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INTRODUCTION

- Nonalcoholic fatty liver disease (NAFLD) is the leading cause of chronic liver disease in children - prevalence rates up to 38% in children with obesity.
- The American Academy of Pediatrics and North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition recommend that screening for NAFLD should begin between 9-11yrs.
- In obese children, there is limited knowledge about adherence to preventive guidelines for NAFLD screening in children with obesity at a population level

OBJECTIVE(S)

- To determine screening rates of NAFLD in a large population of older children with obesity.
- To determine socio-demographic trends in NAFLD screening in older children with obesity.

METHODS

- We used Explorys Explore tool (IBM Watson Health) to determine NAFLD screening rates in children with obesity. Explorys contains population-level electronic health record (EHR) data from 360 hospitals and 317,000 providers across the US.
- We included children with obesity, ages 10-14 yrs., with any visit type in the last five years in our study.
- We defined our populations of interest, see Figure 1, and performed data searches on these populations.
- Obesity was determined based on, 1) any BMI $\geq 95\%$, or 2) any encounter where an ICD obesity code was entered (ICD-10 E66, ICD-9 278).
- We determined the screening rate by calculating the percentage of children with obesity who had ALT checked.
- Chi-square tests and odds ratio with 95% confidence intervals (CI) were calculated to compare screening rates by gender, race, and insurance type.

RESULTS

Defining the Populations

ALT Screened Obese Population

The criterion of ALT (all, last 5 years**) was used to find the number of ALT's done in the Obese population

General Population

All children ages 10-14



Obese Population ALT Abnormal

The criterion of ALT (abnormal, last 5 years**) was then used to find the number of abnormal ALTs in the total ALT population

Obese Population

All children ages 10-14 (in the last 4 years*) with the criterion of Obese Diagnosis, Obese Finding, and Obese Vital (BMI's $\geq 95\%$)

*Guidelines were released in December of 2016, thus, "in the last 4 years" modifier was added

**last 5 years was used for the age range. Since the age range in Explorys is only 10-14, a modifier of last 5 years was added in order to cover those ALT's that might have been done when patients may have been younger, for example, a 14 year old may have gotten an ALT check when they were 9

Demographics

Demographics	General Population (GP)	Obese Population (OP)	ALT Screened OP	Abnormal ALT OP
Total	3,558,420	513,170 14.4% of GP	47,950 9.3% of OP	7,930 (16.5% of OP with ALT Checked)
Gender (Male vs. Female)		54% vs. 46%	9% vs. 9.7%	18.3% vs 14.7%
Race (White vs. Non-White)		64% vs. 36%	9.8% vs. 8.5%	16.1% vs 17.3%
Insurance (Medicaid vs. Non-Medicaid)		31% vs. 69%	11.0% vs. 8.6%	17.5% vs. 16.0%

$p < 0.05$ statistically significant

RESULTS

- Out of 3,558,420 children aged 10-14 yrs., 513,170 (14.4%) were obese.
- Of children with obesity, only 9.3% were screened for NAFLD using an ALT test.
- Females were more likely to be screened than males (odds ratio (OR) 1.09 (95% CI: 1.07-1.12))
- White children were more likely to be screened than non-white children (OR 1.16 (95% CI: 1.14-1.19))
- Children with Medicaid insurance were more likely to be screened than children with non-Medicaid insurance (OR 1.31 (95% CI: 1.29-1.34)).
- 16.5% of the screened children had abnormal ALT.

CONCLUSION

- Our study revealed that the percentage of older children with obesity receiving recommended screening for NAFLD was very low at 9.3%.
- We found that female gender, white race, and Medicaid insurance all led to increased NAFLD screening rates.
- These findings constitute significant opportunities to increase guidelines based NAFLD screening among obese children across the country.
- Reporting screening for fatty liver as a health quality measure and incentivizing screening using value-based payment models may help reduce implementation gaps in screening for NAFLD in children.