Children's Hospital of Philadelphia PolicyLab

Variation in Use of Neuroimaging in the Care of Infants Undergoing Subspecialty Evaluations for Abuse: A Multicenter Study

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Objectives: (1) To quantify hospital-level variation in use of neuroimaging to screen for intracranial injury (ICI) among infants without overt signs or symptoms of head trauma undergoing subspecialty evaluations for physical abuse; (2) to assess for disproportionality in neuroimaging based on race/ethnicity and insurance type.

Methods: This was a cross-sectional study of infants age <12 months receiving subspecialty child abuse evaluations from 02/2021 - 12/2022 at 10 sites in CAPNET, a multicenter child abuse research network. Infants were included if they underwent a skeletal survey and lacked overt signs of possible ICI or blunt head injury. Outcome was completion of neuroimaging (computed tomography [CT] or magnetic resonance imaging [MRI]). Multivariable logistic regression was used to assess associations between demographic, clinical, and hospital factors with neuroimaging use.

Results: Of 1,114 infants, 746 (67%) underwent neuroimaging ranging from 51% to 80% across CAPNET hospitals. In multivariable analysis, young age, presence of rib fracture(s), and site had significant associations with neuroimaging. Insurance type and race/ethnicity did not contribute significantly to the model. After adjustment for case-mix, there was significant variation across hospitals, with neuroimaging use ranging from 51% (95% CI: 43%, 59%) to 79% (95% CI 71%, 88%) CONCLUSION: We identified significant variation in neuroimaging use across CAPNET hospitals, highlighting the need for guideline development and care standardization during the care of infants undergoing abuse evaluations.

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