Common dyslipidemia profiles in children

*Screening recommendations:
Fasting lipid profile once between 9–11y and 17–21y
Selective screening for children ≥ 2y with:
  Family Hx of early cardiovascular disease
  Family Hx of TC ≥ 240

Other risk factors:
Obesity, sedentary lifestyle, diabetes, hypertension, tobacco use, Kawasaki disease, solid organ transplant, cancer, HIV, Hypertrophic cardiomyopathy, congenital heart disease, nephrotic syndrome, kidney disease, chronic inflammatory disease

Family history of heart disease or stroke in a male parent or grandparent < 55y, or female parent or grandparent < 65y or family history of elevated cholesterol


**Elevated LDL**
LDL > 130 mg/dL
TG < 130 mg/dL
HDL < 45 mg/dL

**Hypertriglyceridemia**
TG > 130 mg/dL
HDL < 45 mg/dL
LDL < 130 mg/dL

**Mixed dyslipidemia**
LDL > 130 mg/dL
TG > 130 mg/dL
HDL < 45 mg/dL

**Triglyceride**

<table>
<thead>
<tr>
<th>CHOLESTEROL</th>
<th>NORMAL VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDL</td>
<td>≤130</td>
</tr>
<tr>
<td>HDL</td>
<td>≥45</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>≤130</td>
</tr>
<tr>
<td>TC/HDL</td>
<td>≤5.0</td>
</tr>
<tr>
<td>Non-HDL</td>
<td>≤145</td>
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</tbody>
</table>

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The knowledge of all for the care of one.

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**Hypertriglyceridemia**

- TG > 130 mg/dL
- HDL < 45 mg/dL
- LDL < 130 mg/dL

**Overweight**

- Nutrition consult
- Lifestyle modifications x 6m
- Refer to Healthy Lifestyles Clinic or weight-loss program
- Assess for comorbidities of obesity

**Not overweight**

- Nutrition consult
- Lifestyle modifications x 6m

**Omega-3 fatty acids**

**TG < 130**

- Maintain Rx
- Continued education
- Annual FLP

**TG 130–300**

- Continue management if improvements made
- Refer to Lipid Clinic

**TG ≥ 300**

- Refer to Lipid Clinic
  (for fibrates, niacin, or statins)

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**Food sources of omega-3 fatty acids include:** salmon, tuna, mackerel, walnuts, flax seed, canola oil, broccoli, spinach, cantaloupe, kidney beans, grape leaves, Chinese cabbage, cauliflower.

**Resources:**


Elevated LDL
LDL > 130 mg/dL
TG < 130 mg/dL

Risk assessment
- Family history
- Exclude hypothyroid, nephrotic syndrome, medications
- Education, nutritional counseling, lifestyle modifications
- Repeat fasting lipid panel in six months

LDL ≤ 130 mg/dL
+ FHx or other R/F
- Continued education
- Annual fasting lipid panels

LDL 130-160 mg/dL
± FHx or other R/F
- Continued education
- Annual fasting lipid panels
- Referral to Lipid Clinic at discretion of family/provider

LDL ≥ 160 mg/dL
± FHx or other R/F
- Referral to Lipid Clinic
(for education and preparation for possible statin therapy)

LDL 130-160 mg/dL
± FHx or other R/F
- Continued education
- Annual fasting lipid panels
- Possible statin therapy based on risk assessment

LDL 160-190 mg/dL
- FHx or other R/F

LDL ≥160 mg/dL
+ FHx or other R/F
- Statin therapy and follow-up
- Annual fasting lipid panels when at stable statin dose
- Continuing education

LDL ≥190 mg/dL
- FHx or other R/F

Resources:
Low HDL
HDL < 45 mg/dL
≠ TG > 130 mg/dL

Overweight
- Nutrition consult
- Lifestyle modifications x 6m
- Refer to Healthy Lifestyles Clinic or weight-loss program
- Assess for diabetes, HTN, sleep apnea, etc.

Not overweight
- TG > 130
  - Follow HyperTG pathway
  - Nutrition consult
  - Lifestyle modifications
  - Omega-3 fatty acids
  - Annual fasting lipid panels

- TG < 130
  - FHx or R/F
  - Referral to Lipid Clinic at discretion of family or provider
    - Exercise
    - Omega-3 fatty acids
    - ± Statin
    - ± Niacin
    - Annual fasting lipid panels and risk assessment

Referral to Lipid Clinic
- Exercise
- Omega-3 fatty acids
- ± Statin
- ± Niacin
- Annual fasting lipid panels and risk assessment

Referral to Lipid Clinic at discretion of family or provider
- Exercise
- Omega-3 fatty acids
- Annual fasting lipid panels and risk assessment

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Summary of indications for referral to the Doernbecher Pediatric Dyslipidemia Clinic:

- **LDL ≥ 160mg/dL in child of any age**
  - Evaluation will include extensive education and probable treatment

- **LDL 140-160 mg/dL in child of any age**
  - Evaluation will include extensive education only (no referral is necessary if you feel comfortable managing the education and dietary/exercise recommendations)

- **Triglycerides 130-500 mg/dL**
  - Evaluation will include extensive education and treatment with omega-3 fatty acids (no referral is necessary if you feel comfortable managing the education and dietary/exercise recommendations)

- **Triglycerides ≥ 500 mg/dL**
  - Evaluation will include extensive education and treatment with omega-3 fatty acids and either a statin or fibrates

- **HDL < 45 ± elevated TG**
  - Evaluation will include extensive education and treatment with omega-3 fatty acids, and if family history of early heart disease or stroke is present, possibly with niacin

*When an initial laboratory test indicates a dyslipidemia please verify with:
  - Fasting lipid panel
  - Complete metabolic panel
  - Thyroid function tests
The Pediatric Dyslipidemia Clinic at Doernbecher Children’s Hospital

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