

Healthy hearts preventive cardiology guide



Children's
Wisconsin

Herma Heart Institute

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The Healthy Hearts Program serves newborns, children and young adults who have concerns of hypertension, hyperlipidemia, and/or have a family history of early heart disease.



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The Healthy Hearts team is composed of clinicians across nutrition, exercise physiology and mental health to ensure we are caring for every aspect of early heart disease.

Blood pressure screening

Definition of pediatric HTN				
Age (yrs)	Normal	Elevated	Stage 1	Stage 2
1-13	< 90th %-ile	≥ 90th %-ile to < 95th %-ile or 120/80 to < 95th %-ile	≥ 95th %-ile to < 95th %-ile + 12 mmHg or 130/80 to 139/89	≥ 95th %-ile + 12 mmHg or ≥ 140/90
≥ 13	< 120/<80	120/< 80 to 129/< 80	130/80 to 139/89	≥ 140/90

*Auscultatory-confirmed BP ≥ 95th %-ile (≥ 130/80) at 3 different visits

Screening BP values requiring further evaluation [†]				
Age (yrs)	Blood pressure (mmHg)			
	Boys		Girls	
	SBP	DBP	SBP	DBP
5	103	63	104	64
6	105	66	105	67
7	106	68	106	68
8	107	69	107	69
9	107	70	108	71
10	108	72	109	72
11	110	74	111	74
12	113	75	114	75
≥ 13	120	80	120	80

[†]Based on 90th %-ile BP for age/sex for children at the 5th %-ile of Ht; >99% NPV.

If a patient has high blood pressure in your office, give lifestyle modifications AND...

- Repeat accurately and manually (assure correct cuff size, arm/back/legs supported, etc.)
- If “elevated BP,” repeat BP in 6 mos; if still high, obtain UE/LE BP* and repeat in 1 year, then refer to Preventive Cardiology if still high
- If Stage 1 HTN, repeat BP in 2 weeks; if still high, obtain UE/LE BP* and repeat in 3 months, then refer to Preventive Cardiology if still high
- If Stage 2 HTN, obtain UE/LE BP* and refer to preventative cardiology (to be seen within 1-2 weeks)

**Concern for coarctation if UE BP higher than LE BP by >20 mmHg*

Lifestyle modifications include:

- **DASH-style diet** - refer them to dashdiet.org
*Avoid adding salt-based seasonings when cooking and at the table.
- **Moderate to vigorous physical activity** 3-5 days/week (30-60 min per session)



Referrals

Who should pediatricians refer to the Healthy Hearts Program at Children's Wisconsin?

- Any patient at high risk for early CAD
- Patients with elevated BPs
- Patients with dyslipidemias
 - Initiation and monitoring of drug Rx as needed
- Patients with CHD at risk for early CAD
- High-risk conditions
 - DM (type 1 or 2), heart transplant, KD with aneurysms, Williams syndrome, Turner syndrome
- Family history of significantly early CAD or elevated Lp(a)
- High-risk obese patients with multiple comorbidities including dyslipidemias, elevated BPs (including WCH), insulin resistance, NAFLD, OSA, etc.

How to refer

There are three ways to submit a referral:

1. By EMR: Place an external order by searching CHW_Cardiology and enter "Healthy Hearts" or "preventive clinic" in the notes.

2. By Fax: (414) 607-5288, referral to "Healthy Hearts" or "cardiology preventive clinic."

3. By Online Form: Visit childrenswi.org/referral and list "Healthy Hearts" or "cardiology preventive clinic" for department/specialty.

**Video visits are available for remote patients.*

Recommended lipid screening

- **2-8 years if:**
 - (a) FHx of early CAD (<55 yrs in males, <65 yrs in females)
 - (b) Parent with TC >240 mg/dL or known dyslipidemia
 - (c) Child has DM, HTN, BMI >95th %-ile, smokes cigarettes or has a moderate/high-risk medical condition*
- **9-11 years:** universal screening
- **2-16 years if:** (a)-(c), including those with BMI ≥85th %-ile
- **17-21 years:** universal screening

***Moderate-risk conditions:** KD with regressed coronaries, chronic inflammatory disease, HIV, nephrotic syndrome

High-risk conditions: DM1&2, CKD/ESRD, kidney/heart TX, KD with current aneurysms

Recommended cut points for lipid levels for children and adolescents**

Category	Acceptable	Borderline	High
TC	< 170	170-199	≥ 200
LDL-C	< 110	110-129	≥ 130
TG			
0-9 years	< 75	75-99	≥ 100
10-19 years	< 90	90-129	≥ 130
Non-HDL-C	< 120	120-144	≥ 145

Category	Acceptable	Borderline	Low
HDL-C	> 45	40-45	< 40

**Values given in mg/dL.

- **Borderline levels** can be managed by PCP with lifestyle modifications and a nutritionist if obesity related.
- **High levels** should have repeat fasting measurements before referring to Preventive Cardiology.

Lifestyle modifications include:

- **TG:** increase in complex carbohydrates and decrease in sugary beverages, increase in exercise/physical activity
- **LDL:** decrease in saturated fats, trans fats and processed foods
- **HDL:** increase healthy fats and physical activity



Physician liaisons

- Serve as a link between Children's and referring providers
- Provide information about Children's services, including continuing education opportunities
- Facilitate solutions to referral issues



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