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Pediatric Lipid Screening Guidelines: Information for Patients and Providers

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Rotation 3
Milton Family Practice
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The Problem

- ▶ Children and adolescents with abnormal lipid levels are at significant risk for becoming adults with dyslipidemia with an increased risk for early cardiovascular disease (CVD)
- ▶ Early identification and control of dyslipidemia through child- and adulthood can substantially reduce clinical CVD risk. Preliminary evidence of children with heterozygous familial hypocholesteremia shows reduced subclinical evidence of atherosclerosis with earlier treatment (Grade B)
- ▶ Evidence has demonstrated that using family history as a primary factor to identify children for screening would miss 30-60% of children with inherited dyslipidemias (including 50% of those with familial hypocholesteremia)
- ▶ Current medical organizations have incongruent guidelines and recommendations for pediatric lipid screening that are based on expert opinion only:
 - ▶ **Bright Futures/American Academy of Pediatrics** recommends universal screening for children ages 9-11 and again at 17-21
 - ▶ **USPSTF** concludes the evidence is insufficient to recommend for or against routine screening for lipid disorders in infants, children, adolescents, or young adults up to age 20. (Grade I)
- ▶ Current recommended screening strategies have low adherence rates by pediatric health care providers. One study showed only 27.2% overall rate of lipid screening at ages 9-11 (56% for high-risk children)

Cost Considerations

- ▶ In the U.S today, 1 in 4 deaths are caused by heart disease and 1 in 20 deaths are caused by stroke
- ▶ Heart disease and stroke account for more than \$312.6 billion in direct health care expenditures and lost productivity, and a projected \$444 billion in future costs.
- ▶ A Fasting Lipid Panel (FLP) at UVMMC is \$28.67 for the venipuncture and \$78.63 for the panel, totaling \$107.30 per screening of out of pocket costs (if no insurance coverage)
- ▶ No report is available for total # of pediatric patients by age cohort at Milton Family Practice, but roughly 10-12% of Family Medicine patients are under the age of 18 and MFP has roughly 2000 patients.
 - ▶ Thus, an estimated 200-240 patients are under the age of 18 at MFP
 - ▶ Total estimated cost for two screenings per patient = \$42,920 - \$51,504 for venipuncture and results alone
- ▶ There is considerable potential for psychological stress for venipuncture alone in patients and their families. Additional psychological stressors exist in patients/families not knowing the indication for the test, how to interpret the test, or how to cope with the potential treatment and management of the results.

Community Perspective

COLLECTED VIA

- ▶ Contacting experts in the following departments: Family Medicine, Pediatrics, Pediatric Cardiology, Pediatric Gastroenterology
- ▶ Interviewing Dr. Kimberly Hageman (MFP, VCHIP Fit & Healthy Vermonters Toolkit Development Team, Pilot Tester)
- ▶ Interviewing Dr. Anne Morris (MFP)
- ▶ Interviewing Holly Van Winkle (Practice Supervisor, MFP)
- ▶ Communicating with PRISM information services in regards to SmartPhrases, Reporting, and Flowsheet capabilities
- ▶ Creating 6-question survey distributed to MFP providers to gain perspective

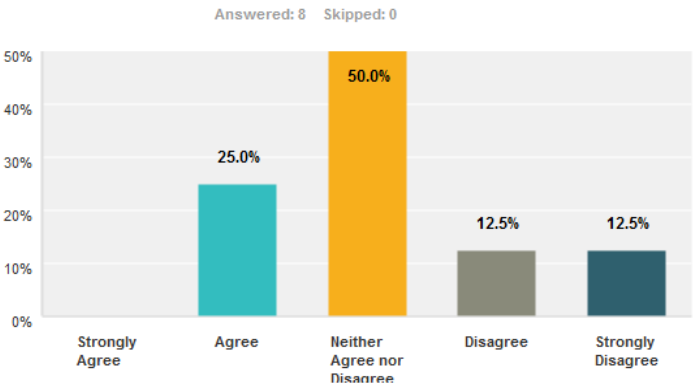
FINDINGS

- ▶ Only 25% (2) providers at MFP “Agreed” that they were comfortable applying the pediatric lipid screening guidelines
- ▶ 75% (6) chose the 9-11yo and only 50.0% (4) chose ages 17-21 for the correct age groups to be universally screened. 37.51% (3) chose the incorrect age group of age 12-16yo
- ▶ Family Medicine providers feel there is limited evidence for the treatment/management for hyperlipidemia in children
- ▶ For practical reasons (lack of evidence, unclear and conflicting guidelines, lack of time to educate patients and families, difficulty obtaining venopuncture in children), providers report “going against the guidelines”
- ▶ Reporting and flowsheets using EHR have limited flexibility and functionality to run specific inquiries. Building these functionalities takes weeks-months and costs considerable health care dollars

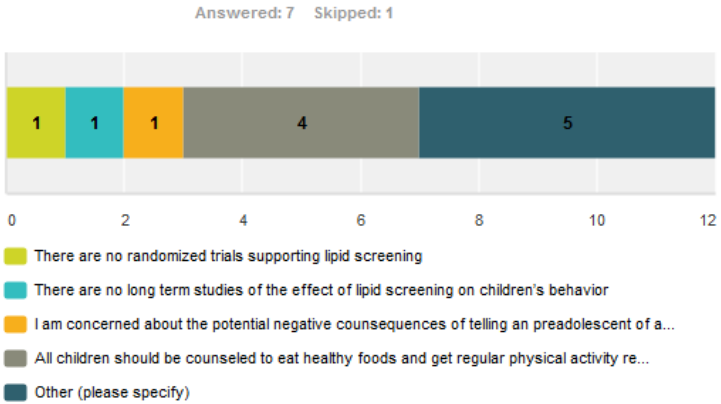
Community Perspective, cont.

SURVEY RESULTS (n=8)

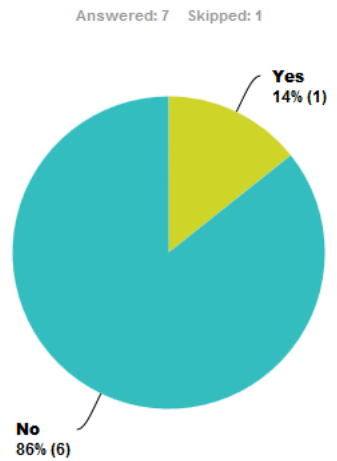
Please indicate your level of agreement to the following statement: I am comfortable and confident applying the guidelines for Universal Pediatric Lipid Screening.



If you answered NO to the previous question, what is your reasoning for NOT screening your pediatric patients? (Check all that apply)



Do you regularly screen pediatric patients for lipids per the universal guidelines?



FREE TEXT COMMENTS

- ▶ "I do not think it makes sense. I am not going to prescribe a statin drug to an adolescent. We should be able to have frank discussions about obesity, diet, and exercise, without lab work."
- ▶ "It would be nice to tie it to services that assist children and families to make effective lifestyle changes."
- ▶ "Education is needed on this topic."
- ▶ "...would love more information to help guide my practice."
- ▶ "no clear evidence to support this, only expert panel recs, small number of kids in practice and so very small % kids who would have true significant dyslipidemias requiring more aggressive management than routine rec diet and exercise"
- ▶ "I don't know the screening guidelines"
- ▶ "Have not seen a large number of patients who qualify, will likely screen more in the future."

Methodology

- ▶ Researched and categorized information on pediatric lipid screening guidelines
- ▶ Created survey using SurveyMonkey to collect information on Milton Family Practice (MFP) provider's knowledge and perspectives of the guidelines
- ▶ Ran PRISM report exploring # of patients 9-11yo without lipid results at MFP (No report available for 17-21yo)
- ▶ Developed SmartPhrase in Epic to help providers know 1) who to screen 2)when to screen and 3)how to manage results
- ▶ Circulated survey results, report results, and SmartPhrases to providers and staff at MFP

Recommended Pediatric Lipid and Lipoprotein Cutpoints

	Goal	Borderline	High+ (Low for HDL)
Total Cholesterol	<170 (0-19yrs) <190 (20-24yrs)	170-199 (0-19yrs) 190-224 (20-24yrs)	≥200 (0-19yrs) ≥225 (20-24yrs)
LDL-C	<110 (0-19yrs) <120 (20-24yrs)	110-129 (0-19yrs) 120-159 (20-24yrs)	≥130 (0-19yrs) ≥160 (0-24yrs)
Non-HDL-C	<120 (0-19yrs) <150 (20-24yrs)	120-144 (0-19yrs) 150-189 (0-24yrs)	≥145 (0-19yrs) ≥190 (20-24yrs)
HDL-C	>45 (0-19yrs) >45 (20-24yrs)	40-45 (0-19yrs) 40-44 (20-24yrs)	<40 (0-19yrs) <40 (20-24yrs)
Trigs	<75 (0-9yrs) <90 (10-19yrs) <115 (20-24yrs)	75-99 (0-9yr) 90-129 (10-19yrs) 115-149 (20-24yrs)	≥100 (0-9yr) ≥130 (10-19yr) ≥150 (20-24yrs)

- ▶ **Bright Futures/American Academy of Pediatrics** recommends universal screening for children ages 9-11 and again at 17-21
- ▶ **USPSTF** concludes the evidence is insufficient to recommend for or against routine screening for lipid disorders in infants, children, adolescents, or young adults up to age 20 (Grade I)

Results

SURVEY

- ▶ See survey results under “Community Perspective”

PRISM REPORT

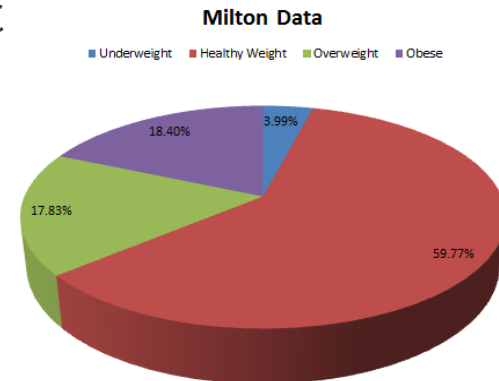
- ▶ Currently at MFP, there are 111 patients ages 9-11 who have NOT been screened for lipids per the guidelines: [9yo (n=25); 10yo (n=47); 11yo (n=39)]
- ▶ At MFP 36.23% of children are overweight/obese (no age specific data available)
 - ▶ ALL Family Medicine Departments in the UVMHC Network
 - ▶ 2-5yo = 463 (19%)
 - ▶ 6-11yo = 667 (28%)
 - ▶ 12-17yo = 969 (40%)
 - ▶ 18-21yo=316 (13%)
- ▶ No report available for patients ages 17-21

SMARTTEXT

- ▶ SmartText with Flowsheet for the Universal Screening Guidelines for Ages 9-11 and for 17-21 currently available in PRISM as [pedslipidgoals] (next slide)

VCHIP Reporting Data

Pediatric Obesity



Results, cont.

SMARTTEXT

- ▶ Developed from Bright Futures/AAP guidelines for universal pediatric lipid screening as a quick way for providers to assess results and communicate the appropriate management next steps.

Universal Screening for Children ages 9-11 and 17-21 years [Grade B]

YOUR RESULTS

@RESUFAST(chol:3,trig:3,hdl:3,ldlbase:3,cholhd:3l)@

CHOLESTEROL GOALS:

Total Cholesterol: <170 (0-19yrs); <190 (20-24yrs)
LDL-C ("bad cholesterol"): <110 (0-19yrs); <120 (20-24yrs)
HDL-C ("good cholesterol"): >45 (0-24 yrs)
Triglycerides: <75 (0-9yrs); <90 (10-19yrs); <155 (20-24yrs)

MANAGEMENT RECOMMENDATIONS

LDL Recommendations:

- 1) LDL-C \geq 250 mg/dL: Consult
- 2) LDL-C \geq 130-250 OR non-HDL \geq 145 mg/dL: Refer to dietician for medical nutrition therapy with Cardiovascular Health Integrated Lifestyle Diet (CHILD1); repeat FLP in 6 months [Grade A]
- 3) On Repeat FLP if
 - LDL <130: Continue CHILD diet, reevaluate in 12 months [Grade A]
 - LDL \geq 130-189, (-) Family History, no other risk factors: Continue CHILD diet, reevaluate q. 6 months [Grade B]
 - LDL \geq 130-189 + \geq 2 risk factors: Consider statin therapy [Grade B]
 - LDL \geq 190: Consider initiation of statin therapy [Grade A]

Triglyceride Recommendations:

- 1) TG \geq 500: Consult lipid specialist [Grade B]
- 2) TG \geq 300: Refer to dietician for medical nutrition therapy with Child 1; repeat FLP in 6 months [Grade B]
- 3) On repeat FLP if
 - TG<100: Continue CHILD diet, monitor q.6-12mo [Grade B]
 - TG>200-499 or non-HDL \geq 145: Consider fish oil +/- consult specialist [Grade D]

FDA APPROVED TREATMENT

Statins: Approved as adjunct to diet to lower LDL-C in adolescent boys and postmenarcheal girls ages 10-18 with LDL-C \geq 190 OR \geq 160 with FH, premature CVD and 2+ risk factors

Evaluation

EFFECTIVENESS

- ▶ Based on survey results, there is ambiguity in knowing the guidelines and the application of the guidelines in clinical practice
- ▶ Evaluation could be done in conjunction with the VCHIP Obesity Work with Pediatricians, and/or by specific family practices to monitor the implementation of the guidelines and the use of the SmartPhrase
- ▶ From the survey, 37.5% Strongly Agreed and 62.5% Agreed that “A PRISM screening tool for who/when to screen pediatric patients and for how to interpret results would help provide quality health care”
- ▶ Questions should address what other practices, specifically in pediatrics, are doing in regards to Pediatric Lipid Screening, what resources are currently available, and how providers implement and communicate the guidelines with patients and their families

LIMITATIONS

- ▶ Universal pediatric lipid screening is based on expert opinion, not on randomized control trials or observational a studies exploring the benefits and utility of the practice
- ▶ Family Medicine Practices generally follow USPSTF guidelines, not Bright Futures/AAP guidelines, and for pediatric lipid screening, there are differing guidelines
- ▶ Inability to interview experts in pediatric cardiology and gastroenterology, who manage and consult for pediatric lipids. Input on what is currently being done in pediatric clinics could help guide practice in Family Medicine
- ▶ Inability to develop reporting and flowsheets in PRISM without consultation and financing support through information services
- ▶ Implementation ultimately up to providers, unless mandated by practice

Recommendations

EDUCATION

- ▶ Distribute survey to all UVMHC Family Practice providers
- ▶ Create a curriculum for Family Medicine provider's on the guidelines and recommendations for Universal Pediatric Lipid Screening including reports and SmartText, building off presentation by Dr. Hageman's pediatric obesity/VCHIP work
- ▶ Implement and distribute biannual reports on universal pediatric lipid screening by provider to monitor adherence

REPORTING

- ▶ Create Report for "Lipid Screening - PC - Patients 17-21 Never Had (My Dept)" in PRISM to identify patients to be screened
- ▶ Consider including lipid screening to Health Maintenance tab for all 9-11yo and 17-21yo within the FM Department
- ▶ Consider including lipid screening as part of the VCHIP Population based reports that are working to get children in every 24 months for a Well Child Check up.

IMPLEMENTATION

- ▶ Consider including lipids as a Point-of-Care Testing (POCT) to increase likelihood that the patient and provider will receive results and have the opportunity to discuss the results and if applicable, act on immediate clinical management decisions
- ▶ Consider converting SmartPhrase to SmartSet or Pathway/Flowsheet to improve provider adherence to the guidelines
- ▶ Monitor how often/who is using the SmartPhrase in PRISM

References

- ▶ *2014 Recommendations for Pediatric Preventive Health Care*. American Academy of Pediatrics. PEDIATRICS Volume 133 No 3 March 1, 2014 .
<http://pediatrics.aappublications.org/content/133/3/568> Accessed 08/05/2015
- ▶ *AAP Clinical Report on Lipid Screening in Children*. American Academy of Family Physicians. <http://www.aafp.org/afp/2009/0415/p703.html> Accessed 08/04/2015
- ▶ *Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents: Summary Report*.
<http://www.nhlbi.nih.gov/health-pro/guidelines/current/cardiovascular-health-pediatric-guidelines/summary>. Accessed 08/04/2015
- ▶ *Heart Disease Facts*. Centers for Disease Control and Prevention.
<http://www.cdc.gov/heartdisease/facts.htm> Accessed 08/09/2015
- ▶ *Lipid Disorders in Children: Screening*. US Preventive Services Task Force.
<http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/lipid-disorders-in-children-screening> Accessed 08/05/2015
- ▶ *Universal Lipid Screening In Children: Will New Guidelines Lead to Widespread Statin Use in Kids?* American Association of Clinical Chemistry.
<https://www.aacc.org/publications/cln/articles/2012/march/lipid-screening-children>. Accessed 08/04/2015
- ▶ *Physicians' Lack of Adherence to National Heart, Lung, and Blood Institute Guidelines for Pediatric Lipid Screening*. Valle CW, Binns HJ, Quadri-Sheriff M, Benuck I, Patel A. *Clinical pediatrics*. Mar 26 2015.