Epidemiological Disease Burden and Cost of Illness for Autism in the US

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Introduction

~1 in every 44

children in the US has Autism spectrum disorder (ASD)[1]

US$ 461 billion

is the total predicted cost of ASD in 2025 in the US.[2]
It includes medical, non-medical and productivity cost.

Objective

The aim is to measure the epidemiological disease burden and analyze the cost of illness for ASD in the US.
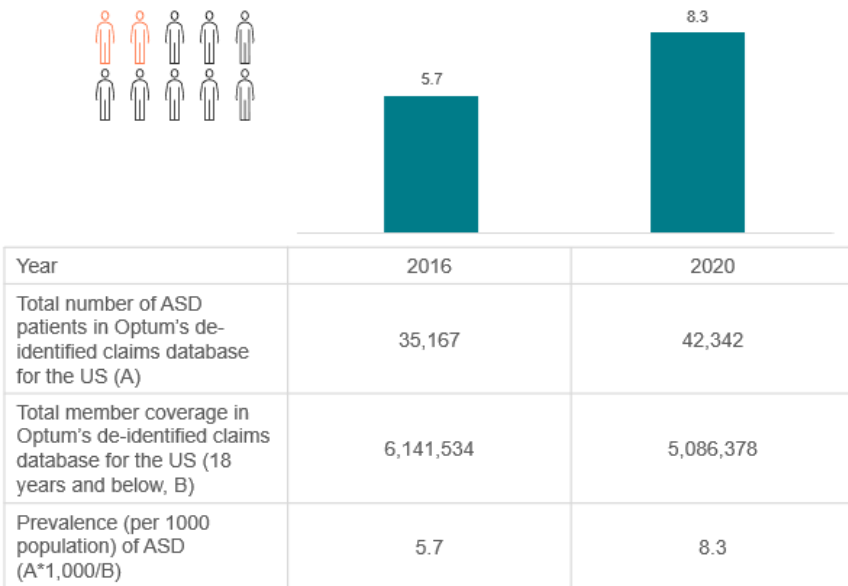
Method

- In this retrospective study, Optum's de-identified administrative claims database was used to identify ASD patients from 2016 to 2020 in the US.
- For each year, unique patients aged 18 years and below with 2 or more claims for ASD (ICD-10-CM code: F84) were identified.
- The average medical cost for each year was calculated. These costs were further adjusted for inflation.
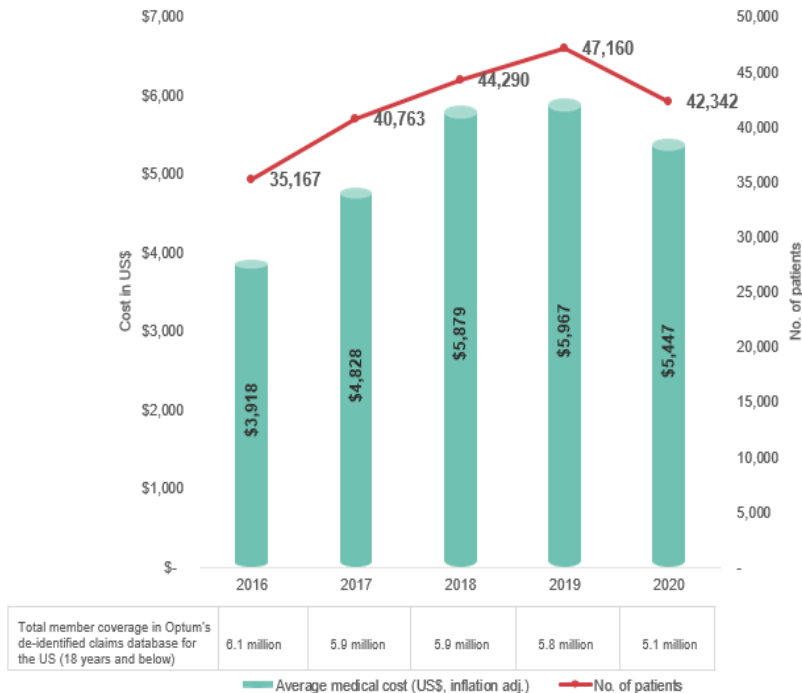
Results

- The total number of patients suffering from ASD increased from 35,167 in 2016 to 42,342 in 2020 at a compound annual growth rate (CAGR) of 4.8%. The prevalence of ASD (per 1000 population) increased from 5.7 in 2016 to 8.3 in 2020.
- Average medical cost per member per year increased from $3,918 to $5,446. The total medical cost of ASD was $231 million in 2020 for 42,342 patients, which increased since 2016. The cost was adjusted for inflation.

Graph 1: Prevalence (per 1,000 population) of ASD in Optum's de-identified claims database for the US

Year	2016	2020
Total number of ASD patients in Optum's de-identified claims database for the US (A)	35,167	42,342
Total member coverage in Optum's de-identified claims database for the US (18 years and below, B)	6,141,534	5,086,378
Prevalence (per 1000 population) of ASD (A*1,000/B)	5.7	8.3

Graph 2: Average medical cost and number of ASD patients in Optum's de-identified claims database for the US

	2016	2017	2018	2019	2020
Total member coverage in Optum's de-identified claims database for the US (18 years and below)	6.1 million	5.9 million	5.9 million	5.8 million	5.1 million

Average medical cost (US$, inflation adj.) — No. of patients

Conclusion & limitations

- Both prevalence and average medical cost for ASD has increased over the years. In 2020, there was a decline in the no. of patients and average medical cost possibly because of the COVID-19 pandemic and ~~this~~ it's impact needs to be studied further.
- ASD causes significant developmental loss in a person's life. By measuring and forecasting the economic burden, health care decision-makers can benefit in setting up and prioritizing health care policies and interventions for early diagnosis and better treatment management.
- Identification and educating key opinion leaders for early diagnosis can also help to reduce the cost.
- Limitations:
  - The impact of COVID-19 in 2020 on ASD patients was not studied.
  - Pharmacy cost is considerably low for ASD therefore, it is not considered in this study.

Reference: 1. Data & Statistics on Autism Spectrum Disorder, CDC (Link: https://www.cdc.gov/ncbddd/autism/data.html)
2. Autism costs estimated to reach nearly $500 billion, potentially $1 trillion, by 2025 ScienceDaily (Link: https://www.sciencedaily.com/releases/2015/07/150728162418.htm)