Impact of an electronic medical record prompt on screening rates for metabolic abnormalities and health education referrals among children with obesity

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After implementing an **EMR-based prompt for metabolic screening** among pediatric patients with obesity, metabolic screening lab tests and health education referrals **increased**.

Background

INTRODUCTION

Pediatric obesity is a public health concern and predisposes children to chronic disease as adults. The American Academy of Pediatrics recommends screening for metabolic conditions among obese children. In practice, screening rates are inconsistent and metabolic abnormalities are underdiagnosed.

OBJECTIVE:

To investigate if an automated prompt in the electronic medical record (EMR) was effective at improving metabolic lab screening rates and referral to health education in obese children. We also examined if the workflow improved BMI percentiles and metabolic lab abnormalities.

Research Design

- Data-only longitudinal cohort study
- Inclusion Criteria: 10 to 18-year-old patients with BMI ≥95%ile in a community-based primary care practice
- Exclusions: pre-existing diabetes or screening labs during the last 3 years
- Data collected one year pre- and post-workflow
- Data collected also included demographics, co-morbid conditions, BMI, lab results, and health education referrals

Figure 1 - Metabolic Screening Lab Tests Ordered

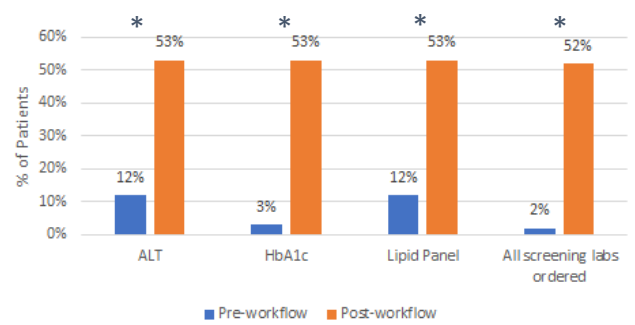


Figure 2 - Patient Adherence to Metabolic Screening Lab Tests

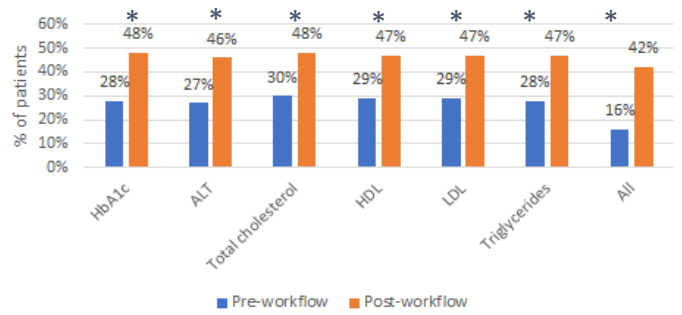
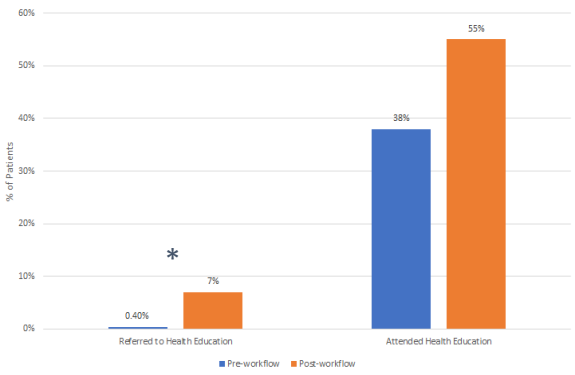


Figure 3 - % Referred to Health Education and % Attended Health Education Appointment (of those referred)



Change in Body Mass Index among patients who have 2+ BMI measures (minimum of 1 month apart) in the post-workflow period (N=1,564)

	Mean Change (95% CI)	p-value
BMI Percentile	-0.13 (-0.27, 0.006)	0.06
BMI Z-Score	-0.004 (-0.01, 0.006)	0.44

* = (p<0.05)
Abbreviations Used - ALT – Alanine Transaminase; HbA1C – Hemoglobin A1C; HDL – high density Lipoprotein; LDL – Low Density Lipoprotein .
Lipid Panel – Includes Total Cholesterol, HDL, LDL, Triglycerides

Results & Discussion

RESULTS:

- N=3,479 pre-workflow, n=3,439 after workflow implementation
- Metabolic lab test orders increased from 2% pre-workflow to 52% post-workflow (p< 0.0001)
- Patient adherence to lab tests increased from 16% of those ordered to 42% of those ordered (p<0.001)
- Health education referrals increased nearly 20-fold from 0.4% to 7.0% (p< 0.0001)
- Table 1 - Change in BMI assessed during two time points (at least 1 month apart) in the post-workflow implementation time period showed a non-significant decrease in BMI percentile and z-score.

DISCUSSION:

This study validates the use of an EMR-based prompt to improve metabolic lab screening rates and health education referrals for children with obesity. The prompt may help promote discussion about the metabolic consequences of obesity, motivating parents and caregivers to make lifestyle changes to improve a child's health, rather than just weight. The changes in BMI percentile or metabolic abnormalities during the one year following implementation of the workflow are not statistically or clinically significant. Longer-term follow-up may be needed to demonstrate larger improvements in clinical measures of pediatric obesity.

References

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