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Evaluation of a blood pressure education program on knowledge and self-efficacy in patient care associates .

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Evaluation of a Blood Pressure Education Program on Knowledge and Self-Efficacy in Patient Care Associates

by

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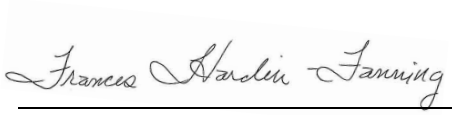

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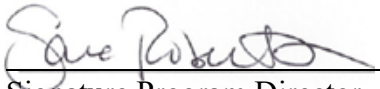

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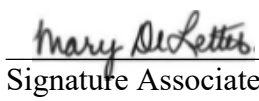

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I give a special thanks to my husband and my best friend who has supported me through this journey. Thank you for your patience, love, and encouragement. Thank you for the long hours you put in at work to provide for our family, so that I didn't have to. Thank you for your understanding when we've had to put our lives on hold for the sake of my education. Thank you for the sacrifices you made, with me and for me. I wouldn't be where I am today without your love and grace. Thank you for believing in me, especially at times when I didn't believe in myself. I love you with all of my heart!

Dedication

I dedicate my work to my mother-in-law, Cindy Prestigiacomo, who passed away at 59 years old from congestive heart failure. I also dedicate my work to my sister, Crista Phipps, who is 37 years old in end-stage heart failure. Both of these women did not meet the typical presentation for heart failure. Cindy was active in the community, she worked at least five days per week, she was not overweight, she wasn't a smoker, and she ate a balanced diet. She walked into the emergency room and coded 24 hours later. Crista Phipps doesn't "look" like the typical heart failure patient either. She is a hard worker, mother of two small kids, and of normal weight. Yet after arriving at the hospital with complaints of chest pain, she was later diagnosed with having a myocardial infarction. As a result, she is faced with a heart transplant as the only option. Both of these women have been two of the most important and influential people in my life who supported me through this process. I feel obligated to share their stories so that their struggles with health conditions are not in vain. I am hopeful that their experiences bring some good to others and shine a light for providers to see how crucial techniques for measuring blood pressure really are. I pray that providers will come to recognize atypical appearances of those with heart failure and that they will realize it can happen to anyone at any age.

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Abstract

The American College of Cardiology (ACC) and American Heart Association (AHA) revealed common errors made by healthcare professionals when measuring blood pressure (BP) in adult inpatients. These errors include using incorrectly sized cuffs, improper cuff placement, and inappropriate patient positioning. Inconsistent cuff sizes and position lead to underestimated and overestimated results, directly impacting patient care and outcomes. Additionally, the ACC/AHA identified patient position and talking during assessments as factors that directly impact the accuracy of the results. At Norton Healthcare facilities, a majority of BPs are obtained by patient care associates (PCAs). The purpose of this quality improvement project was to implement an educational program into the existing PCA training. The focus was on the recommended techniques for measuring BP with automatic devices. The specific aims included (1) ≥ 70% participants will have ≥ 20% increase in knowledge scores from baseline, (2) self-efficacy scores (confidence in ability to obtain BP based on recommendations) will be ≥ 75% (on a 0-100 scale) in ≥ 80% of participants and (3) modifiable barriers to implementation will be identified. These aims will improve patient outcomes and hypertension (HTN) management with more targeted detection. An educational program was delivered to PCAs via an electronic learning module at the Norton Learning Institute. Outcomes included knowledge from pre and post education and a Likert-type survey measuring self-efficacy. Improving knowledge and self-efficacy of the recommended techniques for obtaining BP ensures accuracy and more appropriate treatment for patients.

Key words:

Healthcare providers, blood pressure, knowledge, self-efficacy; patient care, humans

Evaluation of a Blood Pressure Education Program on Knowledge and Self-Efficacy in Patient Care Associates

Hypertension (HTN) is one of the most prevalent medical conditions in the United States, affecting 75 million Americans, or one in every three adults (CDC, 2016). The definition of HTN depends on an individual's age and if comorbidities are present (i.e., type 2 diabetes, chronic renal disease). For adults less than 60 years old and those with diabetes and chronic kidney disease, the recommended goal for systolic blood pressure (SBP) should be less than 140 mmHg and diastolic pressure less than (DBP) 90 mmHg (Reboussin et al., 2017). In adults greater than 60 years old, the recommended goal should be less than 150/90 mmHG. A flow chart defining HTN based on age and comorbidities can be found in Appendix 1, JNC 8 Hypertension Guideline Algorithm. Since the management and diagnosis of HTN is directly related to accuracy of BP, it follows that accurate BP measurements are essential for appropriate treatment (Smith, 2005). The most common skill performed by healthcare professionals is the measurement of BP. However, methods used to obtain an accurate BP vary widely leading to errors that affect accuracy (Handler, 2009). Improper provider techniques lead to under or overestimation of BP which occurs in approximately 30% of patients (Bhatt et al., 2016). The AHA/ACC identified that healthcare professionals commonly make similar errors while measuring BP. Some of the most common errors are the use of incorrectly sized sphygmomanometer cuffs, improper cuff placement, and patient-related factors (i.e., patient position, arm position, and talking while BP is being measured) (Reboussin et al., 2017).

A systematic review by Gaynor, Wright, & Vondracek (2018) investigated 250 patient charts and determined that 573 as needed (PRN) doses of antihypertensive medications were administered during the 250 patients' hospital stays. At least 50% of the patients who were

hospitalized had previously been diagnosed with HTN. Most often, antihypertensive medications are ordered to be administered based on the SBP. For example, physicians' orders may indicate antihypertensive medication be given if SBP is greater than 160 mmHg (Weder & Erickson, 2010). Therefore, the decision to administer or withhold doses of antihypertensive medications depends directly on the patient's assessed BP. This emphasizes that the accuracy of the BP measurement is imperative when assessing and providing care to the hypertensive patient.

The American Heart Association and American College of Cardiology (AHA/ACC) have published guidelines and techniques for accurately measuring BP. The appropriate size blood pressure cuff can be determined by using the 80/40 rule (Reboussin et al., 2017). The bladder of the cuff should encircle the patient's upper arm by 80% and the cuff bladder width should be 40% of the arm circumference. Assessment of BP should be obtained from the patient's upper arm when medically feasible. The cuff should be placed directly on the skin and should not be placed over the patient's clothing. The patient should be positioned with both feet on the floor, with the back supported, and arm resting at chest level. Lastly, the patient should remain quiet while the measurement is obtained. Adherence to these guidelines will increase accuracy and ensure early detection of patients with HTN and reduce the misdiagnosis in those without true HTN (Reboussin et al., 2017).

The first factor affecting accurate BP measurements is the proper cuff size. BP was underestimated by 3-5 mmHg in men and 1-3 mmHg in women when larger than recommended sphygmomanometer cuffs were used. Also, SBP and DBP were overestimated by 2-6 mmHg in men and 3-4 mmHg in women when cuffs smaller than recommended were used (Sprafka et al., 2015). Another study by Handler (2009) identified that using a cuff that is too small causes an increased measurement of 2 and 8 mmHg in SBP and DBP, respectively. Use of correctly sized

cuffs has a sensitivity of .87 and a specificity of .85 (Irving et al., 2016), compared to .73 sensitivity and .76 specificity when incorrectly sized cuffs are used (Irving, et al., 2016). Using the correct size BP cuff can more accurately identify patients with HTN.

Cuff placement is also a factor in accuracy of BP measurement. In a randomized crossover study, Watson et al. (2011) found significantly higher SBP and DBP when measured at the forearm compared to upper arm. SBPs assessed on the forearm averaged 3.6 mmHg higher than SBPs on the upper arm (Handler, 2019). The DBP was 2.1 mmHg higher when compared as well. Conversely, upper arm BP measurements were higher than wrist BPs. It is recommended that cuffs should be placed directly on the arm, over the brachial artery, directly on the patient's skin and not over clothing (Reboussin et. al, 2017). Cuffs that are placed on top of clothing are assessed inaccurately with a 5-50 mmHg elevation in SBP (Handler, 2009). Treating blood pressure based on inaccurate results can cause unnecessary pharmacotherapy and potentially adverse effects.

Reboussin et.al. (2017) recommended that the most accurate BP is obtained when a patient is positioned with the back supported, both feet on the floor, and with the arm resting level to the chest. Handler (2019) identified 5-10 mmHg difference in SBP when the back was unsupported. When BP was measured with the patient's legs crossed at the knee, SBP assessment increased by an average of 6.7 mmHg (Adivaman et al., 2007). When a patient's arm was below or above the chest level, there was aa 1-7 mmHg difference in SBP and a 5-11 difference in DBP (Handler, 2009). If the arm was hanging at the patient's side, SBP increased by 6-10 mmHg (Handler, 2009).

The ACC acknowledges that without properly trained healthcare professionals, early detection of HTN would be subpar. Therefore, inadequate training of healthcare professionals

has the potential to result in inaccurate diagnosis and management of HTN (Reboussin et al., 2017). Inaccurate BP readings could potentially lead to the misdiagnoses of 20 million Americans with pre-HTN when the diagnosis of HTN is truly present, also known as masked HTN (Handler, 2009). A meta-analysis revealed the prevalence of masked HTN averaged 16.85% (Verberk, Kessels, and Leeuw, (2008). In contrast, patients could be diagnosed based on false positive BP assessments with unnecessary treatments rendered (Handler, 2009).

Inaccurate BP measurements can result in detrimental consequences for the patient and negative sequelae for the healthcare system. False HTN diagnoses could pose serious health risks for the patients such as inappropriate use of prescription medications that result in syncope, falls, and unnecessary hospital admissions (Handler, 2009). Patients could experience increased length of hospital stays, increasing the financial burden of medical costs in the United States (Reboussin et al., 2017). The same is true for underestimating BP. Left untreated, HTN may result in health-related conditions such as stroke, cardiovascular disease, myocardial infarction, and renal failure (CDC, 2018). The development of these conditions secondary to HTN not only increases medical expenses for health-related services and medications but places patients at risk for morbidity and mortality (Reboussin et al., 2017).

Theoretical Framework

The conceptual model chosen was designed to simplify the process for implementing evidence into practice. Pronovost, Berneholtz, and Needham (2008) developed the conceptual model of interest entitled Translating Evidence into Practice: A Model for Large Scale Knowledge Translation. The model consists of phases which can be used to assist with implementing evidence into practice. The first 3 components of the model are (1) evidence, (2) identifying barriers to implementation, and (3) measuring performance. These components

summarize the process by which literature for this project was evaluated. The problem was identified and the need for a process change originated. The fourth phase is the implementation phase which can be further broken down into the "four Es" (engage, educate, execute, and evaluate). This part of the model was utilized during the intervention, implementation, and dissemination of the project.

First, the PCAs were engaged by sharing baseline data of the problem with real life scenarios to gain their attention. Next, the educational intervention was conducted with all PCAs in the course. The execution phase focused on implementing the education into practice. Each PCA was given directions for accessing the online education. Finally, an evaluation of the education and implementation was conducted. This phase offered information about the barriers to implementation which will serve for future planning (Pronovost, Berneholtz, and Needham, 2018).

Setting and Organizational Assessment

PCAs obtain a majority of the BP measurements in the Norton clinical setting. The project took place biweekly at Norton Learning Institute. A total of 45 new hire PCAs were included in the education training. Inclusion criteria those 18 years or older, newly hired, without nursing assistant certification, and those working on units with the expectation of BP assessment competency.

The project was submitted to and approved by the University of Louisville Institutional Review Board (IRB). In addition, Norton Healthcare requirements were fulfilled including completion of the agency's research application and approval process which granted full approval from the leadership team.

Purpose

The purpose of this quality improvement project was to implement and evaluate an education intervention into the existing PCA training. The focus was on the recommended techniques for measuring BP with automatic devices. The specific aims included (1) ≥ 70% participants will have ≥ 20% increase in knowledge scores from baseline. (2) Self-efficacy scores (confidence in ability to obtain BP based on recommendations) will be ≥ 75% (on a 0-100 scale) in ≥ 80% of participants and (3) modifiable barriers to implementation will be identified. Over time, this educational intervention would lead to improved patient outcomes by improving HTN management with more targeted detection.

Intervention

An educational intervention was delivered to 45 newly hired PCAs. This intervention was delivered via an Electronic Learning module by Elsevier. The module is entitled "Measuring Blood Pressure" and is based on the recommendations of AHA/ACC. Learning objectives included education regarding the appropriate cuff size, cuff placement, and patient influences including patient position, arm position, and talking while measuring BP.

Data Collection

Signed consent was waived for this education evaluation. No patient information was collected during this project. However, a HIPAA education course was completed at the beginning of the project to ensure understanding of the privacy act. Participant data were de-identified for testing, surveys, and manuscripts. The participants remained confidential by using a coding system with identification numbers. Additionally, completion of the knowledge tests did not require their name or employee identification number. Surveys were sent by emailing a URL to each participant six weeks after the education was completed. The employee identificationnumbers were stored on a personal computer that was virus protected and double

password protected. The password and computer were not assessable by any other individuals except the evaluator.

Measurement

The outcomes measured included PCA knowledge and self-efficacy of AHA/ACC techniques for measuring BP. Knowledge was assessed with a 10-question multiple choice test, immediately pre- and post-intervention. The questions on the test were created based on the objectives and content from the Elsevier learning module Measuring Blood Pressure. Each question was worth 10 percentage points for a total of 100% percentage correct (Appendix 3, Knowledge Assessment Test Questions) After the intervention, the same group received a similar test on the same content.

Self-efficacy was measured 6 weeks after the intervention with a 4-point Likert survey. The survey consisted of 10 questions based on level of confidence the PCA has, how often they are able take BP according to the education, as well as items that assessed barriers to implementation of the techniques into practice (Appendix 4, Self-Efficacy Questions). The Likert survey is not an established tool, so the survey results were reported with descriptive statistics.

Knowledge was assessed using a pre-and post-intervention assessment created from the learning objectives and content from Elsevier. A paired t-test was used to compare mean pre- and post-intervention knowledge scores. Significance was set at a p value of .05 throughout the analyses. Demographics of participants were obtained prior to completing the pre-test. Demographic variables included the participant's age, previous experience, highest level of education, and patient population (i.e., adult vs. pediatrics). These variables were reported

descriptively. The data analysis plan involved using a data software site called Social Science Statistics, along with creating a data file for variables and development of a codebook.

Results

The participants' median age was 23 years old. When analyzing the highest level of education attained for the participants and previous work history, 60% of them had previous experience working in healthcare. Of the 45 participants, 93% reported having some college education or a previous degree. Eleven had obtained a college degree, 31 had completed some college and 3 had only a high school diploma. Forty participants reported adults as their primary patient population.

Knowledge

There was a 20% increase of knowledge scores in 73% of participants; the average total correct answers on pre-test scores were approximately 74% correct and 88% total correct after the intervention ($t = 6.91$, $p < .00001$). The most frequent incorrect answer on the pre- and post-knowledge tests was related to the identification of the factors which affect blood pressure accuracy. During the pre-test, only 4 participants were able to identify all of the factors compared to 31 who answered correctly after the educational intervention.

Self-Efficacy

Six weeks after the intervention was completed, 14 of the 46 self-efficacy surveys were returned. Of those who returned surveys, 92.8% reported a high level of self-efficacy (i.e., confidence in measuring BP based on previously taught recommendations). Furthermore, 92.7% felt confident that they could determine the correct size cuff for the patient, measure with the cuff on the upper arm, and with the patient in correct position. However, when asked how often

participants were able to measure blood pressure in accordance with recommendations, only 78.5% of participants were able to do so consistently.

Barriers

When participants were asked what hindered them from being able to measure blood pressure appropriately, 42.8% reported it was related to the instability of the patient. Moreover, 28.5% reported that the recommended cuff size for the patient was not readily available, 14.2% reported it was due to limb restrictions and 14.2% due to staffing constraints.

Interpretation

From the results it can be inferred that the educational intervention increases knowledge scores. Barriers for implementing into practice were attributed to both modifiable and nonmodifiable factors. The stability of the patient was largest barrier for implementation. This could be attributed to the responsibility of the nurses on the specific units. For instance, hospital protocols require nurses to obtain blood pressure for certain tasks performed and if assessment is being made. Nurses are solely responsible for obtaining blood pressure measurements before blood transfusions, 15 minutes after it has begun, and immediately after transfusions have completed to assess for blood transfusion reactions. Another intervention such as giving an intravenous fluid bolus requires a nurse to assess blood pressure to determine if the intervention was effective. Additionally, in units where patients are more acutely ill, the registered nurse may be required to measure blood pressure along with the PCA at specific times during of the day. The task of obtaining blood pressure in these units are a shared task with both members of the care team. Future research could be conducted to assess how increasing the frequency of measuring blood pressure would affect the stability of the inpatients.

Though the stability of a patient is a difficult barrier to control, the cuff size availability is one modifiable barrier. To reduce the discrepancies in blood pressure results related to inaccurate cuff size, units must have all sizes of cuffs readily available. This is clinically significant as medications are ordered to be administered based on patient's SBP (Weder & Erickson, 2010). Consequently, using incorrectly sized sphygmomanometer cuffs may result in mismanagement of hypertension by inaccurate results.

Limb restrictions due to previous mastectomy, trauma to the extremity, or dialysis fistula can hinder assessment of BP. There are instances where both limbs may be restricted. This can occur if an intravenous line occupies one arm and the other may be restricted due to a medical contraindication. In these cases, the PCAs use the lower leg which can lead to discrepancies in SBP. Additional research is needed to determine if incorporating lower extremity BP assessment into educational modules would reduce errors in this patient population.

Finally, staffing constraints were reported by 14.8% of participants. This could have been largely attributed to the COVID-19 pandemic during which employees were furloughed. However, additional research is needed to determine if inadequate staffing contributes to under or overreporting of abnormal BP assessments . Hiring and interviewing processes were limited during this program evaluation as agencies were shifting in person training and interviews to virtual processes.

Limitations

There was one participant among the 45 who was determined to be an outlier. This participant consistently selected the first answer in the survey. Additionally, the duration of time spent to complete the survey was significantly less than the other participants. Other limitations include a smaller than expected return on the self-efficacy surveys. This limitation could be

related to time and staffing constraints during the COVID-19 pandemic. However, 92% reported very high level of self-efficacy and confidence in measuring blood pressure according to previously taught recommendations.

Conclusion

Errors made when measuring blood pressure are preventable and have serious consequences. These consequences directly impact patient outcomes and increase the financial burden of healthcare costs. The AHA/ACC stated that without properly trained healthcare professionals, early detection of HTN would not be attainable. Optimistically, this educational intervention improved the knowledge of BP assessment by PCAs. Barriers to implementation were identified which will be used for future planning. Molding this educational intervention into the current training would allow improved patient outcomes and reduce unnecessary healthcare costs. Further research is necessary to incorporate these AHA/ACA recommendations in the outpatient setting.

References

Adiyaman, A., Tosun, N., Elving, L. D., Deinum, J., Lenders, J. W., & Thien, T. (2007). The effect of crossing legs on blood pressure. Blood pressure monitoring, *12*(3), 189–193. https://doi.org/10.1097/MBP.0b013e3280b083a7

Bhatt, H., Siddiqui, M., Judd, E., Oparil, S., & Calhoun, D. (2016). Prevalence of pseudo resistant hypertension due to inaccurate blood pressure measurement. *Journal of the American Society of Hypertension*; *10*(6), 493-9. https://doi.org:10.1016/j.jash.2016.03.186

Centers for Disease Control and Prevention (2016). *High Blood Pressure Frequently Asked Questions*. https://www.cdc.gov/bloodpressure/faqs.htm

Centers for Disease Control and Prevention. (2018). *Program Performance and Evaluation Office*. https://www.cdc.gov/eval/steps/index.htm

Handler, J. (2009). The importance of accurate blood pressure measurement. *The Permanente Journal*, *13*(3). https://doi.org:10.7812/TPP/09-054

Irving, G., Holden, J., Stevens, R., & McManus, R. (2016). Which cuff should I use an indirect blood pressure measurement for the diagnosis of hypertension in patients with obesity: A diagnostic accuracy review. *BMJ Open, 6*, 1-9. https://doi.org:10.1136/bmjopen-2016-012429

Pronovost, P. J., Berenholtz, S. M., & Needham, D. M. (2008). Translating evidence into practice: a model for large scale knowledge translation. *Bmj*, *337.* https://doi.org/10.1136/bmj.a1714

Reboussin, D. M., Allen, N. B., Griswold, M. E., Guallar, E., Hong, Y., Lackland, D. T., Miller, I. E. (Pete) R., Polonsky, T., Thompson-Paul, A. M., & Vupputuri, S. (2018). Systematic review for the 2017 guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: A report of the American college of cardiology/American heart association task force on clinical practice guidelines. *Journal of the American College of Cardiology*, 71(19), 2176–2198. https://https://doi.org-org.echo.louisville.edu/10.1016/j.jacc.2017.11.004

Smith, L. (2005). New AHA recommendations for blood pressure measurement. *American Family Physician*, *72,* 1391-1398. https://www.aafp.org/afp/2005/1001/p1391.html

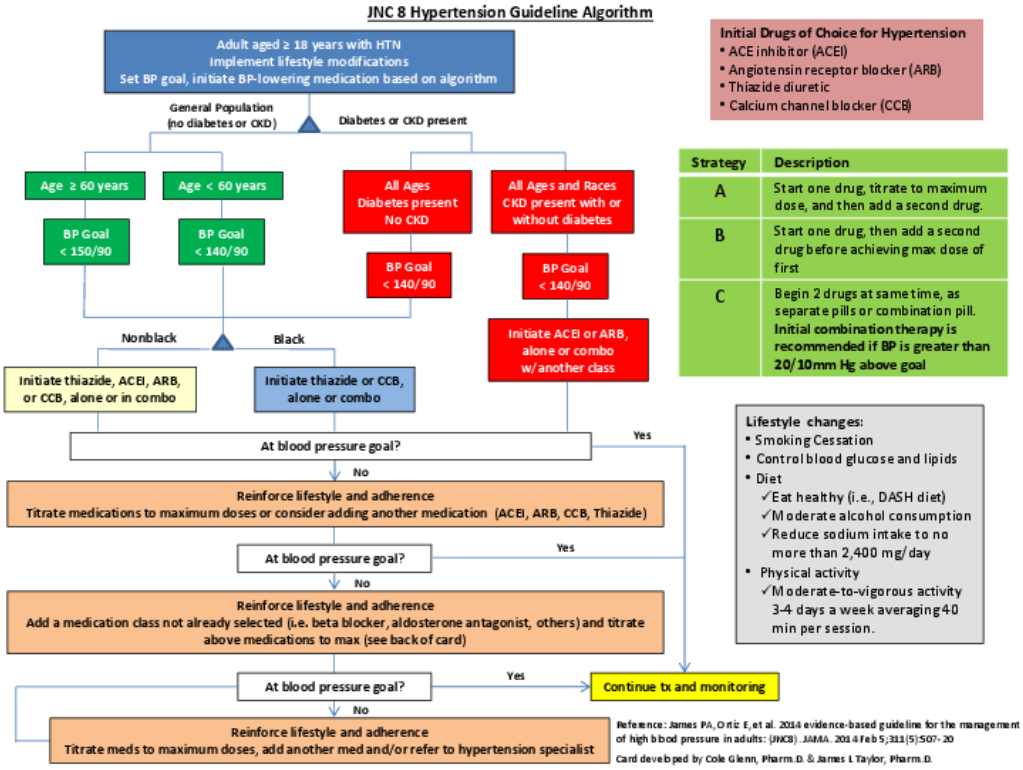
Sprafka, J. M., Strickland, D., Gómez-Marín, O., & Prineas, R. J. (1991). The effect of cuff size on blood pressure measurement in adults. *Epidemiology (Cambridge, Mass.)*, *2*(3), 214–217. https://doi.org/10.1097/00001648-199105000-00010

Verberk, W. J., Kessels, A. G., & de Leeuw, P. W. (2008). Prevalence, causes, and consequences of masked hypertension: a meta-analysis. *American journal of hypertension*, *21*(9), 969–975. https://doi.org/10.1038/ajh.2008.221

Weder, A. B., & Erickson, S. (2010). Treatment of hypertension in the inpatient setting: Use of intravenous labetalol and hydralazine. *The Journal of Clinical Hypertension*, *12*(1), 29–33. https://doi.org/10.1111/j.1751-7176.2009.00196.x

Appendix A

JNC 8 Hypertension Guideline Algorithm



Appendix B

Knowledge Assessment Test Questions

1. What is considered a normal blood pressure for an adult?
   A. 160/90
   B. 150/90
   C. 170/90
   D. 115/70

2. Which is the best location for the most accurate blood pressure measurement in an adult patient?
   A. Forearm
   B. Lower leg
   C. Upper arm
   D. Cuff position doesn't affect results

3. How can you ensure proper BP cuff size selection for the upper extremity?
   A. Use the smallest cuff possible.

B. Make sure the cuff wraps around the arm just once.
C. Make sure the cuff width spreads from the antecubital space to the axilla.
D. Measure the arm circumference.

4. Which limb is the most appropriate for blood pressure measurement?
   A. Left arm with multiple tattoos
   B. Right arm with IV site and fluids running
   C. Left arm on patient with a history of a left mastectomy
   D. Right arm with a crush injury to the right hand

5. Which is the best position for a patient to be in when checking blood pressure?
   A. Cuff on lower arm, sitting with feet crossed, arm hanging down by side.
   B. Cuff on upper arm, sitting with feet flat on floor, arm resting on lap.
   C. Cuff on upper arm, sitting with feet flat on floor, arm level with chest.
   D. Patient position doesn't affect results

6. How does blood pressure cuff size affect blood pressure results?
   A. Studies show that using a cuff that is too small results in an overestimation of BP, and using a cuff that is too large results in an underestimate of BP.
   B. Studies show that using a cuff that is too small results in an underestimate of BP, and using a cuff that is too large results in an overestimate of BP.
   C. Studies show that the most accurate reading is obtained by selecting a cuff size based on patient weight rather than arm circumference.
   D. Studies showed no correlation between the size cuff selected and the results

7. Which of the following impact blood pressure? Select all that apply:
   A. Recent caffeine use
   B. Full bladder
   C. Recent tobacco use
   D. Talking while measuring blood pressure
   E. Obtaining blood pressure over clothing

8. When a blood pressure is found to be outside normal range what should the PCA do?
   A. Recheck immediately
   B. Chart the blood pressure immediately in medical record, perform hand hygiene, and move to next patient
   C. Inform nurse of result immediately, allow patient to rest before repeating.
   D. Go on break and recheck in 30 minutes

9. The PCA has identified that the patient needs a cuff smaller than the adult small cuff that is available on the unit. What is the correct action?
   A. Use the smallest adult cuff size available on the upper arm

B. Use the smallest adult cuff size available on the forearm
C. Obtain a small pediatric cuff for the patient
D. Obtain a large pediatric cuff for the patient

10. One factor that does NOT affect blood pressure accuracy is.
A. Drinking coffee 10 minutes prior
B. Talking on cellphone with loved one
C. Recent ambulation around the unit
D. Watching television

Appendix C

Self-Efficacy Questions

1. How confident are you in choosing the correct blood pressure cuff size?

- Not confident at all
- Minimally confident
- Confident
- Extremely confident

2. How confident are you that you have the knowledge to accurately take an adult patient's blood pressure?

- Not confident at all
- Minimally confident
- Confident
- Very confident

3. How helpful was the course to your understanding of measuring blood pressure?

- Not helpful at all
- Minimally helpful
- Helpful
- Very helpful

4. In the last month, how often have you been able to measure blood pressure in accordance with recommendations?

- Never
- Rarely

- Usually
- Always

5. How often are you able to measure blood pressure on the patient's upper arm with the appropriate blood pressure cuff?

- Never
- Rarely
- Usually
- Always

6. How often are you able to measure blood pressure with the patient in the recommended position?

- Never
- Rarely
- Usually
- Always

7. I have the supplies readily available for me to accurately obtain blood pressure?

- Never
- Rarely
- Usually
- Always

8. What has hindered you the most from being able to measure blood pressure appropriately?

- Cuff size unavailable
- Limb restrictions
- Patient unstable
- Staffing constraints

9. How well did the course prepared you with the knowledge needed to understand why blood pressure technique is important.

- Not at all
- Minimally
- Good

- Significantly

10. How often do you plan to continue using the recommended techniques for measuring blood pressure in the future?

- Never
- Rarely
- Usually
- Always