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Emergency department visits by children with and without autism spectrum disorder: An initial comparison evaluating multiple outcome measures at one urban children's hospital

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ABSTRACT

Hospitals everywhere, especially children's hospitals, attempt to give exceptional care to all of their patients regardless of race, religion, socio-economic class, or intellectual ability. We evaluated data collected in the emergency department of a children's hospital, comparing duration of visit in minutes, chief complaint upon arrival to the emergency department, mode of arrival to the emergency department, method of obtaining patient history, demographic information, medications prescribed, medical testing, laboratory testing, diagnosis at discharge, billing code(s) used by the hospital per visit, and the type of insurance billed for services for patients with and without autism spectrum disorder. Results showed no differences were found between the presenting complaint provided by the caretaker upon entering the emergency department and the medical diagnosis for which the patient was actually treated within the emergency department. The tests also showed that there was a significant association between the categories of presenting complaints and whether or not the patient had autism spectrum disorder. The arrival mode to the emergency department was not significantly different between those with and without autism spectrum disorder. There was no significant difference existing between the two groups regarding cost of medical services provided and no significant difference existed between the two groups for the number of laboratory tests, medical tests, or total tests conducted, as well as no significant difference was found between the two groups was found in the length of hospital stay.

1. Introduction

The prevalence of autism spectrum disorder (ASD) is on the rise (Newschaffer et al., 2007; Rahman et al., 2014; Taylor, Jick, &Maclaughlin, 2013). The Center of Disease Control and Prevention (2012) has reported that 1 in every 88 children in the United States has an autism spectrum disorder (ASD) diagnosis. As the rate of this neurological disorder increases, necessary resources to efficiently evaluate and treat those who require supplemental healthcare and emergency medical services has correspondingly increased (McGonigle, Venkat, Beresford, Campbell, & Gabriels, 2013).

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Lifetime patient care costs for individuals with ASDs are estimated to range from $3.5 million to $5 million per patient, with the United States facing an annual burden estimated between $90 billion to $200–$400 billion over the next 10 years

(Autism Society, 2013a, 2013b; Jarbrink & Knapp, 2001). Healthcare expenditures and the societal burden associated with caring for a person with ASD have been the focus of numerous studies over the last 10 years (Croen, Najjar, Ray, Lotspich, & Bernal, 2006; Leslie & Martin, 2007; Lin, Hung, Lin, & Lai, 2011; Liptak, Stuart, & Auinger, 2006; Mandell, Cao, Ittenbach, & Pinto-Martin, 2006). Studies have shown that the medical expenditures for a child with ASD are significantly higher than a child with no disability (Croen et al., 2006). Medical costs for children on the autism spectrum are higher compared to children with most other disabilities and mental health disorders, with the exception of children with intellectual disabilities (Leslie & Martin, 2007), children with depression (Liptak et al., 2006), and children with psychosis (Wang & Leslie, 2010). However, Liptak et al. (2006) and Mandell et al. (2006) found that children with ASD incurred higher overall medical costs than those children with an intellectual disability, but not those with depression and psychosis, due to inpatient hospitalizations.

While most children will attend regularly scheduled visits to healthcare professionals (e.g., pediatrician, dentist, etc.), further planned or unplanned medical visits may be necessary for acute or chronic medical complaints (Cuvo, 2011). The emergency department serves as the gateway to care for patients requiring acute or emergency care. Recent research reports that patients with ASD utilize general health resources at a higher level than non-ASD patients (Gurney, McPheeters, & Davis, 2006) and have been reported to have a higher frequency of head and neck injuries, poisoning, and incidents of self-injury (McDermott, Zhou, & Mann, 2008). Due to this increased risk, health insurers and providers are beset with a variety of issues as these children often require additional specialized health or medical care as well as a continuum of therapeutic assistance throughout the course of their lives (Fox, McManus, Almeida, & Lesser, 1997).

Despite the mixed literature as to whether individuals with ASD utilize emergency care more than the general population and/or compared to other disability categories, patients with ASD who seek services in emergency departments (ED) present diagnostic and treatment challenges for healthcare personnel (McGonigle et al., 2014). Healthcare providers may be challenged with difficulties related to communication, lack of communicative skills, maladaptive behavior, and/or expressive and receptive comprehension difficulties while caring for patients with autism (Bradley & Lofchy, 2005; Sakai, Miller, Brussa, Maepherson, & Augustyn, 2014). To date, there are few educational resources for front-line emergency caregivers on providing best practices for challenging ASD characteristics in the emergency setting (McGonigle et al., 2013; Olejnik, 2004; Scarpinato et al., 2010; Shellenbarger, 2004). This lack of best practices, coupled with the increases in both prevalence of ASD and reported visits to the ED, have the potential to place the ED staff in a unique and often challenging position. Caretakers and well-trained staff trying to navigate the health care needs of the child are additionally stressed by the inability of the child to communicate his/her condition and the financial expenditures associated with ED care.

Thus, considering the growing pediatric population of children with ASD, additional research to clarify and disaggregate the possible component parts of the relationship between healthcare utilization patterns, quality outcome measures, and ED staff preparedness is merited.

1.1. Purpose of current study

According to the National Center for Health Statistics (2010), 123.8 million individuals across the nation visit the ED annually. The targeted children's hospital's statistics reveal that more than 84,000 youth seek medical attention from the ED annually. Rising ASD rates coupled with the high traffic in the ED inflates the difficulties of an already fast paced environment because of a growing population requiring specialized care. An ED committed to offering expedited, quality services may potentially be slowed down due to healthcare providers not being adequately prepared, or systematically trained, to address the complex behavioral characteristics of ASD.

The primary aim of this research was to determine if there was a statistically significant difference in the emergent health services provided to ASD patients vs. matched non-ASD patients with the underlying goal of determining whether or not the targeted ED is providing uniform and standardized health services while minimizing disparities in health care provision to the rising population of pediatric ASD patients. To achieve this aim, the researchers retrospectively characterized the number of individuals with ASD who presented to the ED over the past three years for a medical condition (neurological, environmental, or medical) and systematically coded several quality care indicators (e.g., time of stay, number of medical diagnostic and laboratory tests run, arrival mode, history) for children with ASD as compared to a control group without ASD. Children with ASD were initially identified by retrospective chart review, detailed below, over a 3 month period followed by ED chart review over a 3 year period as detailed below.

1.2. Research question

Is there a statistically significant difference between children with ASD and those without who presented to the ED within the past three years on quality indicators such as length of visit, types of services received, number of tests run, arrival mode, and/or cost of services?