

**WORK-UP FOR THE  
PEDIATRIC PATIENT  
WITH FAMILY HISTORY  
OF ISCHEMIC HEART  
DISEASE**

**DAN FINK**



## Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents

1. BP should be measured annually in children and adolescents  $\geq 3$  y of age.
2. BP should be checked in all children and adolescents  $\geq 3$  y of age at every health care encounter if they have obesity, are taking medications known to increase BP, have renal disease, a history of aortic arch obstruction or coarctation, or diabetes.
3. Trained health care professionals in the office setting should make a diagnosis of HTN if a child or adolescent has auscultatory-confirmed BP readings  $\geq 95$ th percentile at 3 different visits.

The USPSTF found no direct evidence that routine BP measurement accurately identifies children and adolescents who are at increased risk for CV disease in adulthood and inadequate evidence that routine BP measurement accurately identifies children and adolescents who are at increased risk for adult HTN or other intermediate measures of adult CV disease. (18)

**REVIEW ARTICLE**

## **High blood pressure in the young: why should we care?**

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## **Why should we screen for arterial hypertension in children and adolescents?**

**Mieczysław Litwin<sup>1</sup>**

## **Screening children for hypertension: the case against**

**Nicole Ide<sup>1</sup> • Matthew Thompson<sup>1</sup>**

# **GOLD STANDARD for Screening Test •**

- \* Easy, reproducible test with ↑ PPV & NPV**
- \* Evidence that the result is useful medically**

# **PROBLEM WITH IHD (or Early Vascular Aging)**

- \* Slowly progressive disease- manifests only in adulthood**
- \* No prospective trials**

# Must use secondary (*surrogate*) end points

## 1) TOD (target organ damage)

- \* LV Mass 45% higher in teens with mild HTN •
- 38.5% teens with BP > 90<sup>th</sup>% had LV mass >95<sup>th</sup>% (BMI had additive effect) •
- \* cIMT > in HTN and correlated with ABPM •
- \* BP > 90<sup>th</sup>% ↓ cognitive testing (digit span, executive functioning, LD, ADHD) •

## **TOD cont. •**

- \* ↓ indices of diastolic function & PWV •**
- \* urinary microalbumin excretion ↑ confirmed •  
primary HTN compared to White Coat HTN**
- \* urine protein excretion ↑ and GFR ↓ in •  
prehypertensive children on ABPM compared to  
normotensive children**

# BP TRACKS FROM CHILDHOOD TO ADULTHOOD •

\* 24% of children with 2 or more SBP readings >90<sup>th</sup>% had adult SBP >90<sup>th</sup>% •

\* Hazard Ratio for adult HTN for children with the highest baseline BP was 2.5/boys and 2.3/girls •

\* highest BMI category had ↑ risk of adult HTN •

\*\* normal childhood BP had ↓ risk of adult HTN •

# LONGITUDINAL COHORT STUDIES

## 500 in Fels Longitudinal Study

- \* Childhood HTN led to Adult HTN and Metabolic Syndrome after age 30 •

## International Childhood Cardiovascular Cohort Consortium (i3C) •

Adult cIMT >90<sup>th</sup>% varied according to 3 categories •

- \* Highest risk in those with Childhood and Adulthood HTN
- \* Medium risk in those with Adult Hypertension alone •
- \* Lowest risk in those with Childhood HTN and Normotensive Adult •

## Bogalusa Study participants •

- \* autopsy studies in 19.6-22.4 year olds •
- \* amount of atherosclerosis directly related to BP, lipid levels and smoking •



# **“Up To Date” 2018 “Early atherosclerosis” •**

## **Risk Factors •**

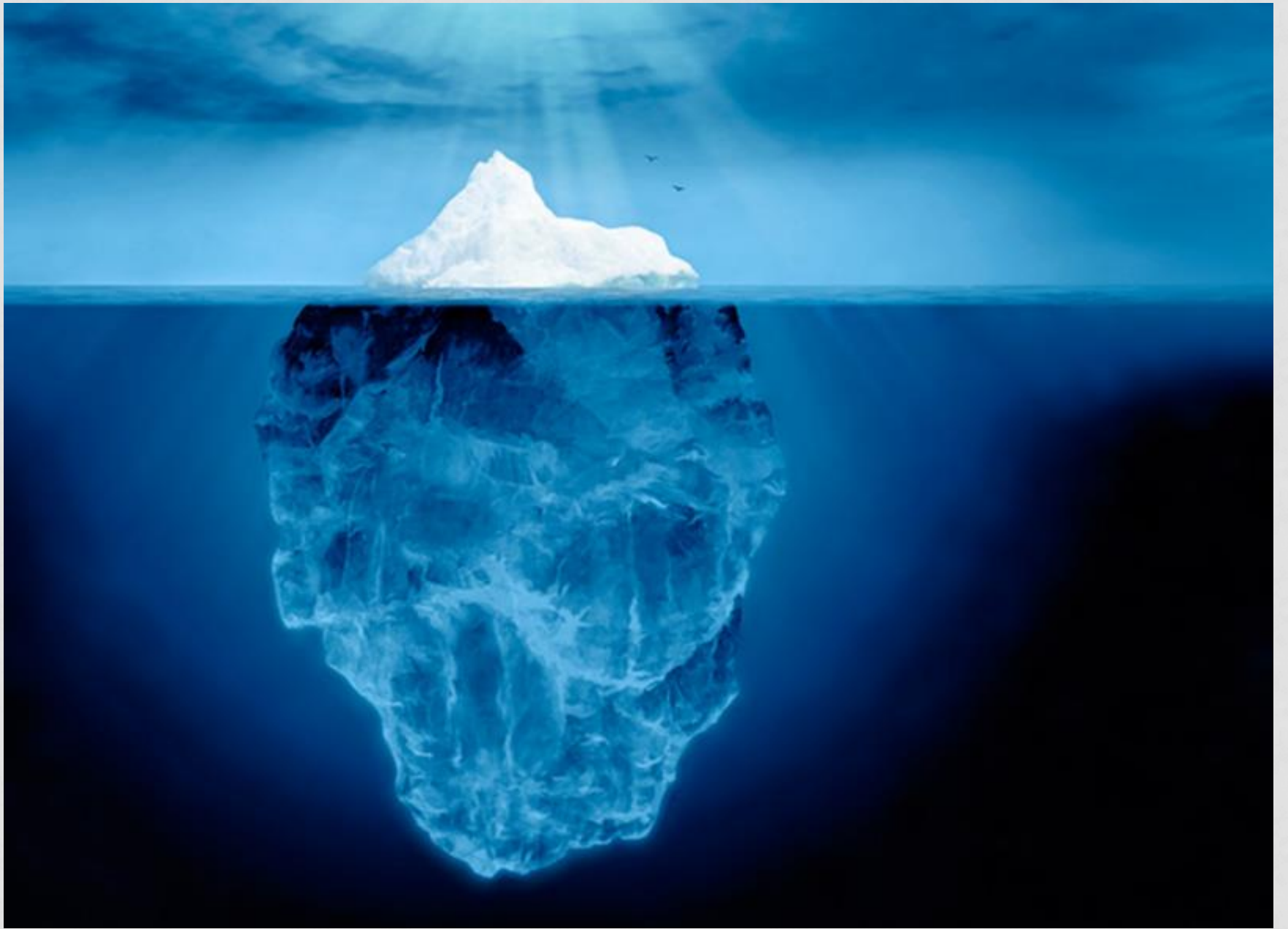
**\* Obesity, High BP, FH <56 years for male, <66 years for female, •  
Depressive or bipolar disorders, exposure to cigarette smoke, •  
Underlying Med Disorders (DM, CKD, Rx for CA)**

## **Screen**

**\* lipid levels for everyone at 9-11 years and again 17-21 •  
\* 2 years and over if there are any of the above risk factors •  
including HTN and/or Obesity**

## **All Children and especially with risk factors**

**\* Yearly BP, BMI, Smoking exposure, diet, exercise**





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# “Up To Date”

**THANK YOU**