleagues during this educational event while enjoying the sunshine. You won’t want to miss this adventure!
CMSRN Appreciation

Dear Manager:
Are You Doing Enough to Reward and Retain Your Certified Nurses?

If you’re a manager or administrator, you may want to guard your nurses’ Certified Medical-Surgical Registered Nurse (CMSRN) credential like the precious gem it is. After all, their certification translates to better care, increased patient safety, and a stellar reputation for your facility.

One way to reward and retain CMSRNs is to let them know how much you appreciate their achievement. We’ve got some suggestions, but first, we’ll give you the inside story.

The Medical-Surgical Nursing Certification Board (MSNCB) surveyed nurses about certification in 2012. One recurring theme was how much it means to CMSRNs to be recognized. They poured heart and soul into reaching a higher rung on their clinical ladder, and like any of us, they like being appreciated for it.

That puts the ball in your court, and MSNCB is here to help.

We’ve posted a “Benefits of Certification for Employers” page on the MSNCB website (www.msncb.org). When you stop by, you’ll see the many reasons why you should hire and retain certified nurses. You’ll get tips on how to applaud your staff when they get certified or recertified, as well as tools like a customizable press release to let the rest of the world know about it. Last, you’ll see suggestions on ways to reward and incentivize nurses to maintain their CMSRN credential.

Certification is the recognized path for medical-surgical nurses to build and demonstrate commitment, confidence, and credibility. When you employ certified nurses, everyone wins.

Thank you for collaborating with us to achieve the ultimate goal: positive patient outcomes.