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Objectives

Review	Basic definitions of Hypertension Importance of management
Discuss	Management obstacles
Review	Lifelong cardiovascular risk for women with hypertensive disease in pregnancy

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High Blood Pressure of Pregnancy

Type	Onset	Blood Pressure Diagnostic Criteria	Lab Abnormalities	Clinical Symptoms
Chronic	<ul style="list-style-type: none"> • Preexisting • <20 weeks of gestation 	**		Usually none
Gestational	<ul style="list-style-type: none"> • >20 weeks • Previously normotensive 	<ul style="list-style-type: none"> • SBP >140 and/or DBP >90 mmHg x2 >4 hr apart • If severe range- SBP >160 and/or DBP >110 mmHg then preeclampsia with severe features 	none	None

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Hypertension nomenclature and pharmacologic treatment guidelines

Guideline	Blood pressure, mm Hg				
	<120/80	120-129/80	130-139/80-89	>140/90	>160/110
2019 American College of Obstetricians and Gynecologists	Normal			<20 weeks, mild chronic hypertension	<20 weeks, severe chronic hypertension*
2003 Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure	Normal	Pre-hypertension	Pre-hypertension [†]	Stage 1 hypertension [‡]	Stage 2 hypertension [‡]
2017 American College of Cardiology and American Heart Association	Normal	Elevated blood pressure	Stage 1 hypertension [†]	Stage 2 hypertension [‡]	

*Adapted from Simay HC, Opell B. Lower blood pressure thresholds raise the bar in pregnancy. Clin Res 2010;128(2):195-7. [†]Pharmacologic treatment recommended [‡]Pharmacologic treatment only recommended / corrected diabetes or renal disease

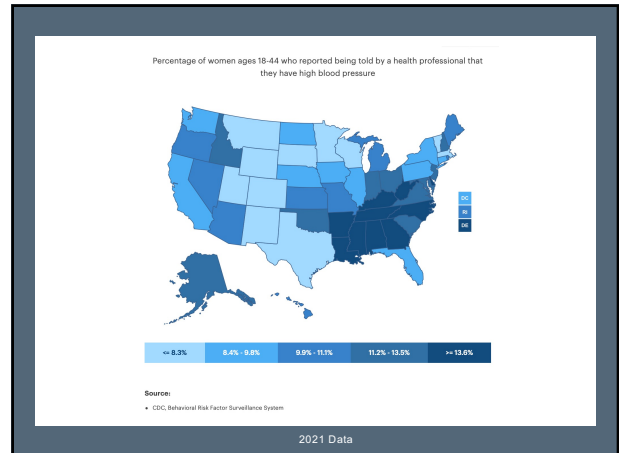
Rezkhanlo. Chronic hypertension in pregnancy. Am J Obstet Gynecol 2020

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High Blood Pressure of Pregnancy

Type	Onset	Blood Pressure Criteria	Lab Abnormalities	Clinical Symptoms
Preeclampsia	<ul style="list-style-type: none"> • Typically >20 weeks • Frequently near term 	SBP >140 and/or DBP >90 mmHg x2 >4 hr apart	<ul style="list-style-type: none"> • 300 mg protein (P/C 0.3 or +2 protein dip) • Platelets <100K • Cr >1.1 or doubling • LFTs 2x normal • Pulmonary edema • New HA unresponsive to treatment; no alternative diagnosis 	
Preeclampsia with Severe Features	<ul style="list-style-type: none"> • Typically >20 weeks • Frequently near term 	<ul style="list-style-type: none"> • SBP >140 and/or DBP >90 mmHg x2 >4 hr apart • Severe range- SBP >160 and/or DBP >110 mmHg 	<ul style="list-style-type: none"> • 300 mg protein (P/C 0.3 or +2 protein dip) • Platelets <100K • Cr >1.1 or doubling • LFTs 2x normal • Pulmonary edema • New HA unresponsive to treatment; no alternative diagnosis 	<ul style="list-style-type: none"> • Headaches • Vision Changes • Epigastric/ RUQ pain • SOB/cough • Chest pain

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Why we care

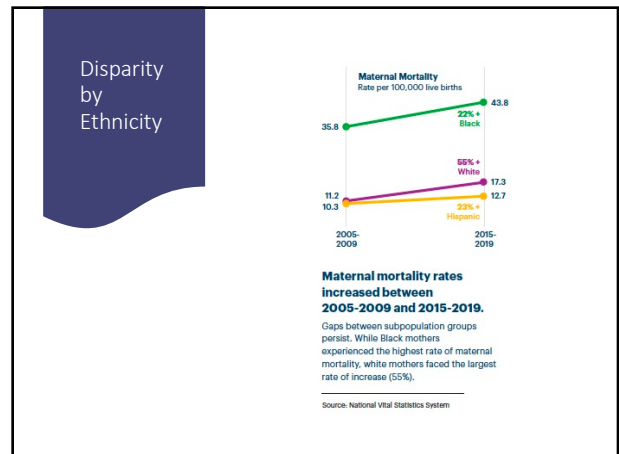
About 1 in 6 maternal deaths in developed countries is attributable to hypertensive disorders

1 in 4 maternal deaths in Latin America and the Caribbean are attributable to hypertensive disorders

Rates of preeclampsia and preeclampsia with severe features are increasing

Morbidity and Mortality as it related to hypertension has opportunities for prevention

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R³ Report | Requirement, Rationale, Reference

Provision of Care, Treatment, and Services standards for maternal safety

Effective July 1, 2020, 13 new elements of performance (EPs) will be applicable to Joint Commission-accredited hospitals. These new requirements are within the Provision of Care, Treatment, and Services (PC) chapter at PC.06.01.01 and PC.06.03.01 and are designed to improve the quality and safety of care provided to women during all stages of pregnancy and postpartum. The United States ranks 65th among industrialized nations in terms of maternal death.¹ Because of worsening maternal morbidity and mortality, The Joint Commission evaluated expert literature to determine what areas held the most potential impact. The literature review revealed that prevention, early recognition, and timely treatment for maternal hemorrhage and severe hypertension/preeclampsia had the highest impact in states working on decreasing maternal complications. This approach was supported by a technical advisory panel assembled by The Joint Commission, resulting in the development of EPs that focus on these complications.

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- Standard PC.06.03.01 Reduce the likelihood of harm related to maternal severe hypertension/preeclampsia
- Requirement: EP 1: Develop written evidenced based procedures for measuring and re-measuring blood pressure. These procedures include criteria that identify patients with severely elevated blood pressure.
 - Appropriate assessment
 - Cuff size
 - Patient position
 - Frequency of assessment
 - Criteria for interventions

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- EP 2: Develop written evidenced based procedures for managing pregnant and postpartum patients with severe hypertension/preeclampsia that includes the following:
 - The use of an evidenced based set of emergency response medications that are stocked and immediately available on the obstetric unit
 - The use of seizure prophylaxis
 - Guidance on when to consult additional experts and consider transfer to a higher level of care
 - Guidance on when to use continuous fetal monitoring
 - Guidance on when to consider emergent delivery
 - Criteria for when a team debrief is required
- Written procedures recommended to be developed with multidisciplinary team that includes obstetrics, emergency department, anesthesiology, pharmacy, nursing, and laboratory

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- EP 3: Provide role-specific education to all staff and providers who treat pregnant/postpartum patients about the hospital's evidence based severe hypertension/preeclampsia procedure. At a minimum, education occurs at orientation, whenever changes to the procedure occur or every 2 years

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- EP 4: Conduct drills at least annually to determine system issues as a part of ongoing quality improvement efforts. Severe hypertension/preeclampsia drills include a team debrief.

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- EP 5: Review severe hypertension/preeclampsia cases that meet criteria established by the hospital to evaluate the effectiveness of the care, treatment and services provided to the patient during the event

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• EP 6: Provide printed education to patients (and their families including the designated support person whenever possible). At a minimum education includes:

- Signs and symptoms of severe hypertension/preeclampsia during hospitalization that alert the patient to seek immediate care
- Signs and symptoms of severe hypertension/preeclampsia after discharge that alert the patient to seek immediate care
- When to schedule a post-discharge follow up appointment

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Organizational Impact

Readiness

- Standards for early warning signs, diagnostic criteria, monitoring and treatment of severe preeclampsia/eclampsia
- LME education protocols
- Protocols for timely imaging and evaluation
- Rapid access to medications used for severe preeclampsia/eclampsia
- System plan for escalation, obtaining consultation and transport

Recognition & Prevention

- Standard Protocol for measurement & assessment of BP and urine protein for all pregnant and postpartum women
- Standard response to maternal early warning signs and investigating symptoms and labs
- Facility wide standards for educating prenatal and postpartum women on signs and symptoms of hypertension and preeclampsia

Response

- Protocols with checklists and escalation policies for severe hypertension, eclampsia, seizure prophylaxis and magnesium overdosage, postpartum presentation of severe hypertension/preeclampsia
- Protocol minimum requirements for: notification of severe range BP x 2 within 15 minutes, treatment <60 minutes of notification, onset and duration of MgSO4 therapy, escalation measures for patients who require postpartum/patient education, review and verification for postpartum follow-up in 30 days, escalation to tertiary care
- Support plan for patients, families and staff for ICU admissions and complications of severe hypertension

Reporting/Systems Learning

- Establish a culture of huddles for high risk patients and post event debriefs identify successes and opportunities
- Multidisciplinary review of all severe hypertension/eclampsia cases admitted to the ICU for systems issues
- Monitor outcomes and process metrics

The content displayed in this infographic is a representation of AHR Excellence in Research & 2020 AHR Excellence in Nursing process and reflects a current snapshot of our current state and more robust details can be found in website resources are available.

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D DEFINE

- Launch Team
- Establish Charter
- Plan Project
- Gather the Voice of the Customer
- Plan for Change

M MEASURE

- Document the Process
- Capture Baseline Data
- Measure project focus

A ANALYZE

- Analyze Data
- Identify Root Cause
- Identify and Remove Wholes

I IMPROVE

- Generate Solutions
- Evaluate Solutions
- Optimize Solutions
- Plan and Implement

C CONTROL

- Control the Process
- Validate project benefits

ACT What steps? (2) What changes are to be made? (2) How often? (2) What, Who, What, When, How? (2) Most measurement?

PLAN Define the problem (What are you trying to improve?) (2) What are the goals? (2) What are the constraints? (2) What resources? (2) What measurement?

STUDY What success? (2) What data? (2) Lessons learned?

DO What do it

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SMFM Papers ajog.org

Factors associated with appropriate treatment of acute-onset severe obstetrical hypertension

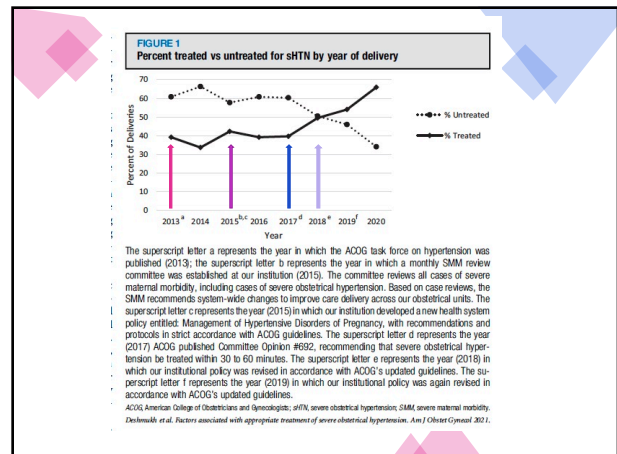
Uma S. Deshpande, MD, MUP, Lisbet S. Lundberg, MPH, PhD, Jennifer F. Culshaw, MPH, PhD, Caitlin Purkayast, BA, Uma M. Reddy, MD, MPH, Audrey A. Morrison, MD, MS, Moan Son, MD, MSCI
SEPTEMBER 2021 American Journal of Obstetrics & Gynecology

Aim: Identify factors associated with receiving guideline concordant treatment for an obstetrical emergency

- Case control study of all pregnant & postpartum patients 2013-2020 who had persistent severe hypertension
 - Electronic record review
 - Treatment goal met if first line antihypertensive agent delivered <60 minutes
 - Delayed treatment >60 minutes
 - Untreated-never received medication management
- Results
 - ~40K in cohort-5% met definition of severe hypertension
 - 27% received treatment at goal, 18% received delayed treatment at 55% received no treatment
 - Factors associated with those who received appropriate treatment: Black or Hispanic race, <37 weeks
 - Factors associated with delay/treatment failure: severe BP overnight or postpartum

Opportunities for Improvement

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Original Research ajog.org

OBSTETRICS

Identification of factors associated with delayed treatment of obstetric hypertensive emergencies

Agata Kantrowicz, MD, Cassandra J. Healdman, DO, Tara A. Higgins, PA-C, Meredith B. Akerman, MS, Ashley Elsayed, BS, John C. Muscat, MD, Genevieve B. Sciarra, MD, Anthony M. Vintzileos, MD; Hye J. Ho, MD
American Journal of Obstetrics & Gynecology, AUGUST 2020

Aim: Identify barriers that lead to the delayed treatment of severe hypertension

- Retrospective cohort comparing women who received appropriate treatment versus those who did not
- Results
 - 52% did not receive timely treatment
 - 3.2 X as likely as those who received appropriate treatment to have a non-severe range blood pressure for their initial BP measurement
 - 2.7 X as likely as those who received appropriate treatment to have NO symptoms worrisome for preeclampsia with severe features
 - 2.7 x more likely have had the BP taken between the hours of 10 pm-6 am
 - White patients were 1.8 more likely to have delayed treatment
 - Concurrent symptoms of labor pains
 - 48% received timely treatment
 - More likely to be preterm at presentation
 - For every 1 week incremental increase in gestational age 9% increase risk of delaying treatment of HTN

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Postpartum Hypertension

- Persistent from intrapartum or antepartum
- Exacerbated by chronic condition state
- New Onset
- Nearly 1/3 of eclampsia occurs postpartum with 1/2 of those occurring more than 48 hours after delivery (Chames, et al. AJOG 2002; Kayem, et al 2011 Acta Obstet Gynecol Scand; Watson 1983 South Med J)
- Half of women who suffer a stroke in association with the diagnosis of preeclampsia do so postpartum (Martin, et al 2005 Obstet Gynecol)

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Postpartum Hypertension Management Goals

- Do not discharge until BP stable x 24 hours
 - Has there been an escalation of therapy?
 - Have symptoms re-presented that were resolved? Or new onset?
 - Is the regimen selected as simplified as possible?
- Treatment indicated for SBP >150 and/or DBP >100 mmHg on at least 2 occasions >4 hour apart
- Verbal and written instructions for recognition of signs/symptoms worrisome for worsening hypertension, development of preeclampsia
- Outpatient follow up
 - 48-72 hrs postpartum
 - 7-10 days postpartum
 - Individualized thereafter

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Innovation Text & Telehealth

Medical Complications of Pregnancy: Clinical Practice and Quality

A Postpartum Remote Hypertension Monitoring Protocol Implemented at the Hospital Level

Alison Hooperg, MD, Lena S. Levin, PhD, Beth A. Quinn, MD, Anna Binotok, MD, Joseph Larkin, MD, Richard H. Buge, MD, Andrew R. Watson, MD, and Hyegyun N. Simhan, MD
(Obstet Gynecol 2019;134:665-91)

Reducing Disparities Using Telehealth Approaches for Postdelivery Preeclampsia Care

ASHA ASHBY-GOLDENBERG, MD, MPH, and ASH FRENCH, MD
Department of Obstetrics & Gynecology, Maternal Child Health Research Center, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, PA, PA

PREECLAMPSIA, PREGNANCY, AND HYPERTENSION

Self-Management of Postnatal Hypertension

The SMAP-HT Trial


See Editorial Commentary, pp 296-297

Alexandra E. Cairns, Katherine L. Tucker, Paul Lawson, Lucy H. Mackillop, Mauro Santos, Camilo Valardo, Darío Salvi, Sam Mort, Jill Morrison, Lionel Tarasenko, Richard J. McManus, and on behalf of the SMAP-HT Investigators

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Goal: Perfect Care

- Continued engagement of leadership
- Continued engagement of multidisciplinary team
- Regularity of evaluation and collaborative case review
- On-boarding of new team members
- Prioritization of Key Programs



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Pregnancy is a Window to the Future



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ASCVD: Atherosclerotic Cardiovascular Disease

4 major areas

- Coronary Heart Disease: Myocardial infarction, angina pectoris, heart failure and coronary death
- Cerebral Vascular Disease: Stroke and TIA
- Peripheral Artery Disease including intermittent claudication
- Aortic Atherosclerosis and thoracic or abdominal aortic aneurysm

Leading cause of death WORLD WIDE
22% of deaths in US attributed to ASCVD

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Traditional Risk Factors

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Risk Enhancing Factors

- Family history of premature atherosclerotic disease
 - Men <55 y.o, Female <65 y.o
- Primary Hypercholesterolemia
- Metabolic Syndrome
- Chronic Kidney Disease: GFR 15-59 ml/min/1.73m²
- Chronic Inflammatory conditions
- History of premature menopause or pregnancy associated factors
- High risk race/ethnicity (Southeast Asians)
- Other lipid abnormalities: elevated lipoprotein (a) or apoB levels
- Other biomarkers: elevated CRP (>2 mg/L) or ankle brachial index <0.9

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Pregnancy Associated Risk Factors

- Hypertensive Disorders of Pregnancy
- Gestational diabetes
- Preterm delivery and delivery of a growth restricted fetus
- Placenta abruption
- Spontaneous pregnancy loss

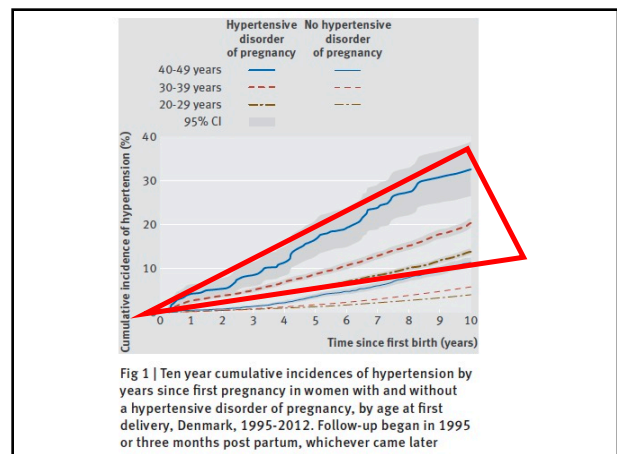
34

Risk of post-pregnancy hypertension in women with a history of hypertensive disorders of pregnancy: nationwide cohort study

Ida Behrens,¹ Saima Basit,¹ Mads Melbye,¹ Jacob A Lykke,² Jan Wohlfahrt,¹ Henning Bundgaard,³ Baskaran Thilaganathan,⁴ Heather A Boyd¹

- Nationwide registry based cohort study in Denmark
- More than 1 million women included from 1978-2012
 - Women with and without hypertension in pregnancy
- Study examined the timing and trajectory of post pregnancy hypertension risk

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Risk of post-pregnancy hypertension in women with a history of hypertensive disorders of pregnancy: nationwide cohort study

Ida Behrens,¹ Saima Basit,¹ Mads Melbye,¹ Jacob A Lykke,² Jan Wohlfahrt,¹ Henning Bundgaard,³ Baskaran Thilaganathan,⁴ Heather A Boyd¹

Findings

- 14-32% of women who had hypertensive disease in first pregnancy went on to have hypertension within a decade (compared to 4-11% of nonhypertensive women)
- Rates of post pregnancy hypertension in women with a hypertensive disorder in pregnancy were 12-25 x higher in the first year postpartum than normotensive women
- Rates were persistently more elevated and remained doubled for up to 20 years post delivery in women with hypertensive disease in pregnancy compared to women who did not have hypertension

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ORIGINAL RESEARCH

Annals of Internal Medicine

Hypertensive Disorders of Pregnancy and Maternal Cardiovascular Disease Risk Factor Development

An Observational Cohort Study

Jennifer J. Stuart, ScD; Lauren J. Tanz, ScD; Stacey A. Missmer, ScD; Eric B. Rimm, ScD; Donna Spiegelman, ScD; Tamara M. James-Todd, PhD; and Janet W. Rich-Edwards, ScD

- Nurses Health Study (NHS II)-prospective cohort study of 116K nurses age 25-42 in 1989
- 2009 Questionnaire self reporting pregnancy related hypertension (gestational and preeclampsia)
 - Excluded women with preexisting hypertension, stroke, MI, Type 1 & 2 diabetes or high cholesterol prior to pregnancy

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Table 1. Age-Standardized Characteristics of NHS II Participants, by Hypertensive Disorders in First Pregnancy*

Characteristic	Hypertensive Disorder Status		
	Normotension (n = 53 285 [90.8%])	Gestational Hypertension (n = 1699 [2.9%])	Preeclampsia (n = 3687 [6.3%])
Mean age at first birth (SD), y†	26.8 (4.5)	27.9 (4.7)	26.6 (4.4)
Mean age in 1989 (SD), y†	35.2 (4.6)	34.5 (4.7)	34.6 (4.6)
White, %	93	94	93
Maternal education >12 y, %	32	32	32
Paternal education >12 y, %	38	34	37
Strenuous physical activity at age 18-22 y, %			
Never	29	29	27
10-12 mo/y	11	11	11
Mean physical activity in 1989 (SD), METs/wk‡	26.7 (66.7)	24.5 (54.4)	25.9 (59.8)
Mean pregnancy body mass index (SD), kg/m²	21.7 (3.5)	23.1 (4.3)	22.8 (4.1)
Quintile of prepregnancy AHEI score, %			
Lowest (unhealthy)	20	22	21
Highest (healthy)	20	20	19
Pregnancy smoking status, %			
Never	68	69	68
Former	19	9	10
Current	22	21	22
Pregnancy alcohol intake, %			
None	26	27	28
<1 drink/wk	37	36	36
2-6 drinks/wk	29	29	28
≥1 drink/d	8	8	8
Pregnancy oral contraceptive use, %			
None	24	25	24
<2 y	24	24	25
2-3 y	22	21	21
≥4 y	29	30	30
Family history of chronic hypertension, %	51	62	59
Family history of diabetes, %	42	46	47
Final parity, %			
1	15	21	21
2	49	48	49
3	26	24	23
≥4	10	8	7

AHEI = Alternative Healthy Eating Index; MET = metabolic equivalent for task; NHS II = Nurses' Health Study II.
 * Polytomous percentages may not sum to 100 due to rounding.
 † Values are not age-adjusted.
 ‡ Calculated by frequency and duration of participation in several aerobic activities.

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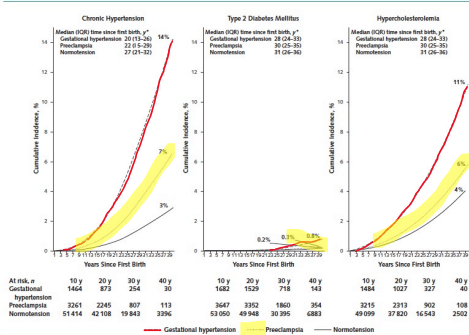
Table 2. HRs and 95% CIs for Hypertensive Disorders in First Pregnancy and Cardiovascular Disease Risk Factors*

CVD Risk Factor	Hypertensive Disorder Status		
	Normotension	Gestational Hypertension	Preeclampsia
Chronic hypertension			
Cases/person-years, n/N	16 610/1 459 370	979/25 568	1922/84 317
Excess cases per 10 000 person-years, n	-	161	122
Median age at development (IQR), y†	50 (45-54)	45 (40-50)	46 (40-51)
HR (95% CI)	1.00 (reference)	1.19 (1.08-1.30)	2.45 (2.14-2.77)
Model 1	1.00 (reference)	1.19 (1.08-1.30)	2.45 (2.14-2.77)
Model 2	1.00 (reference)	2.79 (2.61-2.97)	2.21 (2.10-2.32)
Type 2 diabetes mellitus			
Cases/person-years, n/N	3137/1 691 624	187/49 948	435/172 344
Excess cases per 10 000 person-years, n	-	19	20
Median age at development (IQR), y†	53 (48-57)	52 (47-56)	51 (46-56)
HR (95% CI)	1.00 (reference)	2.34 (1.84-2.98)	3.10 (1.98-4.74)
Model 1	1.00 (reference)	2.34 (1.84-2.98)	3.10 (1.98-4.74)
Model 2	1.00 (reference)	1.65 (1.42-1.91)	1.75 (1.58-1.93)
Hypercholesterolemia			
Cases/person-years, n/N	29 253/1 350 512	1074/38 045	2279/85 378
Excess cases per 10 000 person-years, n	-	66	50
Median age at development (IQR), y†	47 (40-53)	46 (40-52)	45 (38-52)
HR (95% CI)	1.00 (reference)	1.42 (1.24-1.63)	1.36 (1.08-1.69)
Model 1	1.00 (reference)	1.42 (1.24-1.63)	1.36 (1.08-1.69)
Model 2	1.00 (reference)	1.36 (1.28-1.45)	1.31 (1.25-1.36)

CVD = cardiovascular disease; HR = hazard ratio; IQR = interquartile range.
 * Model 1 was adjusted for age at first birth, age in 1989, race/ethnicity (African American, Latino, Asian, white [reference], or other), and years of parental education (<9 to 11, 12, 13 to 15, or ≥16 [reference]). Model 2 was also adjusted for strenuous physical activity at ages 18 to 22 y (never, 1 to 3 mo/y [reference], 4 to 6 mo/y, 7 to 9 mo/y, or 10 to 12 mo/y), pregnancy smoking status (never [reference], former, or current), pregnancy body mass index (<18.5, 18.5 to 24.9 [reference], 25 to 29.9, or ≥30 kg/m²), prepregnancy alcohol consumption (none [reference], <1 drink/wk, 2 to 6 drinks/wk, or ≥1 drink/d), quintile of prepregnancy Alternative Healthy Eating Index score (fifth quintile [reference] represented the healthiest diet category), pregnancy oral contraceptive use (never [reference], <2 y, 2 to 3 y, or ≥4 y), and family history of chronic hypertension (yes or no; chronic hypertension model only) and type 2 diabetes mellitus (yes or no; type 2 diabetes mellitus model only).
 † P < 0.001 from a global test of the difference in the distribution of age at CVD risk factor development between groups based on HDP status in the first pregnancy.

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Figure. Multivariable-adjusted cumulative incidence of chronic hypertension, type 2 diabetes mellitus, and hypercholesterolemia through 40 y since first birth, by hypertensive disorder in first pregnancy.



Curves were obtained at the mean and model values for the following continuous and categorical covariates, respectively: age at first birth (27 y), age in 1989 (35 y), race/ethnicity (white), parental education (12 y), strenuous physical activity at ages 18 to 22 y (1 to 3 mo per week), prepregnancy smoking status (never), prepregnancy body mass index (normal weight [18.5 to 24.9 kg/m²]), prepregnancy alcohol consumption (<1 drink per week), prepregnancy Alternative Healthy Eating Index score (third quintile), prepregnancy oral contraceptive use (not used), family history of chronic hypertension (present) (chronic hypertension model only), and family history of type 2 diabetes mellitus (absent) (type 2 diabetes mellitus model only). IQR = interquartile range.
 * P < 0.001 from a global test of the difference in the distribution of time to development of risk factors for cardiovascular disease between groups based on hypertensive disorder status in the first pregnancy.

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ORIGINAL RESEARCH

Annals of Internal Medicine

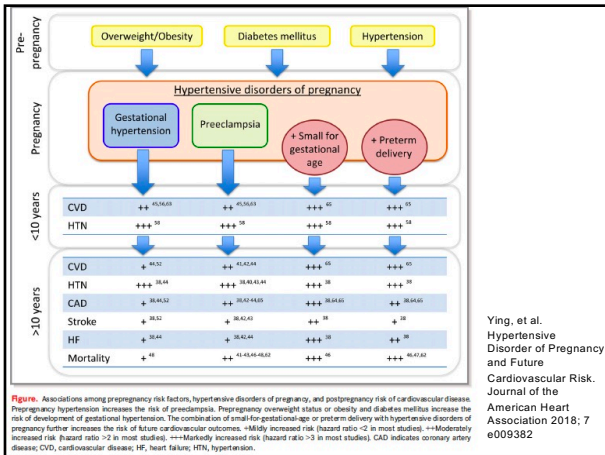
Hypertensive Disorders of Pregnancy and Maternal Cardiovascular Disease Risk Factor Development

An Observational Cohort Study

Jennifer J. Stuart, ScD; Lauren J. Tanz, ScD; Stacey A. Missmer, ScD; Eric B. Rimm, ScD; Donna Spiegelman, ScD; Tamara M. James-Todd, PhD; and Janet W. Rich-Edwards, ScD

- Compared to normotensive women, women with hypertensive disease of pregnancy:
 - 2-3 X increased risk of CHTN
 - 70% increase in risk Type II DM
 - 30% increase in risk of developing high cholesterol
- *rates persisted even when accounting for confounding factors-BMI, family history, smoking

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Proposed Mechanisms

- Suspected underlying endothelial dysfunction
 - Occurs during pregnancy and persists
- Stress incurred to the cardiovascular system during pregnancy “triggers” biologic response
- In susceptible women during their pregnancy is there a genetic environmental “phenotype” that predisposes to preeclampsia and cardiovascular disease later in life?

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Recommendations

- Closer long term follow up
- Lifestyle modifications to better manage risk factors for cardiovascular disease
 - Healthy weight
 - Exercise
 - Diet
 - Smoking cessation

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

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Physicians' Knowledge of Future Vascular Disease in Women with Preeclampsia

Brett Young, Michele R. Hacker & Sarosh Rana

To cite this article: Brett Young, Michele R. Hacker & Sarosh Rana (2012) Physicians' Knowledge of Future Vascular Disease in Women with Preeclampsia, Hypertension in Pregnancy, 31:1, 50-58, DOI: 10.3109/10641955.2010.544955

To link to this article: <https://doi.org/10.3109/10641955.2010.544955>

- Web based survey at Beth Israel Deaconess Medical Center
 - 295 resident and attending internists
 - 108 resident and attending Ob-Gyns
 - Surveys were identical except for type of practice and on the Ob-Gyn survey a question that referred to ACOG
 - 40% response rate for Internists
 - 49% response rate for Ob-Gyns

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Findings

Physicians' Knowledge of Future Vascular Disease in Women with Preeclampsia

Brett Young, Michele R. Hacker & Sarosh Rana

To cite this article: Brett Young, Michele R. Hacker & Sarosh Rana (2012) Physicians' Knowledge of Future Vascular Disease in Women with Preeclampsia, Hypertension in Pregnancy, 31:1, 50-58, DOI: 10.3109/10641955.2010.544955

To link to this article: <https://doi.org/10.3109/10641955.2010.544955>

- 95% of internists routinely counsel of CVD risk reduction compared to 70% of ObGyns
- Only 5% of internists and 42% of ObGyns included preeclampsia as a part of the medical history
 - 9% of the internists counseled women about their increased CVD risk related to preeclampsia and 38% of ObGyns

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Cardiology and Therapy OPEN ACCESS PEER REVIEWED SUMMARY SLIDE

Why carry out this study?

- Adverse pregnancy outcomes (APOs) are associated with risk of long-term cardiovascular disease (CVD). However, how awareness of such association varies by specialties is unknown.

What did the study ask? / What was the hypothesis of the study?

- We assessed awareness of APO and CVD risk in varying specialties via a voluntary survey with the hypothesis that awareness would vary by specialty type.

What were the study outcomes/conclusions?

- Providers from all specialties reported varying degrees of routinely screening their female patients for CVD risk factors, with cardiologists screening most frequently (56% every women and 31% often).
- Only half of the IM and FM providers acknowledged awareness of the association between APOs and CVD risk in women compared with the vast majority of providers in the fields of Ob-Gyn and cardiology.
- The majority of providers amongst IM, FM and cardiology did not ask about APOs and lacked the knowledge of how often to appropriately screen for CVD risk factors associated with APOs.

This summary slide represents the opinions of the authors. For a full list of declarations, including funding and author disclosure statements, please see the full text online. © The authors, CC-BY-NC 2021.

Adis Variations in Awareness of Association Between Adverse Pregnancy Outcomes and Cardiovascular Risk by Specialty. Gosthmi, V. et al. Cardiol. Ther. 2021; 10:1007/s40119-021-00220-y

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Final Thoughts

Hypertensive disease of pregnancy, and other adverse pregnancy outcomes are important risk factors for long term maternal cardiovascular disease and mortality

- Hypertension
- Stroke
- Coronary Artery Disease
- Stroke
- Heart Failure
- Mortality

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Final Thoughts: Management of Hypertensive Disease of Pregnancy

- Structured and consistent guidelines for management of high blood pressure
- Structured and consistent guidelines to aid in accurate diagnosis
- Recommendations for fetal evaluation and monitoring
- Recommendations for delivery timing, immediate postpartum management and ongoing follow up

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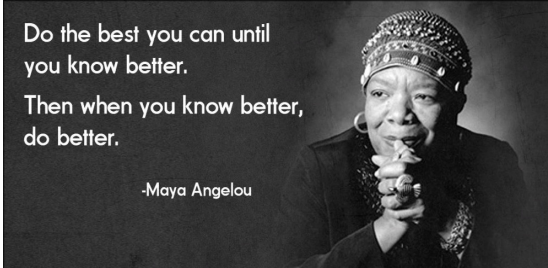
Final Thoughts: Preventative Care

- Educate women about future risk of CVD related to hypertensive disease of pregnancy (and adverse pregnancy outcomes)
- Change intake forms to include questions about hypertension in pregnancy as a "trigger" to recognizing this as a CVD risk factor or future pregnancy risk factor
- Share notes with PCPs/Internists that have advice for continued preventative health care strategies for women who have had hypertensive disease of pregnancy

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Do the best you can until you know better.
Then when you know better, do better.

-Maya Angelou



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