A Review of the Emergency Nurse Practitioner Impact on Care Delivery, Patient Satisfaction, and Cost

An Evidence-Based Practice Recommendation and Project Proposal

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Summer 2019

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Abstract

Emergency departments (ED) around the world experience problems with overcrowding due to the reduced access to primary healthcare and increasing aging population with multiple chronic conditions. Nurse practitioner (NP) service in the ED has been shown to relieve the increasing demands and results in improved quality of clinical care and patient satisfaction.

Keywords: emergency nurse practitioners, emergency APRN, advanced practice providers, patient satisfaction, outcomes, cost

Introduction

Healthcare facilities across the United States are implementing innovative ways to meet the increased needs of emergency services nationwide. Many EDs around the United States (US) are beginning to employ emergency nurse practitioners (NPs) to meet the increased demand and decrease the burden placed on emergency physicians.

The problem is the demands for emergency services are on the rise due to a variety of factors including reduced access to primary care, shortage of primary care providers, and the increasing aging population with chronic illnesses (Jennings, Clifford, Fox, O'Connell, & Gardner, 2015). The ability of Emergency Departments (EDs) to deliver safe, timely, and high quality of care could be affected due to these increased demands.

Significance

The first NP program in the US was established in 1965 to help fight the shortage of primary care physicians within the urban and rural regions of the US due to the expansion of Medicare and Medicaid coverage to low-income families, elderly, and people living with a disability (The American Association of Nurse Practitioners, 2019). The American Association of Nurse Practitioners (AANP) estimated that there are 270,000 licensed NPs in the US as of 2018. NPs work in diverse clinical settings, including private practice, hospital outpatient clinics, hospital inpatient units, urgent care, and emergency rooms. According to Gaudio & Borensztein (2018), a comprehensive US demographic survey conducted in 2015 revealed that there were approximately 8,500 NPs employed in EDs. Delivering the best quality of care to patients who present in the ED has become one of the most critical indicators of better patient outcomes and positive experiences of care. With the increasing physician shortages in the US,

the growing number of licensed NPs working in the nation allows them to continue to provide care for millions of Americans who need healthcare.

According to the Centers for Disease Control and Prevention (CDC) (2017), there were 145.6 million ED visits in 2017. Of these, 12.3 million required higher-acuity care as reflected in the need for hospital admissions, with 1.5 million being admitted to critical care units. EDs have seen the number of patients presenting increase by more than 7% over the past five years, which is causing an increased burden on the healthcare system that could impact the quality of patient care (CDC, 2017).

Compared to 2015, the total ED visits recorded for ED visits was 136.2 million. Of these, 10.6 million patients requiring higher-acuity care with 1.8 million of these patients requiring admission in the critical care unit (CDC, 2017). These statistics show the continuous increased of ED visits and hospital admissions within the past 4 years.

Conceptual Framework

To aid with the implementation of this project, which focuses on the efficacy of emergency nurse practitioners with regard to patient satisfaction, waiting times, and cost, the literature review relied on Promoting Action on Research Implementation in Health Services (PARIHS) evidence-based practice (EBP) framework. "Successful implementation of research into practice is a function of the interplay of three core elements, the level and nature of the evidence, the context or environment into which the research is to be placed, and the method or way in which the process is facilitated" (Kitson, Harvey, & McCormack, 1998, p. 149). These three elements facilitate the successful implementation of research.

Kitson et al. (1998) define evidence as the inclusion of patients in the decision-making process; also, with regard to patient experience, valid and reliable local data are considered high

in the continuum. Context indicates the setting or environment where the evidence is to be utilized. It is made of culture, leadership, and evaluation (Kitson et al., 1998). Lastly, Kutson et al. (1998) describe facilitation as the enactment of research based on evidence-based guidelines.

This project will be constructed based on all the elements of the PARIHS framework to implement EBP recommendations successfully and to answer the research question of this project proposal: What is the impact of emergency nurse practitioners in improving healthcare delivery, patient satisfaction, and reducing cost? A comprehensive review and interpretation of evidence based literature addressing the multiple dimensions of having an NP in the ED will identify their impact on healthcare delivery and promote facilitation of evidence based suggestions. By performing a robust review of literature, an evidence based recommendation can be formulated to justify the relevance of having NPs be a part of the healthcare team in the ED.

Purpose Statement

The purpose of this paper is to examine the impact of ED NPs on care delivery, patient satisfaction, and cost. With an increasingly aging population, ED use will only increase, further stressing an already strained system (Jennings et al., 2015). ED NPs are becoming increasingly utilized for patients of varying acuity in the ED (Gaudio et al., 2018). The impact NPs have had in the ED has been closely examined to ensure care and outcomes are similar to that of ED MDs (Jennings et al., 2015).

Methods

A systematic review of the literature that included studies showing the impact of nurse practitioners working in the ED and other clinical settings on care delivery and patient satisfaction was performed. This method was appropriate to examine the advantages of having

NPs in the ED provider team. Performing systematic review of literature can reduce bias and increase the likelihood of accurate and reliable conclusions. Google Scholar, CINAHL Complete (EBSCO), and PubMed databases were used. Key search terms and phrases included: emergency nurse practitioners, advanced practice registered nurses (APRNs), advanced practice providers, patient satisfaction, and outcomes. The literature publication year was set from 2013-2019. A Google Scholar search yielded 105 studies. Of these articles, 13 were found to be relevant to the impact of emergency nurse practitioners on healthcare delivery, patient satisfaction, and cost.

A CINAHL search yielded 60 studies. Of these studies, 4 were relevant to the impact of emergency nurse practitioners on healthcare delivery and patient satisfaction. Lastly, the PubMed search yielded 55 studies. Of these studies, two were relevant to the impact of emergency nurse practitioners on healthcare delivery, patient satisfaction, and cost. Inclusion criteria for materials chosen include studies published from 2013-2019 in the urban and rural emergency departments staffed with nurse practitioners. Only studies published in English were used in this research. Exclusion criteria include studies published before 2013 and non-English language studies.

Literature Review

A literature matrix was created to compile and compare all the results of the studies that matched the inclusion criteria for this project proposal. Overall, the review of multiple levels of evidence of the literature showed the positive impact of emergency nurse practitioners with patient satisfaction, waiting time, and cost. Other positive findings from the literature review included the ability of ED NPs to interpret diagnostic imaging in identifying definite, possible, or no fractures in patients presenting in ED, using point of care ultrasound in

identifying foreign objects in soft tissues, diagnostic accuracy of electrocardiogram (ECG) interpretation, unexpected ED return rate, and timely analgesia administration for patients with pain complaints.

Patient Satisfaction

According to the Centers for Medicare and Medicaid Services (CMS) (2017), "The HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) survey is the first national, standardized, publicly reported survey of patients' perspective of hospital care" (para. 1). The Hospital Quality Alliance (HQA) required major hospitals and medical associations, consumer groups, professional associations, purchasers, federal agencies, research, and quality organizations in the US implementation of HCAHPS in their systems (CMS, 2017). Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) was one of the measures included in the Patient Protection and Affordable Care Act of 2010 (CMS, 2017). It was used to calculate value-based incentive payments in the hospital's value-based Purchasing program, which began with the hospital's patient discharges in October 2012 (CMS, 2017). Hospitals use HCAHPS score not only to ensure the patients who access their healthcare facility get the best care but also due to its impact on hospital reimbursements which can affect daily hospital operations.

Six out of nineteen studies included in the literature review measured patient satisfaction scores. Three studies were systematic reviews, and the other three were cohort studies. All six studies showed high patient satisfaction from ED NP Providers. Griffin & McDevitt (2016) highlighted the items where ED NPs scored the highest. This includes thoroughness with their evaluation, building rapport with their patients and gaining their trust, taking the time to discuss patients' health concern, health promotion, and timely pain management (Griffin et al., 2016).

Waiting times

"Emergency department's wait time is an indication of overcrowding" (CDC, 2018, para. 1). In 2015, there was an increase in annual ED visits resulting in increased wait time for ED treatments (CDC, 2018). The mean wait time for less than 20,000 patients annually was 33.4 minutes compared to 48.3 minutes wait time for ED visits of 50,000 patients or more annually (CDC, 2018). Overcrowding ED can lead to hospitals going on ambulance diversions which closes its door to patients needing critical care treatment and also increased waiting time for patients in the waiting room, especially the ones needing emergent medical attention such patients with acute myocardial infarction, stroke, bleeding disorders and other critically-ill patients.

Four of the nineteen studies reviewed for this project proposal measured the effectiveness of ED NPs with decreasing ED patients' wait time. Two of these four studies were cohort studies which revealed that ED NPs evaluate patients between 8 and 14 minutes after checking in with the ED registrar. The two other studies out of these four studies were systematic reviews. Jennings, Clifford, Fox, O'Connell, & Gardner (2014) included fourteen studies for their project proposal. Jennings et al. (2014) study concluded a decreased wait time from checking in and being triaged. Their study also revealed decreased patient wait time under the ED NP care and concluded that ED NP providers took a total time of approximately 7-14 minutes to evaluate patients from ED arrival as compared to ED MDs, who had a total time of approximately 15-30 minutes to evaluate patients from ED arrival (Jennings et al., 2014).

Woo, Yu Lee, & San Tam (2017) chose fifteen studies for their project. Their research concluded a decreased wait time of less than 14 minutes to get an evaluation upon checking in the ED (Woo et al., 2017). Overall, the review of the four studies out of nineteen reviewed in

this project with regards to the impact of NPs in decreasing wait times in the ED showed lesser wait times under NP care.

Cost

According to the CDC (2017), the total national health expenditure in 2016 came out to $10,348, with a total national health expenditure of $3.3 trillion in 2016. This was significantly higher compared to national health expenditure of $1.8 trillion in 2014 (CDC, 2017). With continued healthcare transformation and reform, it is now more imperative that NPs be utilized the fullest extent of their scope of practice (Fund & Swanson, 2014).

Three of the nineteen studies reviewed for this project proposal reviewed the cost-effectiveness of NPs. The studies concluded that NPs provide cost-effective quality care comparable and at times better than physicians (Jennings et al., 2014; Woo, Lee, & Tam, 2017; Fund & Swanson-Hill, 2014). Review of these studies showed that proper utilization of NPs in the ED setting can have a big impact in decreased healthcare cost while providing the same level if not better quality care than MDs.

Diagnostic Imaging

Proper identification of fractures, soft tissue, and different vital organ injury are necessary skills for ED providers to master to treat their patients effectively. Healthcare providers in the ED encounter many complaints related to these issues. Appropriate diagnostic readings are significant to appropriately treat patients' injuries so being competent in interpreting diagnostic tests is an important skill that NPs need to have.

Three studies out of nineteen reviewed for this project proposal analyzed NPs ability to interpret diagnostic imaging. All three studies concluded that NPs are competent to use point of care ultrasound to identify foreign bodies inside soft tissues and also possess the clinical and

diagnostic skills with the interpretation of isolated limb injuries to properly care for patients presenting in the ED with this medical problem (Atkinson, Kendall, Fraser, & Lewis, 2014; Griffin & McDevitt, 2016; & Lee, Chou, Jennings, O'Reilly, McKeown, Bystrzycki, & Varma, 2014).

Management of Patients with Chest Pain

According to the CDC (2015), coronary artery disease (CAD) is one of the leading causes of heart attacks in the US. Proper identification of CAD in patients presenting with chest pain is important to properly managing this disease and preventing complications from occurring. One of the main diagnostic tools that are used to identify CAD in patients presenting with chest pain in the ED is the electrocardiogram (ECG). This test measures the electrical activity and regularity of a person's heartbeat (CDC, 2015).

One study out of nineteen studies reviewed for this project proposal performed a study comparing ED NPs and ED MDs with the management of chest pain. Roche, Gardner, & Jack (2017) conducted a prospective, longitudinal, nested cohort study. There were a total of 61 participants that were recruited. The ED NP service model managed 23 patients (37.7%) while the remaining 38 patients (63.3%) were managed by the ED MD service model (Roche et al., 2017). The study concluded that the ED NPs had a 91.7% diagnostic accuracy of ECG interpretation compared to ED MDs, who had 82.8% (Roche et al., 2017). Despite differences in the accuracy of ECG interpretation, adherence to treatment guidelines was equivalent for both NPs and MDs.

Unexpected ED Return Rate

Two of nineteen studies reviewed for this project proposal performed a study regarding the rate of unexpected ED return rates between NPs and MDs. Both studies revealed that

unexpected return to ED rates decrease when ED NPs provide care (Griffin et al. 2016 & Jennings et al. 2015).

Pain management

Chronic and acute pain is one of the main reasons why patients go to the ED to seek medical care (CDC, 2018). It is estimated that there was approximately 20.4% of adults in the US with chronic pain and 8.0% of adults with high-impact chronic pain (CDC, 2018). Management of pain has also been one of the categories listed in HCAPHS. For this reason, it is important that ED providers manage patients' pain appropriately and promptly.

Two studies out of the nineteen reviewed for this project proposal analyzed pain control and timeliness of pain management by ED NP providers for patients with complaints on pain in the ED. Both studies concluded that NPs provide timely pain control with patients receiving analgesia within 30 minutes of their arrival in the ED (Jennings et al, 2014 & Roche et al., 2017).

Discussion

Application of the elements that make up the PARIHS framework which include evidence, context, and facilitation to develop and justify an evidence-based practice recommendation of integrating emergency nurse practitioners in the emergency department to provide care for patients seeking care in the ED, prevention of overcrowding, and decreased stress put upon the ED Physicians.

This literature review consisted of five robust systematic reviews, two randomized controlled trials, two cohort studies, and six descriptive studies including surveys, cross-sectional designs, and qualitative studies which discussed variety of topics regarding the impact of NPs in the ED and other health care settings in the US and other countries such as Australia, Canada, New Zealand, and United Kingdom (UK).

Limitations

Due to the heterogeneity of the nineteen studies reviewed with their study design, sample, instruments, interventions, and outcome measures, it is difficult to make a valid conclusion regarding the impact of ED NPs with regards to patient satisfaction, waiting time, and cost. There are also a limited number of studies conducted regarding the efficacy of ED NPs in the US healthcare system. Most of the studies reviewed were from other countries, application of all these to the complex US healthcare system is a challenge.

Recommendations

The financial impact NPs have on the US healthcare system is lacking. The majority of studies examining the financial impact ED NPs have were done outside of the US. With the unique complexity of US healthcare, more studies need to be done in the US to truly understand the financial impact ED NPs have on healthcare delivery.

To be more marketable and competitive as NP providers, different schools, and hospitals in the US should provide post-graduate educational emergency residency programs to prepare newly graduated NPs or experienced NPs working in a different specialty. These residency programs usually last 12-18 months post-graduation from NP school (Gaudio & Borensztein, 2018). Residency programs also offer in-class lectures, skills labs, and simulation learning aside from the 2,000-3,000 clinical hours that NPs do. According to Gaudio et al. (2018), there are currently nine fellowship/residency programs for NPs wanting to specialize in emergency medicine in the US. With the small number of residency programs available, most of the programs can only accept two to three NPs each year (Gaudio et al., 2018). The range of duties for NPs entering the field of emergency medicine is continuously increasing over the years. Having more residency programs available to NPs who wants to specialize in emergency

medicine will help increase the number of acceptances through these programs which can help produce a more qualified ED NPs ready to take care of higher complexity patients with multiple comorbidities.

Conclusion

ED NPs provide care that is equivalent, and at times superior, to that of ED MDs. Nurse practitioners should be greater utilized in the ED with an expanded scope of practice, including care for patients with minor and critical illnesses. Standardization of the educational path for NPs wanting to specialize in the ED needs to be established. Doing this will help validate the skills of NPs and prepare them to manage higher acuity patients with complex medical conditions and provide the highest quality care for these patients.

References

American Association of Nurse Practitioners (2019). NP Fact Sheet. Retrieved from https://www.aanp.org/about/all-about-nps/np-fact-sheet on April 21. 2019.

Atkinson, P., Madan, R., Kendall, R., Fraser, J., & Lewis, D. (2014). Detection of soft tissue foreign bodies by nurse practitioner-performed ultrasound. *Critical Ultrasound Journal, 6*(1), 2. https://doi-org.hpu.idm.oclc.org/10.1186/2036-7902-6-2.

Black, A., & Dawood, M. (2014). A comparison in independent nurse prescribing and patient group directions by nurse practitioners in the emergency department: A cross sectional review. *International Emergency Nursing, 22*(1), 10–17. https://doi-org.hpu.idm.oclc.org/10.1016/j.ienj.2013.03.009

Center for Disease Control and Prevention (2017). Older Person's Health. Retrieved from https://www.cdc.gov/nchs/fastats/older-american-health.htm on April 12, 2019.

Center for Disease Control and Prevention (2017). Emergency Department Visit. Retrieved from https://www.cdc.gov/nchs/fastats/emergency-department.htm on April 12, 2019.

Center for Disease Control and Prevention (2018). National Health Care Surveys. Retrieved from https://www.cdc.gov/nchs/data/factsheets/factsheet_nhcs.htm on May 28, 2019.

Center for Disease Control and Prevention (2018). Prevalence of Chronic Pain and High-Impact Chronic Pain Among Adults. Retrieved from https://www.cdc.gov/mmwr/volumes/67/wr/mm6736a2.htm on May 29, 2019.

Centers for Medicare and Medicaid Service (2017). HCAHPS: Patients' Perspectives of Care Survey. Retrieved from https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/hospitalqualityinits/hospitalhcahps.html on May 28, 2019.

Donald, F., Kilpatrick, K., Reid, K., Carter, N., Martin-Misener, R., Bryant-Lukosius, D., Harbman, P., Kaasalainen, S., Marshall, D., Charbonneau-Smith, R., Donald, E., Llyoyd, M., Wickson-Griffiths, A., Yost, J., Baxter, P., Sangster-Gormley, E., Hubley, P., Laflamme, C., Campbell-Yeo, M., Price, S., Boyko, J., & DiCenso, A. (2014). A Systematic Review of the Cost-Effectiveness of Nurse Practitioners and Clinical Nurse Specialists: What Is the Quality of the Evidence?. *Hindawi Publishing Corporation, 2014*(28), 2-28. http://dx.doi.org/10.1155/2014/896587.

Eisenhauer, E. R. (2015). An Interview With Dr Barbara A. Carper. *Advances In Nursing Science, 38*(2), 73-82. doi:10.1097/ANS.0000000000000067.

Fund, M. E., & Swanson-Hill, A. (2014). Cost-Effectiveness of Nurse Practitioner Care. *Kansas Nurse, 89*(1), 12–15. Retrieved from http://search.ebscohost.com.hpu.idm.oclc.org/login.aspx?direct=true&db=ccm&AN=107880673&site=ehost-live&scope=site.

Gaudio, F. G., & Borensztein, R. (2018). An Emergency Medicine Residency for Nurse Practitioners: The New York Presbyterian--Weill Cornell Medicine Experience. *Advanced Emergency Nursing Journal, 40*(2), 119–126. https://doi org.hpu.idm.oclc.org/10.1097/TME.0000000000000186.

Griffin, M., & McDevitt, J. (2016). An Evaluation of the Quality and Patient Satisfaction With an Advanced Nurse Practitioner Service in the Emergency Department. *Journal for Nurse Practitioners, 12*(8), 553–559. https://doi-org.hpu.idm.oclc.org/10.1016/j.nurpra.2016.05.024.

Jennings, N., Clifford, S., Fox, A. R., O'Connell, J., & Gardner, G. (2015). The impact of nurse practitioner services on cost, quality of care, satisfaction and waiting times in the

emergency department: A systematic review. *International Journal of Nursing Studies, 52*(1), 421–435. https://doi-org.hpu.idm.oclc.org/10.1016/j.ijnurstu.2014.07.006.

Jennings, N., Gardner, G., O'Reilly, G., & Mitra, B. (2015). Evaluating Emergency Nurse Practitioner Service Effectiveness on Achieving Timely Analgesia: A Pragmatic Randomized Controlled Trial. *Academic Emergency Medicine, 22*(6), 676–684. https://doi-org.hpu.idm.oclc.org/10.1111/acem.12687.

Jennings, N., Kansal, A., O'Reilly, G., Mitra, B., & Gardner, G. (2015). Time to analgesia for care delivered by nurse practitioners in the emergency department – a retrospective chart audit. *International Emergency Nursing, 23*(2), 71–74. https://doi-org.hpu.idm.oclc.org/10.1016/j.ienj.2014.07.002.

Jennings, N., Mckeown, E., O, R. G., & Gardner, G. (2013). Evaluating patient presentations for care delivered by emergency nurse practitioners: A retrospective analysis of 12 months. *Australasian Emergency Nursing Journal, 16*(3), 89–95. https://doi-org.hpu.idm.oclc.org/10.1016/j.aenj.2013.05.005.

Kitson, A., Harvey, G., McCormack, B. (1998). Enabling the implementation of evidence-based practice: A conceptual framework. *Quality in Health Care,* 7(3), 149-158). Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2483604/.

Lau, L. H., Kerr, D., Law, I., & Ritchie, P. (2013). Nurse practitioners treating ankle and foot injuries using the Ottawa Ankle Rules: A comparative study in the emergency department. *Australasian Emergency Nursing Journal, 16*(3), 110–115. https://doi-org.hpu.idm.oclc.org/10.1016/j.aenj.2013.05.007.

Lee, G. A., Chou, K., Jennings, N., O'Reilly, G., McKeown, E., Bystrzycki, A., & Varma, D. (2014). The accuracy of adult limb radiograph interpretation by emergency nurse

practitioners: A prospective comparative study. *International Journal of Nursing Studies, 51*(4), 549–554. https://doi-org.hpu.idm.oclc.org/10.1016/j.ijnurstu.2013.08.001.

Li, J., Westbrook, J., Callen, J., Georgiou, A., & Braithwaite, J. (2013). The impact of nurse practitioners on care delivery in the emergency department: a multiple perspectives qualitative study. *BMC Health Services Research, 13*(1), 1–8. https://doi-org.hpu.idm.oclc.org/10.1186/1472-6963-13-356.

Lloyd-Rees, J. (2016). How emergency nurse practitioners view their role within the emergency department: A qualitative study. *International Emergency Nursing, 24*, 46–53. https://doi-org.hpu.idm.oclc.org/10.1016/j.ienj.2015.06.002.

Lutze, M., Fry, M., Mullen, G., O'Connell, J., & Coates, D. (2018). Highlighting the Invisible Work of Emergency Nurse Practitioners. *Journal for Nurse Practitioners, 14*(1), 26–32. https://doi-org.hpu.idm.oclc.org/10.1016/j.nurpra.2017.09.023.

Lutze, M., Ross, M., Chu, M., Green, T., & Dinh, M. (2014). Patient perceptions of emergency department fast track: a prospective pilot study comparing two models of care. *Australasian Emergency Nursing Journal: AENJ, 17*(3), 112–118. https://doi-org.hpu.idm.oclc.org/10.1016/j.aenj.2014.05.001

McDevitt, J., & Melby, V. (2015). An evaluation of the quality of Emergency Nurse Practitioner services for patients presenting with minor injuries to one rural urgent care centre in the UK: a descriptive study. *Journal of Clinical Nursing, 24*(3–4), 523–535. https://doi-org.hpu.idm.oclc.org/10.1111/jocn.12639.

Oliver, G. M., Pennington, L., Revelle, S., & Rantz, M. (2014). Impact of nurse practitioners on health outcomes of Medicare and Medicaid patients. *Nursing Outlook, 62*(6), 440–447. https://doi-org.hpu.idm.oclc.org/10.1016/j.outlook.2014.07.004

Roche, T. E., Gardner, G., & Jack, L. (2017). The effectiveness of emergency nurse practitioner service in the management of patients presenting to rural hospitals with chest pain: a multisite prospective longitudinal nested cohort study. *BMC Health Services Research, 17,* 1–14. https://doi-org.hpu.idm.oclc.org/10.1186/s12913-017-2395-9

Stanik-Hutt, J., Newhouse, R. P., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., Weiner, J. P. (2013). The Quality and Effectiveness of Care Provided by Nurse Practitioners. *Journal for Nurse Practitioners, 9*(8), 492–500. https://doi-org.hpu.idm.oclc.org/10.1016/j.nurpra.2013.07.004.

Woo, B. F. Y., Lee, J. X. Y., & Tam, W. W. S. (2017). The impact of the advanced practice nursing role on quality of care, clinical outcomes, patient satisfaction, and cost in the emergency and critical care settings: a systematic review. *Human Resources For Health, 15*(1), 63. https://doi-org.hpu.idm.oclc.org/10.1186/s12960-017-0237-9