

HYPERTENSION & PREGNANCY

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Obstetric Complications:
The Essentials and More



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#CardioObstetrics

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OBJECTIVES

- Maternal Mortality
- Hypertension – Cardiology view point
- Hypertensive Disorders of Pregnancy
- Pulmonary EDEMA and Heart Failure
- Future CV RISK



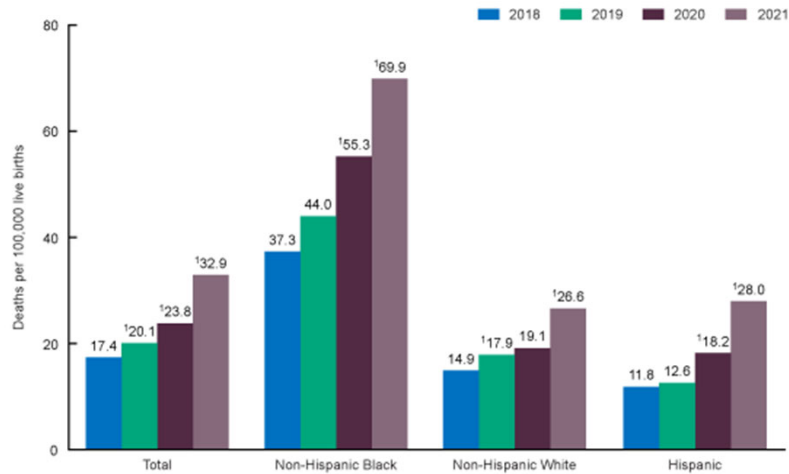
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NO DISCLOSURES

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THE SCOPE OF THE PROBLEM

In 2018, preventing maternal deaths act passed

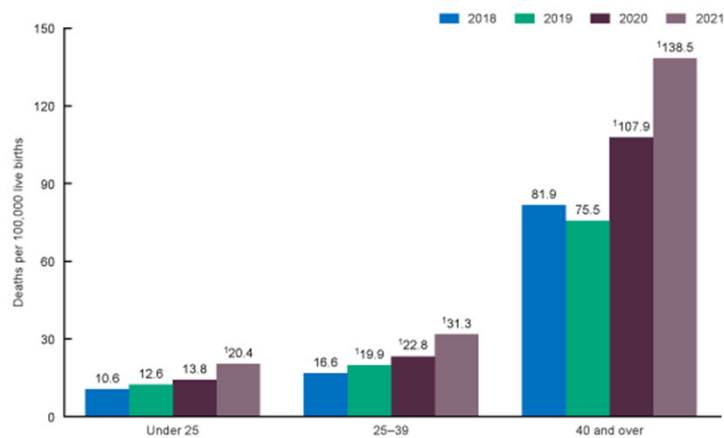


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MORTALITY BY AGE



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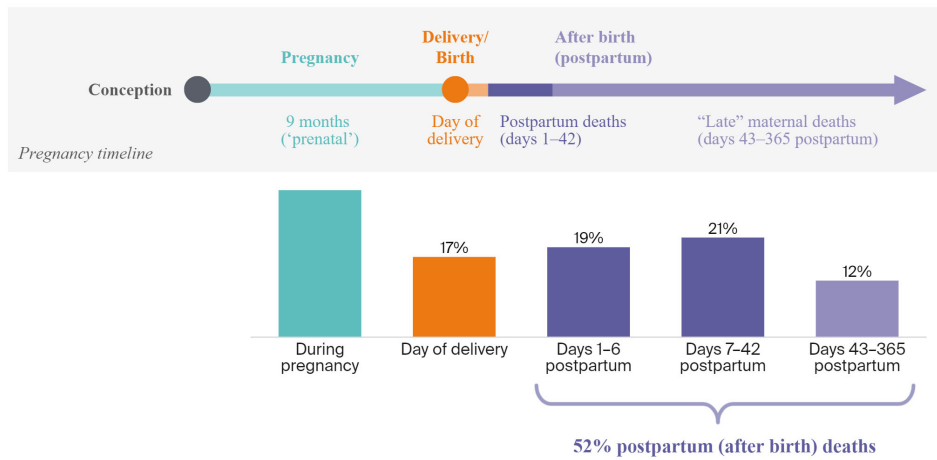
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<https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2021>

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Exhibit 2

Timing of U.S. Maternal and Pregnancy-Related Deaths, 2011–2015



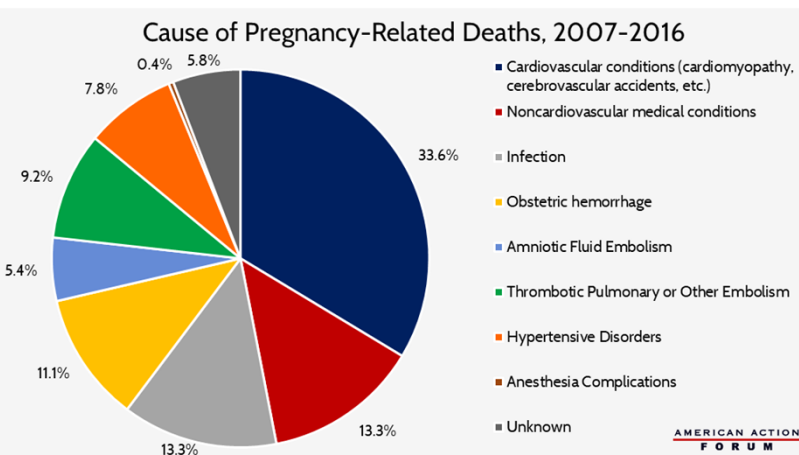
Data: Centers for Disease Control and Prevention Pregnancy-Related Mortality Surveillance data from: Emily E. Petersen et al., "Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015, and Strategies for Prevention, 13 States, 2013–2017," *Morbidity and Mortality Weekly Report* 68, no. 18 (May 10, 2019): 423–29.

Source: Roosa Tikkanen et al., *Maternal Mortality and Maternity Care in the United States Compared to 10 Other Developed Countries* (Commonwealth Fund, Nov. 2020). <https://doi.org/10.26099/411v-9255>

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MATERNAL MORTALITY – CARDIOVASCULAR DEATHS



♥ the most common causes of pregnancy-related deaths were cardiovascular conditions:

- ♥ congenital heart disease,
- ♥ ischemic heart disease
- ♥ cardiac valvular disease
- ♥ hypertensive heart disease,
- ♥ congestive heart failure

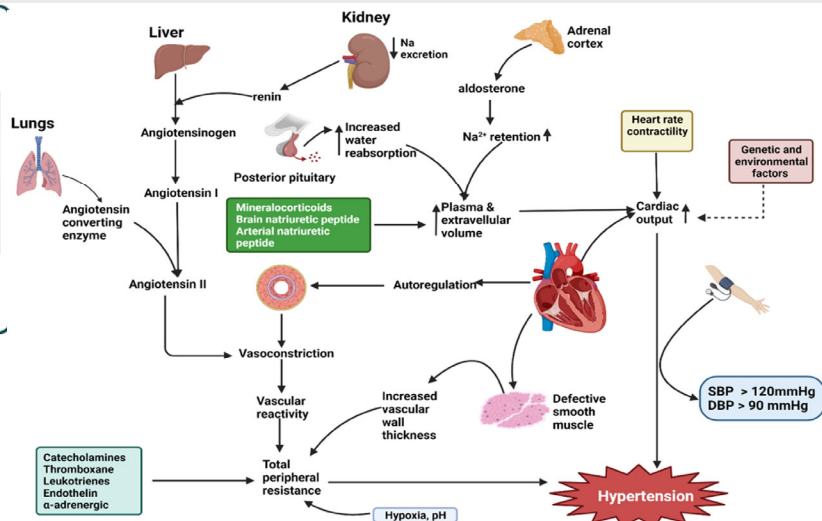
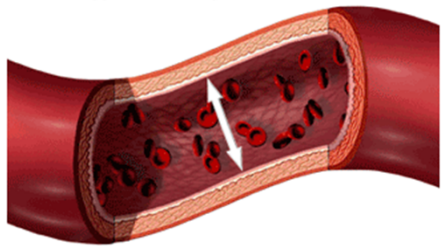
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Hypertension High Blood Pressure

Blood pressure is the measurement of force applied to artery walls



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2017 ACC/AHA HYPERTENSION GUIDELINES

TABLE 6 Categories of BP in Adults*

BP Category	SBP		DBP
Normal	<120 mm Hg	and	<80 mm Hg
Elevated	120-129 mm Hg	and	<80 mm Hg
Hypertension			
Stage 1	130-139 mm Hg	or	80-89 mm Hg
Stage 2	≥140 mm Hg	or	≥90 mm Hg

*Individuals with SBP and DBP in 2 categories should be designated to the higher BP category.

BP indicates blood pressure (based on an average of ≥2 careful readings obtained on ≥2 occasions, as detailed in Section 4); DBP, diastolic blood pressure; and SBP systolic blood pressure.

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The NEW ENGLAND JOURNAL of MEDICINE

Effect of Blood Pressure on Cardiovascular Outcomes

RETROSPECTIVE COHORT STUDY

Over 36 million BP measurements from 1.3 million adults in a general outpatient population



First episode of MI, ischemic stroke, or hemorrhagic stroke over 8 yr

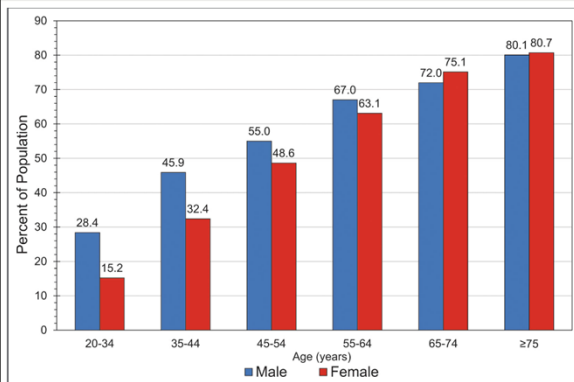
Threshold	Hazard ratio per unit increase in z score
Systolic ≥140 mm Hg	1.18 (95% CI, 1.17–1.18; P<0.001)
Systolic ≥130 mm Hg	1.18 (95% CI, 1.17–1.19; P<0.001)
Diastolic ≥90 mm Hg	1.06 (95% CI, 1.06–1.07; P<0.001)
Diastolic ≥80 mm Hg	1.08 (95% CI, 1.06–1.09; P<0.001)

A.C. Flint et al. 10.1056/NEJMoa1803180

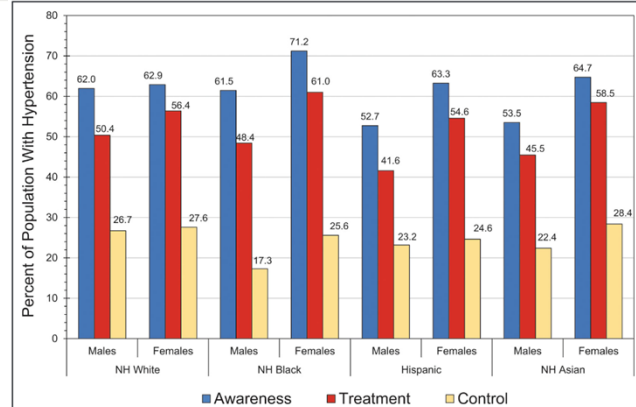
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HYPERTENSION STATISTICS



Prevalence of hypertension in US adults ≥20 years of age by sex and age (NHANES 2017–2020).



Extent of awareness, treatment, and control of HBP by race and ethnicity and sex, United States (NHANES, 2017–2020)

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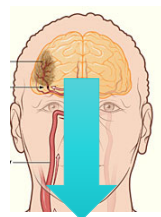
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Hypertension

Implications on Cardiovascular and Cerebrovascular Events

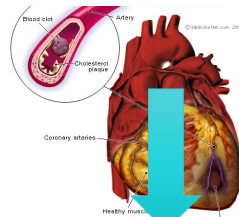
- Second only to smoking in preventable death
- Treatment reduces cardiovascular risk

Stroke



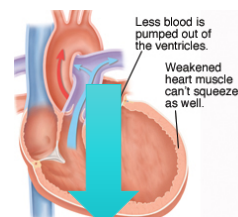
35%

Heart Attack



20%

Heart Failure



60%

Early identification and management is needed

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