

# Developing a Care Pathway for Cardiovascular Disease (CVD)

June 7, 2018



# Overview of Our Time Together

1. Check-in on progress you've made to date on your Care Pathways
2. Review what works for treating cardiovascular disease (CVD) in populations of adults with serious mental illness (SMI) and children with serious emotional disturbance (SED)
3. Review of care pathway development steps for the treatment of CVD
4. Discussion



# Agency Updates!

- What are some breakthroughs you've experienced in developing this or other Care Pathways?
- What are barriers you are running into?
- Areas you want to make sure we cover today?
- Who has started working on or finished a CVD Care Pathway?



# What is Cardio Vascular Disease?

Cardio Vascular disease is a general term for a group of problems that affect your blood vessels, such as those that move blood through your heart and brain. People who have cardio vascular disease may have health problems such as:

- Coronary Artery Disease (CAD)
- Heart Attack/Myocardial Infarction
- Stroke
- Hypertension/High Blood Pressure



# What Are the Risk Factors for Heart Disease?

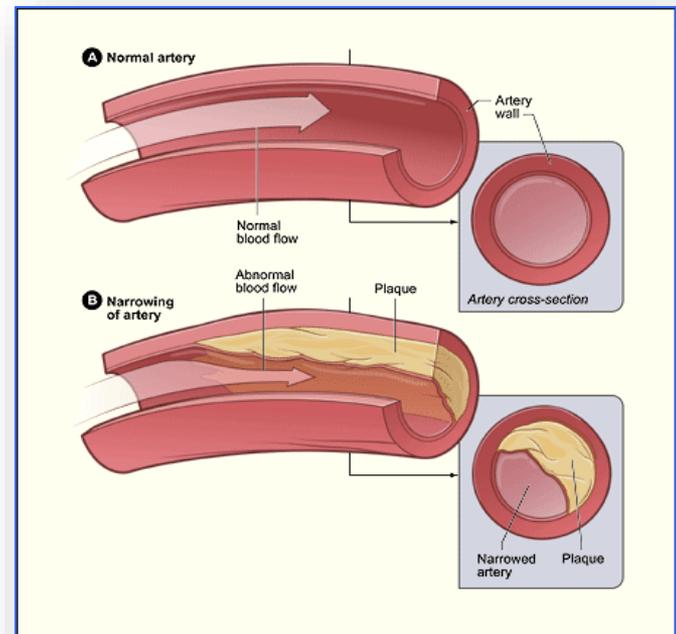
- Risk factors are conditions or habits that make a person more likely to develop a disease. Important risk factors for heart disease that you can do something about are:
- High blood pressure
- High blood cholesterol
- Diabetes and prediabetes
- Smoking
- Being overweight or obese
- Being physically inactive
- Having a family history of early heart disease
- Having a history of preeclampsia during pregnancy
- Unhealthy diet
- Age (55 or older for women)

Source: American Health Association



# Cardio Vascular Disease: Coronary Artery Disease (CAD)

- Caused by a thickening of the inside walls of the coronary arteries. This thickening is called **atherosclerosis**.
- A fatty substance called **plaque** builds up inside the thickened walls of the arteries, blocking or slowing the flow of blood.
- If your heart muscle doesn't get enough blood to work properly, you may have angina or a heart attack. **Angina** is a squeezing pain or pressing feeling in your chest



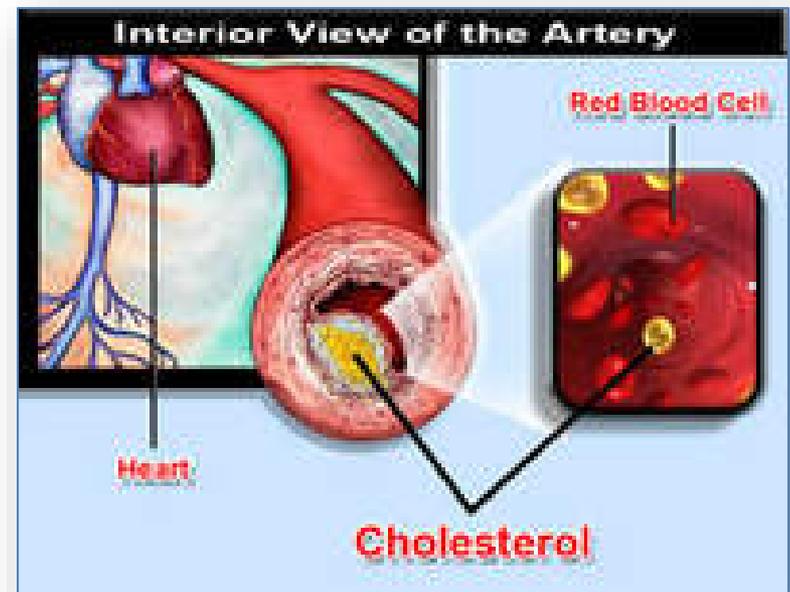
# Heart Disease: Cholesterol



- Cholesterol is a waxy substance that your body makes and uses to protect nerves, make cell tissues and produce hormones. It's also present in meat and dairy foods you eat.
- Low-density lipoproteins, LDL cholesterol is called "bad" cholesterol because it can build up on the inside of your arteries, causing them to become narrow from plaque.
- High-density lipoproteins, HDL is called "good" cholesterol because it protects your arteries from plaque buildup.

# Co-Morbid Conditions: Diabetes, Dyslipidemia & Obesity

- Dyslipidemia is an imbalance of the amount of lipids in the blood, often as a result of diet and/or lifestyle choices
- Dyslipidemia may be caused by long-term elevation of insulin levels
- If a child has Polycystic Ovary Syndrome or dyslipidemia, it is important to follow-up regularly with a health care team
- Diabetes & Obesity are both significant risk factors for the development of CVD
- Metabolic Syndrome is the presence of CVD, Diabetes & Obesity



# Blood Pressure

Definition: Pressure of blood in arteries produced by contraction of heart muscle

- Systolic - Measured after heart contracts
- Diastolic - Measured before heart contracts
- Sphygmomanometer - Blood pressure measuring device



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# Primary Hypertension & Evaluation for Co-Morbidities

- Primary hypertension is identifiable in children, adolescents & adults.
- Hypertension and pre-hypertension are significant health issues in the young due to the marked increase in the prevalence of overweight children.
- The evaluation of hypertensive children should include assessment for additional risk factors.

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# Measurement of Blood Pressure in Children

- Children over 3 years old should have their BP measured
- Auscultation (measured by stethoscope) is the preferred method of BP measurement
- Correct measurement requires a cuff that is appropriate to the size of the child's upper arm
- Elevated BP must be confirmed on repeated measurement

*(<https://solutions.aap.org/DocumentLibrary/pcowebinars/2017%20Hypertension%20Webinar.pdf>)*



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# Conditions Under Which Children Under 3 Years Old Should Have BP Measured

- History of prematurity, very low birth weight, or other neonatal complication requiring intensive care
- Congenital heart disease
- Recurrent urinary tract infections
- Known renal disease or urologic malformations
- Family history of congenital renal or cardiac disease
- Solid organ transplant
- Malignancy or bone marrow transplant
- Treatment with drugs known to raise BP
- Other systemic illnesses associated with hypertension
- Evidence of elevated intracranial pressure



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# Pediatric Blood Pressures

Normal Blood Pressure by Age (mm Hg)			
Reference: PALS Guidelines, 2015			
Age	Systolic Pressure	Diastolic Pressure	Systolic Hypotension
Birth (12 h, <1000 g)	39-59	16-36	<40-50
Birth (12 h, 3 kg)	60-76	31-45	<50
Neonate (96 h)	67-84	35-53	<60
Infant (1-12 mo)	72-104	37-56	<70
Toddler (1-2 y)	86-106	42-63	<70 + (age in years x 2)
Preschooler (3-5 y)	89-112	46-72	<70 + (age in years x 2)
School-age (6-9 y)	97-115	57-76	<70 + (age in years x 2)
Preadolescent (10-11 y)	102-120	61-80	<90
Adolescent (12-15 y)	110-131	64-83	<90

Source: <http://www.pedscases.com/pediatric-vital-signs-reference-chart>



# Measurement of Blood Pressure in Adults

- The number of Americans who have high blood pressure has increased dramatically
- nearly 1,000 people die each day in the United States as a result of high blood pressure-related illnesses.
- The latest data show that nearly 1 in 3 American adults—approximately 70 million—have high blood pressure. About half of those with high blood pressure don't have it under control, even though many have insurance, are being treated with medicine, and have seen a doctor at least twice in the past year.



# Adult Blood Pressures

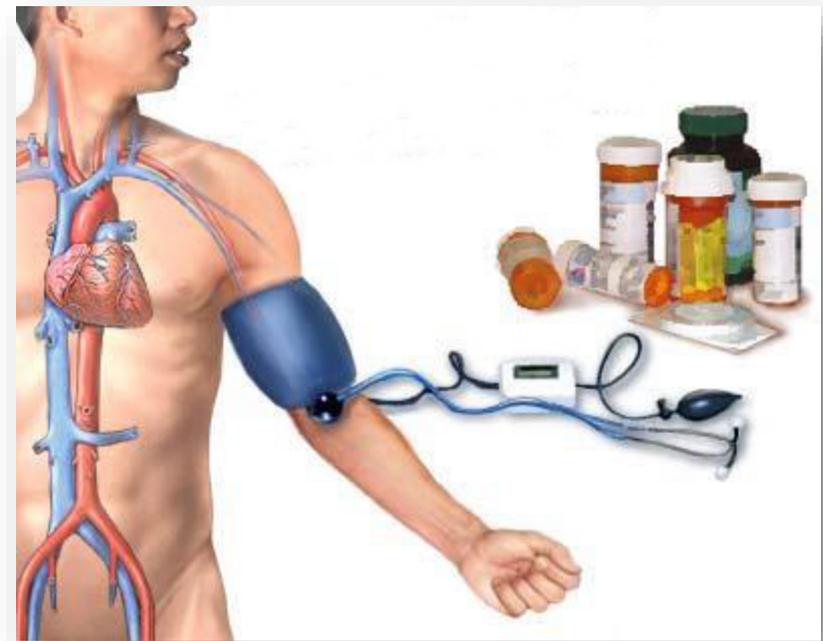
BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
<b>HYPERTENSIVE CRISIS</b> (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

Source: American Health Association



# Treatment Plan for Elevated Blood Pressure

- Repeat measurement
- Referral
- Cardiac Work-up
- Lifestyle changes
- Medication treatment



# Therapeutic Lifestyle Changes

## Stage of Hypertension

## Recommended Lifestyle Change

Normal

Encourage healthy diet, sleep, and physical activity.

Prehypertension

Recommend weight management counseling if overweight; introduce physical activity and diet management.

Stage 1 hypertension

Recommend weight management counseling if overweight; introduce physical activity and diet management.

Stage 2 hypertension

Recommend weight management counseling if overweight; introduce physical activity and diet management.

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# Practical Interventions for Improving Cardiovascular Disease

## Lifestyle changes



# Therapeutic Lifestyle Changes

- Weight reduction is the primary therapy for obesity-related hypertension. Prevention of excess weight gain can limit future increases in BP.
- Physical activity can improve efforts at weight management and may prevent future increase in BP.
- Dietary modification should be strongly encouraged in children and adolescents with prehypertension, as well as those with hypertension.
- Family-based intervention improves success.



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# Take Home Messages for Care Managers

- Must understand the causes, identification, and treatment of CVD
- Support/ensure primary care management
- Support/ensure therapeutic lifestyle changes





## The Good News: Reducing Risks of Cardiovascular Disease

- Maintenance of ideal body weight (BMI = 18.5-25)
  - 35%-55% ↓ in CVD
- Maintenance of active lifestyle (~30-min walk daily)
  - 35%-55% ↓ in CVD
- Cigarette smoking cessation
  - ~ 50% ↓ in CVD

Hennekens CH. *Circulation* 1998;97:1095-1102; Rich-Edwards JW, et al. *N Engl J Med* 1995;332:1758-1766; Bassuk SS, Manson JE. *J Appl Physiol* 2005;99:1193-1204.



# What is the Role of a HH Provider?

- HH Clinical staff training on the identification/screening, referral, care coordination, and monitoring of CVD
- Care Pathway that includes screening for CVD and associated comorbid conditions (e.g., obesity & diabetes), lifestyle/wellness programming, ongoing seamless care coordination with primary care.
- Data capture, aggregation, and monitoring using population health management and risk stratification protocols.





# Remember this!?

1. Choose a clinical condition or social determinant need
2. Define the patient population
3. Convene an inter-disciplinary team
4. Define the target outcome(s)
5. Review the evidence base
6. Map the care pathway
7. Develop clinical & administrative protocols
8. Pilot the care pathway
9. Evaluate the efficiency & effectiveness of the care pathway
10. Ongoing monitoring of the care pathway metric specifications



Source: Panella M et al. Reducing clinical variation with clinical pathways: do pathways work?  
International Journal of Quality in Health Care. 2003. 15(6): 509-521.

# Step 4. Treat to Target Metrics

## Number of Clients Screened

- Screening including Blood Pressure & Lipids for all consumers at least annually

Numerator = # clients screened

Denominator = all clients served – excluded clients

## Clients that Screen Positive for Hypertension Receive Follow-up Care

- For those that screen positive #/% that receive treatment

Numerator = # clients attending f/u appt w/ Primary Care or Emergency Dept

Denominator = # clients screening positive for Hypertension

## Clients with Hypertension Improve

For those that screen positive #/% that have improved over three month period?

Numerator = # clients with BP improvement after three months

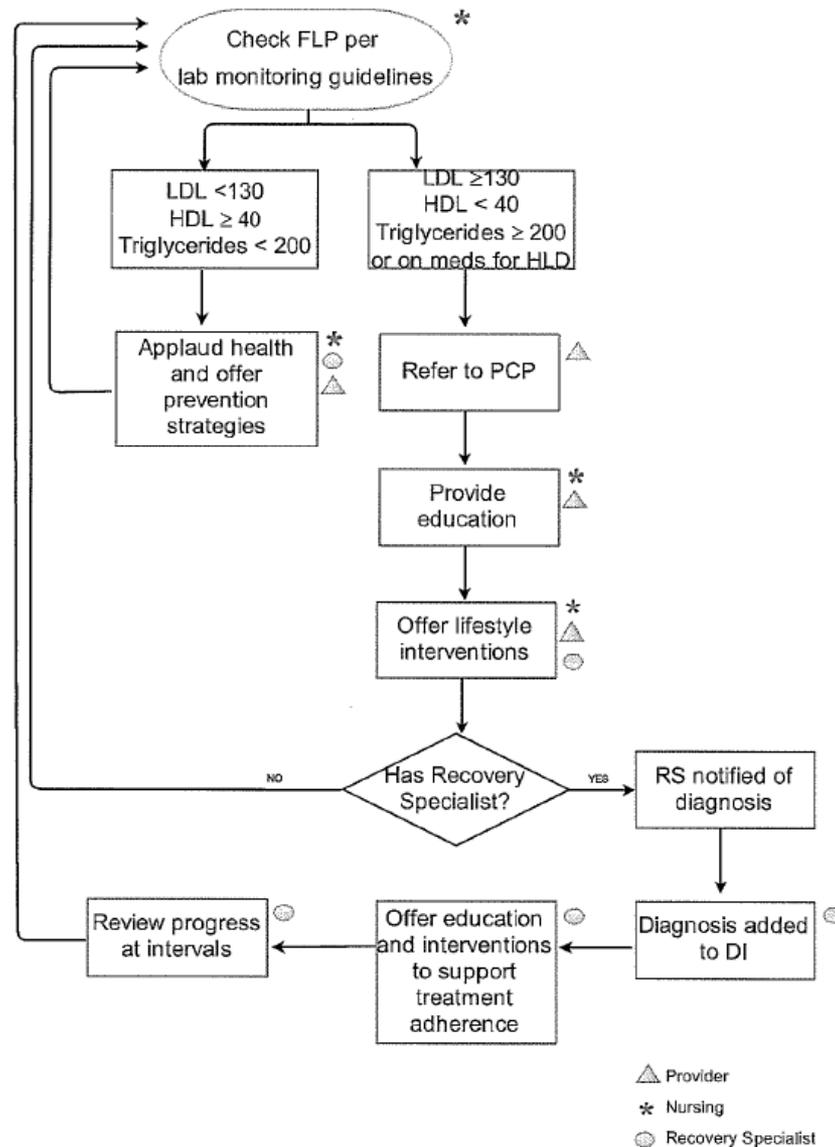
Denominator = # clients screening positive receiving Follow-up Care

# Step 5. Review of the Evidence/Choosing an Approach

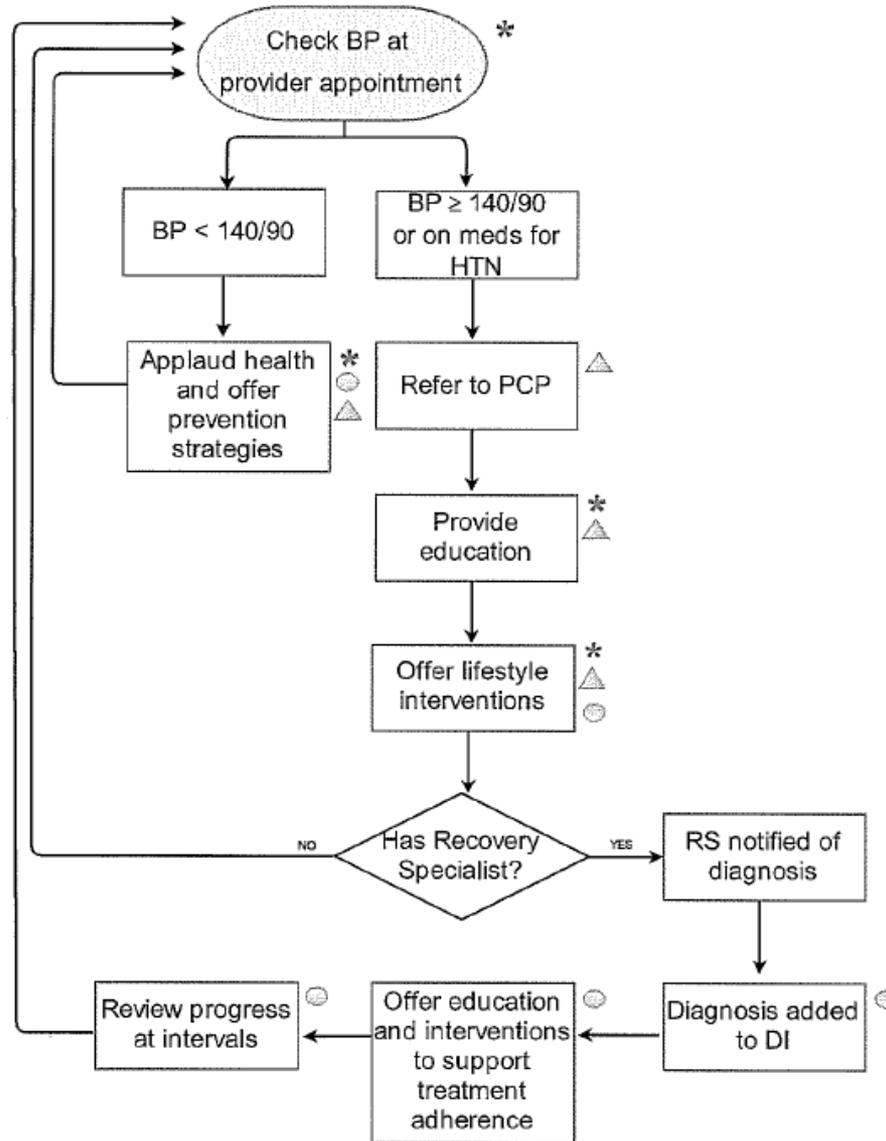
- Like with ALL Care Pathways your Medical Director must approve the chosen intervention.
- For physical health conditions your Primary Care consultant must be involved in the decision making process.



# Lipids



# Blood Pressure



- ▲ Provider
- \* Nursing
- Recovery Specialist

# Step 7. Protocol Development

## What will Protocol Development look like for a CVD Care Pathway?

- Detail the work flow procedures/behaviors staff will engage in when addressing a certain health care condition/social determinant need.
- Lays the procedures out in sequence describing how each discipline will do both the clinical and administrative work flow behaviors.
- Provides standard operating procedures for the team to work from to make sure clinical care is provide based on the evidence-based standard of care AND that administrative procedures are followed so data are collected reliably and services are documented/billed correctly.
- Protocols can be detailed written documents and/or visual diagrams.



# Common Issues When Implementing CVD Care Pathway

- Who can/must do blood pressures?
- How to include Primary Care?
- Which staff need training?
- We don't have the space or equipment?
- Which blood labs should we collect?



# Resources

## Resource for Care Pathways

National Institute for Health & Care Excellence:

- <https://pathways.nice.org.uk/>

## Resource for Protocols

Agency for Healthcare Research & Quality National Guideline Clearing House:

- <https://www.guideline.gov/search?q=obesity>



# Resources

American Heart Association CVD Guidelines:

[http://professional.heart.org/professional/GuidelinesStatements/UCM\\_316885\\_Guidelines-Statements.jsp](http://professional.heart.org/professional/GuidelinesStatements/UCM_316885_Guidelines-Statements.jsp)

Healthful Diet and Physical Activity for Cardiovascular Disease Prevention in Adults With Cardiovascular Risk Factors: Behavioral Counseling:

<https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/healthy-diet-and-physical-activity-counseling-adults-with-high-risk-of-cvd>

