Documentation of Child Maltreatment by Emergency Medical Services in a National Database

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Background: Child abuse and neglect (CAN) is a leading cause of injury and death in young children with an estimated annual incidence of 1.46% among those $\leq$3 years old. Prehospital providers (PHPs) receive little education regarding CAN and report difficulties identifying this condition, particularly in preverbal children.  The frequency in which PHPs document CAN during prehospital encounters of young children is not known.

Objective: To report the incidence of CAN as documented during prehospital encounters among children $\leq$3 years in a national dataset and describe the characteristics of this population.

Methods:  This is an analysis of concurrent cases in the 2017 National Emergency Medical Services Information System (NEMSIS) database. We identified children $\leq$3 years old with ICD-10-CM codes specific for CAN including codes for physical and sexual abuse as well as neglect. We examined patient demographics including race, gender, EMS primary and secondary impression, primary symptoms, anatomic location of chief complaint, and cause of injury. Our primary outcome is the incidence of CAN reported as an EMS primary or secondary impression; secondary outcomes include the description of patients by anatomic location of injury, and primary symptoms.

Results: There were 130,598 encounters for children $\leq$ 3 years old, of which 124 had an impression of CAN (0.09%). Within our cohort, 47% (58/124) were <1 year of age, 52% were male and, where race was documented (40/124), 48% were white. The most common anatomic location of injury was general/global (25.8%) followed by head (22.5%) and extremity (11.2%). Primary symptoms recorded by PHPs included abnormal behavior (excessive crying, altered mental status) 17%, skin change/injury (18.5%), pain (19.3%), and no abnormal findings (9.6%). Few encounters specified vomiting, seizure, or disordered breathing (0.8, 1.6, and 4.8%, respectively). Interestingly, 20% (27/124) of cases in our cohort were related to sexual abuse.

Conclusions: PHP documentation of CAN in a national dataset is vastly below the national incidence. Among those with PHP impression of CAN, documentation of nonspecific symptoms such as vomiting, seizure, and disordered breathing is infrequent, suggesting that recognition of

abuse primarily occurs in young patients with overt findings of trauma. These results highlight educational opportunities in PHP training.