

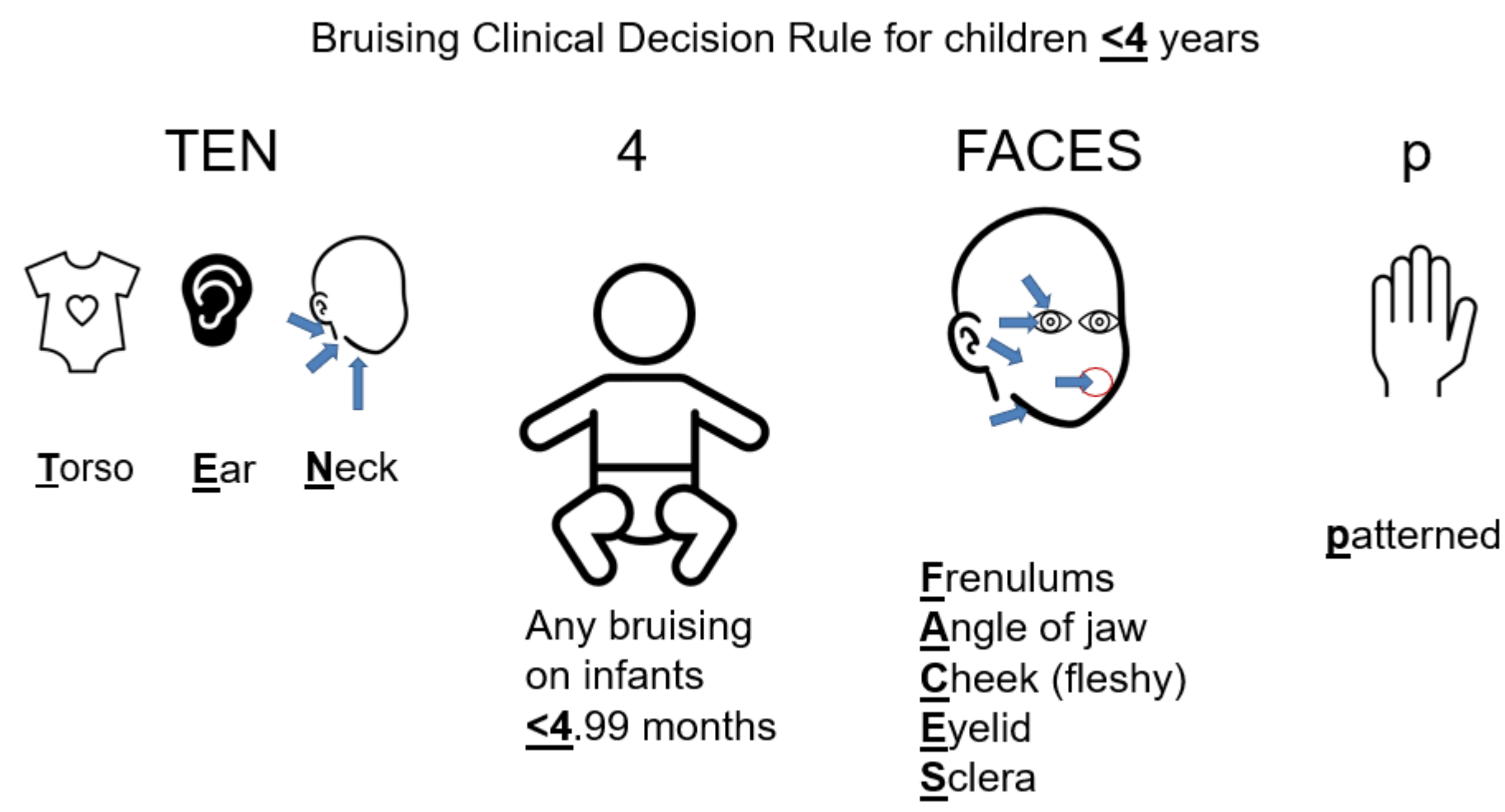
Using a Pediatric Bruising Clinical Decision Rule in the Emergency Department

Christine Fontaine, BSN, RN, SANE-A, SANE-P

XAVIER UNIVERSITY

Purpose

- Emergency department (ED) nurses will receive training on how to use a bruising clinical decision rule (BCDR) to increase the identification of non-accidental bruising in pediatric patients
- Nurses will receive education on using the TEN-4-FACESp BCDR to recognize bruises in young children that require further assessment for physical abuse



Objectives

- The TEN-4-FACESp BCDR is a validated tool that is 96% sensitive and 87% specific for distinguishing accidental and non-accidental bruising in young children (Pierce et al., 2021)
- The solution to the lack of a bruising assessment tool is to provide evidence-based, clinical guidance and steps to follow for a pediatric patient with a bruise that may be the result of inflicted injury
- The goal of this project is to provide ED nurses with a clinical tool and training that will help them to recognize children and infants who are at high risk for physical abuse

Method

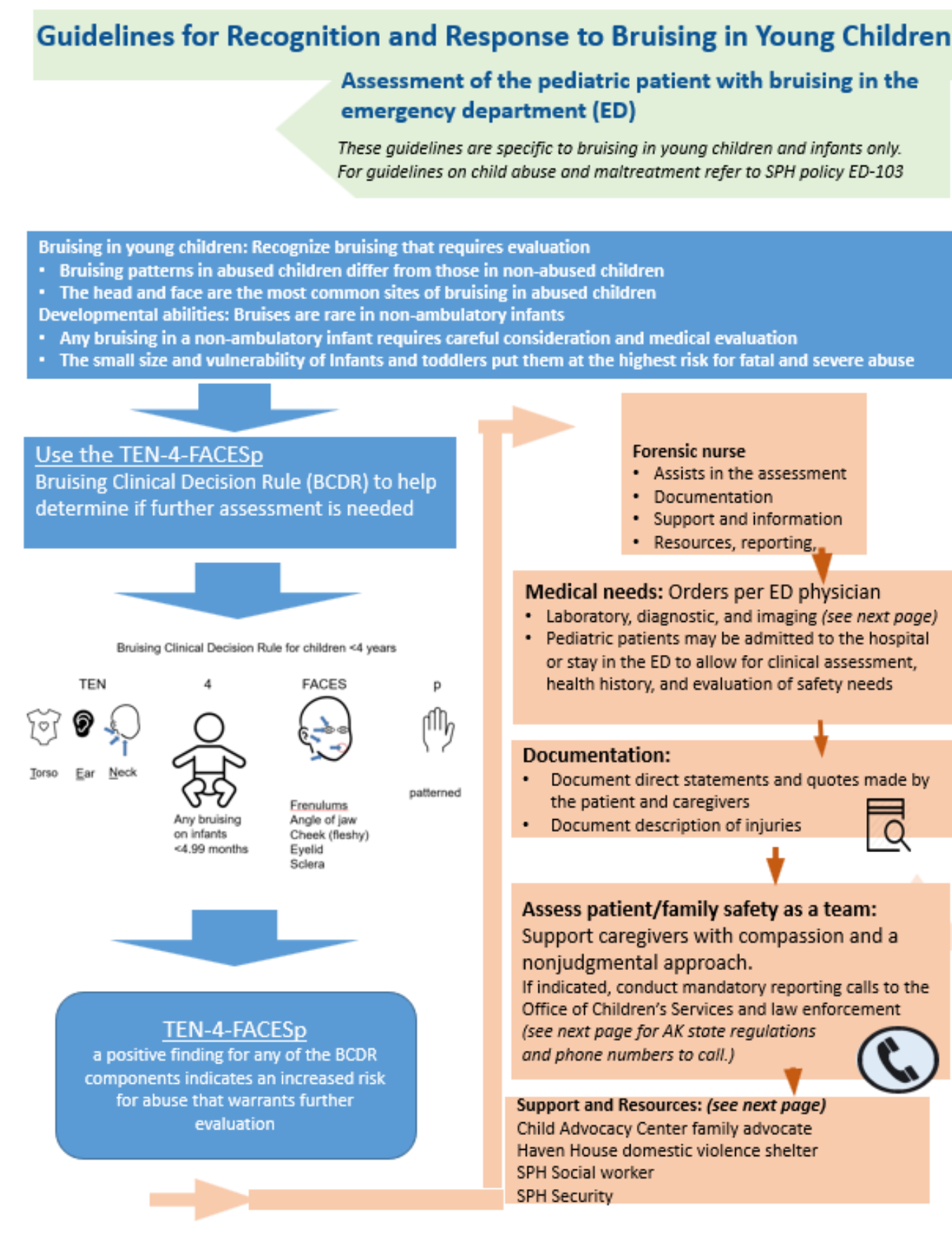
- The availability of a validated BCDR TEN-4-FACESp provides a solution to the lack of clinical guidelines in the ED
- ED nurses will be provided two skills training sessions in the use of a BCDR in the ED
- ED nurses will receive training to use the algorithm to identify at-risk bruising in patients under the age of four (4) to make referrals to forensic nurses for physical abuse assessment
- Nurses will determine the next steps and resources if a pediatric patient in the ED has a positive finding on the BCDR

Problem

- Children in their first year of life are most at risk of child maltreatment (Christian & Department on Child Abuse and Neglect, 2015)
- 71% of all child abuse fatalities are younger than three years old (Department of Health and Human Services, 2020)
- Seemingly minor injuries are commonly present prior to extreme physical abuse (Sheets et al., 2013)
- Young children and infants are most at risk of fatality (Maganda & Bechtel, 2015)

Recognition and Response to Pediatric Bruising Algorithm

An updated algorithm using the BCDR for pediatric patients has been created for use in the ED



Relevance to Nursing

- An algorithm using the TEN-4-FACESp BCDR is an intervention that will improve the response to and reporting of child abuse (Pierce et al, 2010)
- The training will improve referral-making and increase communication and teamwork in the multidisciplinary environments and the ED
- Bridging the gap in knowledge and communication will increase the number of young children who are provided appropriate evaluation for non-accidental injuries
- Nurses connect research to evidence-based practice in the ED

Background

- The most common injury to precede near-fatality and death due to child abuse is bruising that was disregarded or misdiagnosed as accidental (Pierce & Fingarson, 2012)
- Bruising in children who have not started to cruise or walk is suspicious of non-accidental injury and can be predictive of abuse (Pierce et al, 2021)
- The ED at a critical access hospital in rural Alaska does not use an evidence-based tool to assess bruises in pediatric patients
- There is a lack of information about how to identify and respond to bruising that indicates further evaluation

Outcomes

Figure 2. Occurrence of Bruises in Body Regions

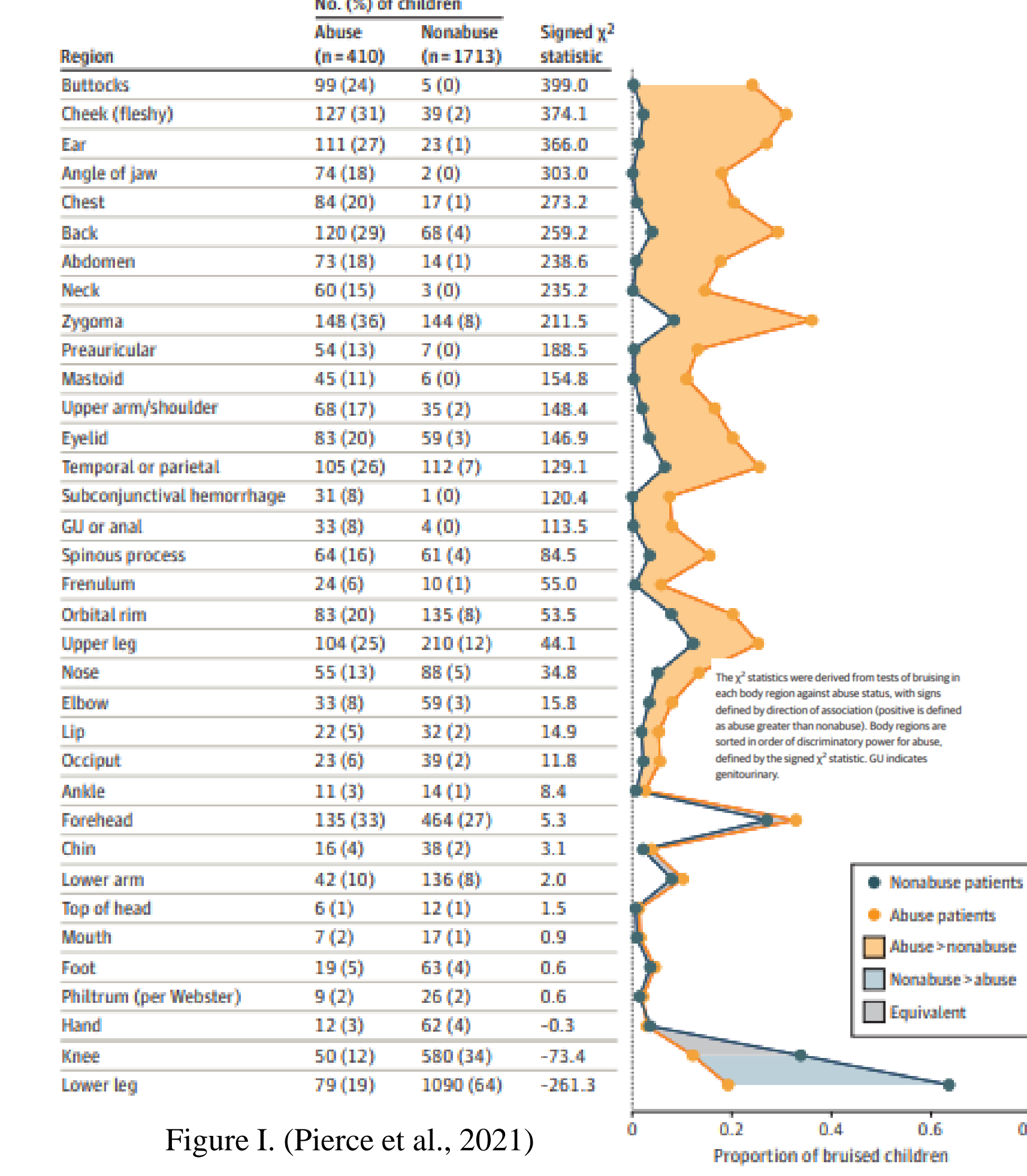
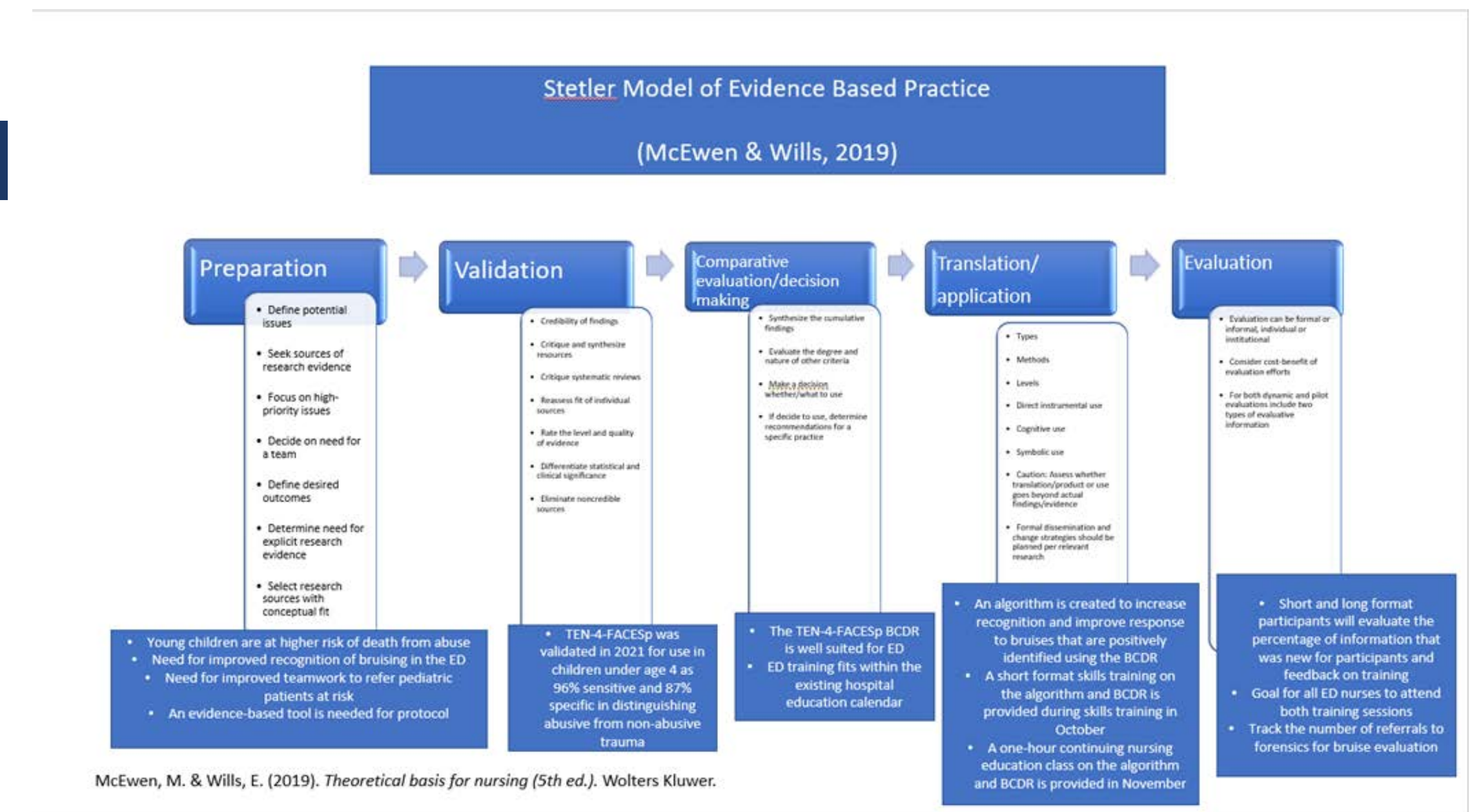


Figure I. (Pierce et al., 2021)

Framework: Evidence Based Practice

- The Stetler Model of Evidence-Based Practice (McEwen & Wills, 2019) is the guiding framework of this project. The Stetler model focuses on how research findings are implemented into clinical practice
- The training will create a step-by-step pathway for the application of evidence-based practice.
- The Stetler Model is a step-by-step guide to applying the evidenced-based, validated BCDR in the ED and adapting new information into practice (McEwen & Wills, 2019)



Conclusion

- ED nurses will increase recognition of non-accidental bruising
- An algorithm using the TEN-4-FACESp BCDR is an intervention that improves the response to and reporting of child abuse (Pierce et al, 2010)
- Clinical application of the BCDR increases the recognition of abuse in young children (Pierce et al., 2021)

References:

Christian, C. & Committee on Child Abuse and Neglect. (2015). *The evaluation of suspected child physical abuse*. American Academy of Pediatrics, 135(5), 1338-1354.

Department of Health and Human Services. (2020, January 15). *Child Maltreatment 2018*. <https://www.acf.hhs.gov/sites/default/files/documents/cb/cm2018.pdf>

Maganda, J. & Bechtel, K. (2018). *Child abuse clinical presentation*. Medscape. <https://emedicine.medscape.com/article/800657-clinical>

McEwen, M. & Wills, E. (2019). *Theoretical basis for nursing (5th ed.)*. Wolters Kluwer.

Pierce, M. & Fingarson, A. (2012). Identifying abusive head trauma: Knowing what to look for can save babies from future harm. *Contemporary Pediatrics*, 29(2), 16-24.

Pierce, M., Kaczor, K., Aldridge, S., O'Flynn, J., & Lorenz, D. (2010). Bruising characteristics discriminating physical child abuse from accidental trauma. *Pediatrics*, 125(1), 67-74. <https://doi.org/10.1542/peds.2008-3632>

Pierce, M., Kaczor, K., Lorenz, D., Bertocci, G., Fingarson, A., Makoroff, K., Berger, R., Bennett, B., Magana, J., Staley, S., Ramaiah, V., Fortin, K., Currie, M., Herr, S., Hymel, K., Jenny, C., Sheehan, K., Zuckerbraun, N., ... Leventhal, J. (2021). Validation of a clinical decision rule to predict abuse in young children based on bruising Characteristics. *JAMA Network Open*, 4(4), e215832. DOI: 10.1001/jamanetworkopen.2021.5832

Sheets, L., Leach, M., Koszewski, L., Lessmeier, A., Nugent, M., Simpson, P. (2013). Sentinel injuries in infants evaluated for child physical abuse. *Pediatrics*, 131(4), 701-7. DOI: 10.1542/peds.2012-2780