

## **STANDARD NURSE PROTOCOL FOR DYSLIPIDEMIA SCREENING**

**DEFINITION**      **Dyslipidemia is a condition marked by abnormal elevations of Total Cholesterol, Low-Density Lipoprotein cholesterol (LDL), or Triglycerides, or deficiency of High-Density Lipoprotein cholesterol (HDL) in the blood.**

**ETIOLOGY**        **Research indicates that atherosclerosis (fatty deposits of plaque in arterial walls) begins in childhood and progresses over the lifespan. Exact causes of atherosclerosis are not known, but certain factors that may damage arterial walls and lead to atherosclerosis are: smoking, high amounts of certain fats and cholesterol in the blood, high blood pressure and high amounts of sugar in the blood.**

**Dyslipidemias are disorders of lipoprotein metabolism that result in high levels of Total Cholesterol, LDL or Triglycerides and low levels of HDL. Dyslipidemia is a risk factor for cardiovascular disease (CVD) in adults. Early identification of youth with dyslipidemia can lead to interventions that may prevent or delay the progress of atherosclerosis and CVD.**

**The majority of youth will have idiopathic dyslipidemia. A minority of youth will have monogenic or secondary dyslipidemias.**

**Secondary causes are attributed to sedentary lifestyle, diets high in saturated fat and cholesterol, and conditions such as diabetes, nephrotic syndrome, hypothyroidism, and certain drugs may affect lipid profiles, e.g. progestins, anabolic steroids, corticosteroids and protease inhibitors.**

**SUBJECTIVE**      **Client may have:**

- 1.      Family history (parents or grandparents) of elevated blood cholesterol (level of 240 mg/dL or higher), or a family history (parents or grandparents) of taking cholesterol medication.**
- 2.      Family history (parents or grandparents) of**

premature (before 55 years of age) cardiovascular disease (e.g. coronary atherosclerosis, myocardial infarction, angina pectoris, peripheral vascular disease, cerebrovascular disease, or sudden cardiac death.)

3. History of tobacco use.
4. History of diabetes.
5. History of hypertension.
6. History of excess alcohol intake.
7. Low levels of physical activity (less than one hour of active play/physical activity per day).
8. Very high carbohydrate diet (greater than 60 percent of total energy.)
9. Diet that includes excessive consumption of saturated (solid) fats and cholesterol. (Greater than 10 percent of calories from saturated fatty acids)

**OBJECTIVE**

Client may have:

1. Body Mass Index (BMI) at or greater than the 85<sup>th</sup> percentile.

**ASSESSMENT**

At Risk for Dyslipidemia

**PLAN**

**DIAGNOSTIC STUDIES**

1. In accordance with the Bright Futures Periodicity Schedule, a routine fasting lipid profile is indicated for clients 18 through 20 years of age.
2. For clients 2 through 17 years of age with a positive risk assessment finding in Subjective #1 through #6 or Objective #1 above, obtain fasting lipid profile.
3. For clients 2 through 17 years of age with

unknown family history, and a positive risk assessment finding in Subjective #1 through #6 or Objective #1 above, obtain fasting lipid profile.

4. For clients 2 through 17 years of age with a positive risk assessment finding in Subjective #7, #8 or #9 above consider fasting lipid profile.

**NOTE:** Order lipid profiles that include Total Cholesterol, LDL, HDL and Triglycerides.

Evaluate laboratory results according to the following reference tables:

For youth 2 through 19 years of age:		
	Total Cholesterol (mg/dL)	LDL (mg/dL)
Acceptable	less than 170 mg/dL	less than 110 mg/dL
Borderline	170-199 mg/dL	110-129 mg/dL
High	200 mg/dL or greater	130 mg/dL or greater
HDL levels should be greater than or equal to 35 mg/dL Triglycerides should be less than or equal to 150 mg/dL		
<i>Adapted from National Cholesterol Education Program guidelines</i>		

For youth 20 years of age:			
Total Cholesterol (mg/dL)		LDL (mg/dL)	
		less than 100 mg/dL	Optimal
less than 200 mg/dL	Desirable	100-129 mg/dL	Near Optimal
200-239 mg/dL	Borderline	130-159 mg/dL	Borderline High
240 mg/dL or greater	High	160 -189 mg/dL	High
		190 mg/dL+	Very High
HDL levels should be greater than or equal to 40 mg/dL Triglycerides should be less than or equal to 150 mg/dL			
<i>Adapted from Third Report of the National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults</i>			

## **THERAPEUTIC**

### **NON-PHARMACOLOGIC MEASURES**

**Initiate Therapeutic Lifestyle Changes for all clients as follows:**

- 1. Clients 2 years of age or older follow nutritional guidance in accordance with Dietary Guidelines for Americans 2010.**
- 2. Physical activity recommendations for youth 2 years of age and older are 60 minutes or more of active play/physical activity per day.**
- 3. Lifestyle changes to include smoking avoidance, tobacco use cessation, healthful food and beverage intake, and reducing overweight.**

## **CLIENT EDUCATION/COUNSELING**

- 1. Counsel clients and families:**
  - a. to balance caloric intake with physical activity.**
  - b. to consume more fruits, vegetables, fish, whole grains and low fat dairy products.**
  - c. on a low saturated fat, low cholesterol diet. to avoid trans fatty acids; Keep *trans* fatty acid consumption as low as possible by limiting foods that contain synthetic sources of *trans* fats, such as partially hydrogenated oils, and by limiting other solid fats. A large source of trans fatty acids is partially hydrogenated fat used in fried and baked products. to consume less than 10 percent of calories from saturated fatty acids by replacing them with monounsaturated and polyunsaturated fatty acids. Foods made up mostly of monounsaturated and polyunsaturated fats are liquid at room temperature, such as:**

1. olive oil.
2. canola oil.
3. safflower oil.
4. peanut oil.
5. corn oil.

Foods that are mainly oil include mayonnaise, certain salad dressings, and soft (tub or squeeze) margarine with no *trans* fats. Check the Nutrition Facts label to find margarines with 0 grams of *trans* fat. Most oils are high in monounsaturated or polyunsaturated fats, and low in saturated fats. Oils from plant sources (vegetable and nut oils) do not contain any cholesterol. In fact, no foods from plants sources contain cholesterol. A few plant oils, however, including coconut oil and palm kernel oil, are high in saturated fats and for nutritional purposes should be considered to be solid fats.

- d. to reduce the intake of calories from solid fats and added sugars to help reduce triglycerides in the bloodstream and assist with weight management. Solid fats are fats that are solid at room temperature, like butter and shortening. Solid fats come from many animal foods and can be made from vegetable oils through a process called hydrogenation. Some common solid fats are:
  1. butter.
  2. beef fat (tallow, suet).
  3. chicken fat.
  4. pork fat (lard).
  5. stick margarine.
  6. Shortening.
- e. on ways to increase physical activity and decrease sedentary lifestyles.
- f. about associated risk factors such as, smoking, obesity, diabetes and hypertension.

2. **Encourage family members with dyslipidemia risk factors to obtain medical evaluations as appropriate.**

#### **FOLLOW-UP**

1. **For client with lipid profile results that are acceptable/desireable values:**
  - a. **Retest in 3 to 5 years per Plan Diagnostic Studies numbers 2 through 4 above.**
2. **For client with borderline Total Cholesterol or LDL:**
  - a. **Follow-up in 6 to 12 weeks, to reinforce diet and physical activity recommendations.**
  - b. **Retest in 1 to 2 years per Plan Diagnostic Studies numbers 2 through 4 above.**
3. **For client with high Total Cholesterol, LDL or Triglycerides, or abnormal low HDL:**
  - a. **Follow-up every 6 to 12 weeks, to monitor and reinforce diet and physical activity recommendations.**
  - b. **Re-check fasting lipid profile in 6 months; if improving, but still abnormal recheck in 6 to 12 months.**

#### **CONSULTATION/REFERRAL**

1. **For client with abnormal lipid profile, referral to a registered dietitian or nutritionist if available for individual counseling and monitoring.**
2. **For client on oral contraceptives refer to Standard Nurse Protocol for Abnormal Lipid Tests While Using Hormonal Contraceptives.**
3. **If abnormal components of lipid profile are not improving on re-checks, refer to physician.**
4. **If client is a tobacco user, referral to local cessation program and/or Georgia Tobacco Quit Line, 1-877-270-STOP (7867).**

**5. Pregnant or lactating client.**

## REFERENCES

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2. American Health Association, "Cholesterol and Atherosclerosis in Children," 2011,  
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5. Stephen R. Daniels, Frank R. Greer and the Committee on Nutrition. Lipid Screening and Cardiovascular Health in Childhood, *Pediatrics*, Vol. 122, No. 1, July 2008, pp. 198-208. (Current)
6. U.S. Department of Health and Human Services, National Institutes of Health, National Heart, Lung and Blood Institute, "What Causes Atherosclerosis?" Atherosclerosis,  
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7. U.S. Department of Agriculture and U.S. Department of Health and Human Services, *Dietary Guidelines for Americans, 2010*, 7<sup>th</sup> ed., Washington, DC: U.S. Government Printing Office, December 2010. <<http://www.cnpp.usda.gov/DGAs2010-PolicyDocument.htm>> (March 2, 2011).