

Risks That Result in Future Heart Disease in Children

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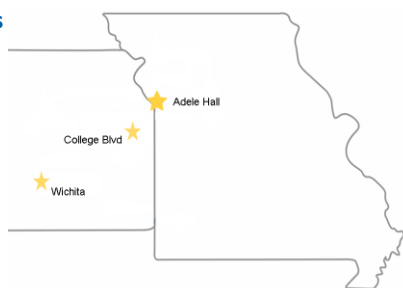
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Regional Centers



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Managing Dyslipidemia in Children

- Healthy Lifestyle for ALL family members
 - Heart Healthy Diet
 - Physical Activity
 - Avoiding Smoke Exposure

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Referral Criteria

Total Cholesterol > 220 and/or LDL >130

Triglycerides >200

Must have **TWO** sets of labs 3-6 months apart

Family History - Parent or grandparent had a premature cardiac event (heart attack or stroke) before the age of 45

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When to Refer to Adult Preventive Cardiologist

Any patient 17.5 years or older who have not previously been seen in Preventive Cardiology

- Helps maintain consistency for families
- Decreases stress of transitioning

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Name These Non-Starchy Vegetables

Vegetables

I Can Eat Every Day

- 1.
- 2.
- 3.
- 4.
- 5.

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Cardiologist

- Medical/Family History
- Artery Model
- Physical Exam
- Discuss Labs

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What labs will be followed?

<h3>Every Appointment</h3> <ul style="list-style-type: none"> • Lipid Profile • AST/ALT • HgbA1c • CK • Vitamin D 	<h3>Every 3 Years</h3> <ul style="list-style-type: none"> • TSH, BUN, Crt <h3>One Time Only</h3> <ul style="list-style-type: none"> • Lipoprotein A
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What are these labs?

- **LDL (Low-Density Lipoprotein):** Also known as "bad" cholesterol. LDL causes build-up on the blood vessel walls. It is good to have **LOW** LDL.
- **HDL (High-Density Lipoprotein):** Also known as "good" cholesterol. HDL prevents build-up on the blood vessel walls. It is good to have **HIGH** HDL.
- **Triglycerides:** Can be made in the body from eating more carbohydrates (starches and sugars) than your body needs. It is good to have **LOW** Triglycerides.

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What are these labs?

- **Lipoprotein A:** An inherited lipid that can cause early build up on the blood vessel walls and premature heart disease.
- **Hemoglobin A1c:** A test that measures the average sugar present in blood from food digested over a 3 month period.
- **AST/ALT (Liver Enzymes):** These can be elevated with obesity, and can lead to liver disease.

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What are these labs?

- **Vitamin D:** A vitamin that is needed for bone and teeth formation. A low Vitamin D is linked to heart disease and diabetes. You can get Vitamin D from some foods and sunlight.
- **TSH (Thyroid Stimulating Hormone):** When this level is high, your body is producing too little thyroid hormone, which can lead to increased appetite and weight gain.

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Once a year for patients 10 years of age or older

Carotid Intima-Media Thickness (CIMT) & Pulse Wave Velocity (PWV)

Left Ventricular Mass Index (LVMI)

- If BMI greater than or equal to 95%
- Hypertension
- Unclear family history

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Patient Example

10 year old male patient presents to Preventive Clinic

- Family History:
 - Father had an MI at 36 years of age requiring triple coronary artery bypass surgery. Father is currently on Atorvastatin 40mg.
 - Mother is a Type II DM and states her lipids were "a little high when checked a few years ago". Mother smokes half a pack of cigarettes per day.
 - Paternal grandfather passed away at age 47 from a cardiac related death

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Patient Example

Physical Exam: acanthosis

- | | |
|----------------------------------|-------------------------|
| • Total Cholesterol = 310 | • AST/ALT 20/33 |
| • LDL = 234 | • HgbA1C= 5.7% |
| • HDL= 34 | • Vitamin D = 17 |
| • Triglycerides= 356 | • TSH WNL |
| • Lp(a)= 95 | • BUN/Creatinine WNL |

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24 Hour Diet Recall Example

- | | |
|--|---|
| • Breakfast: <ul style="list-style-type: none"> • None • Drinks water or juice | • Snack: <ul style="list-style-type: none"> • Doritos from QuikTrip on the way home from school |
| • Lunch: <ul style="list-style-type: none"> • Eats at school with friends. • KC public school, hot lunch varies • Usually eats a fruit during lunch • Drinks chocolate milk | • Dinner: <ul style="list-style-type: none"> • Fast food 2x/week • Mom cooks dinner, usually a pot roast or casserole. • Drinks sweet tea and water |

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Nutrition Counseling

- **Triglycerides**
 - Reduce excessive sugar and refined carbohydrates
 - Soda, juice, sports drinks, sweet tea, flavored milks
 - Desserts
 - Chips, crackers, cereal, granola
- Review appropriate portion sizes
 - Plate Model

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Nutrition Counseling

- **LDL cholesterol**
 - Increase unsaturated fat in the diet
 - Plant oils, fish, avocado, nuts, seeds, flaxseed, chia seeds
 - Switch to whole grains
 - Increase fruits and vegetables in the diet
 - Increase food sources of soluble fiber
 - Beans, peas, nuts, seeds, fruits and vegetables
 - Avoid excessive saturated fat
 - Found in animal products
 - Encourage a variety of protein options
 - Avoid trans fat
 - Fried food, processed foods

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Weight Status- BMI Percentile

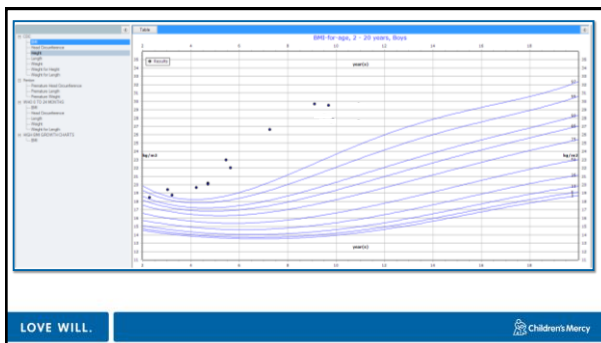
Ask permission to discuss weight status and review the growth chart with patient and family

Describe the growth chart in detail

- If the parent does not understand how we quantify 'overweight' and 'obesity' status, they are less likely to take it seriously
(Jones, 2011)

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Physical Activity Recall Example


Physical Activity

- Football: 5 days/week, 60 minutes/day, self-rated intensity of 8/10
- PE: 5 days/week, 25 minutes/day, self-rated intensity of 5/10
- Unstructured play: 2 days/week, 30 minutes/day, self-rated intensity of 4/10

Weekly physical activity dosage: 485 minutes/week

Sedentary Time

- Weekdays: 4 hours/day
- Weekends: 10-12 hours/day

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Physical Activity Counseling


Association of Physical Activity with:

- HDL Cholesterol
- Triglycerides
- Weight management in overweight and obese patients


Physical Activity Recall

- Type of activity
- Days per week
- Duration of activity
- Perceived intensity


Physical Activity Goal Setting




Goal 1: Commit to _ minutes of physical activity every day



Goal 2: Commit to _ organized physical activity per year





Goal 3: Participate in physical activities at a medium to hard level
_ times per week for _ minutes



Goal 4: Commit to decrease leisure sitting time to less than _ hours per day

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YMCA Step Test

- 3 minute step test, goal is to keep pace with 96 bpm metronome
- Monitor heart rate at rest, peak exertion, and for 5 minutes of recovery period
- Norms are validated for adults, but not in pediatrics currently

Medications

- Statin medications
- Vitamin D
 - 2,000iu Daily
 - 5,000iu Daily


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End of Appointment

- Dr. Raghuveer
 - Meets with family
 - Review all imaging and labs results
 - Review Plan of Care
 - Prescriptions
- Coordinator
 - Schedules follow up with family in person or telehealth
 - 6-12 months
 - Provides contact information

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