



**Don't Stay at the Heartbreak Hotel:
*Avoiding Catastrophic Cardiac Outcomes in
Pregnant and Postpartum Women***

March 1st, 2022 2-3p

Maternal Updates



Next Maternal Webinar April 5th

- Topic: *GaPQC Transition to REDCap for Data Reporting & Severe Hypertension Time to Treatment (Augusta University Medical Center)*

Maternal Data Reporting

- Q1 2022 (Jan-March) due by April 31st
 - NEW Data Reporting via REDCap (new process review on April 5th webinar)
- Q4 2021 Hospital Reports uploaded to Teams

Save-the-Date: GaPQC Annual Meeting October 13th and 14th

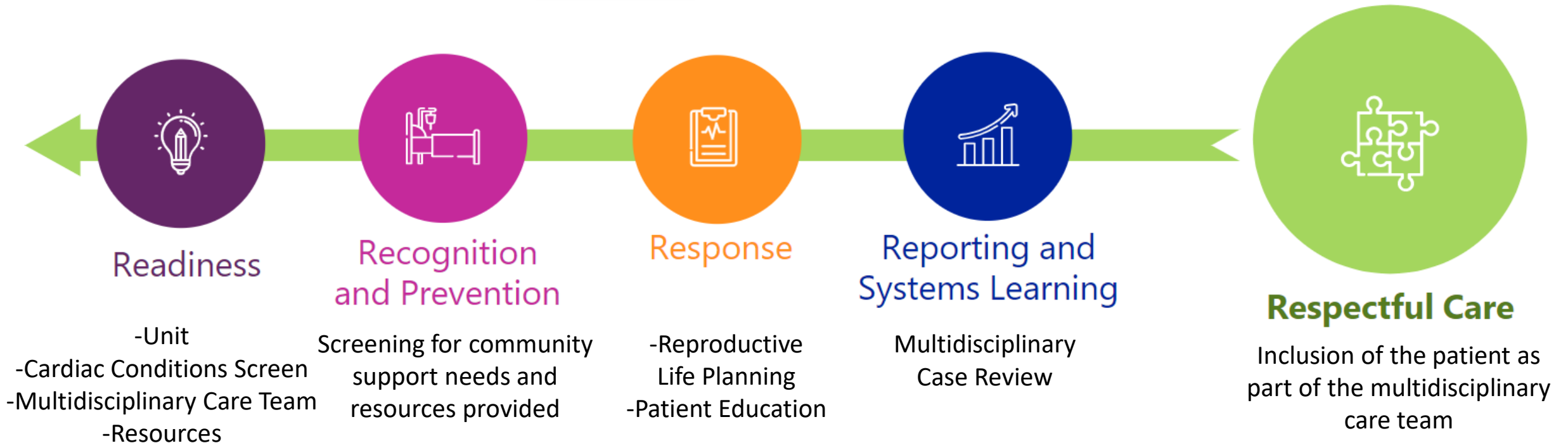


ALLIANCE FOR INNOVATION
ON MATERNAL HEALTH

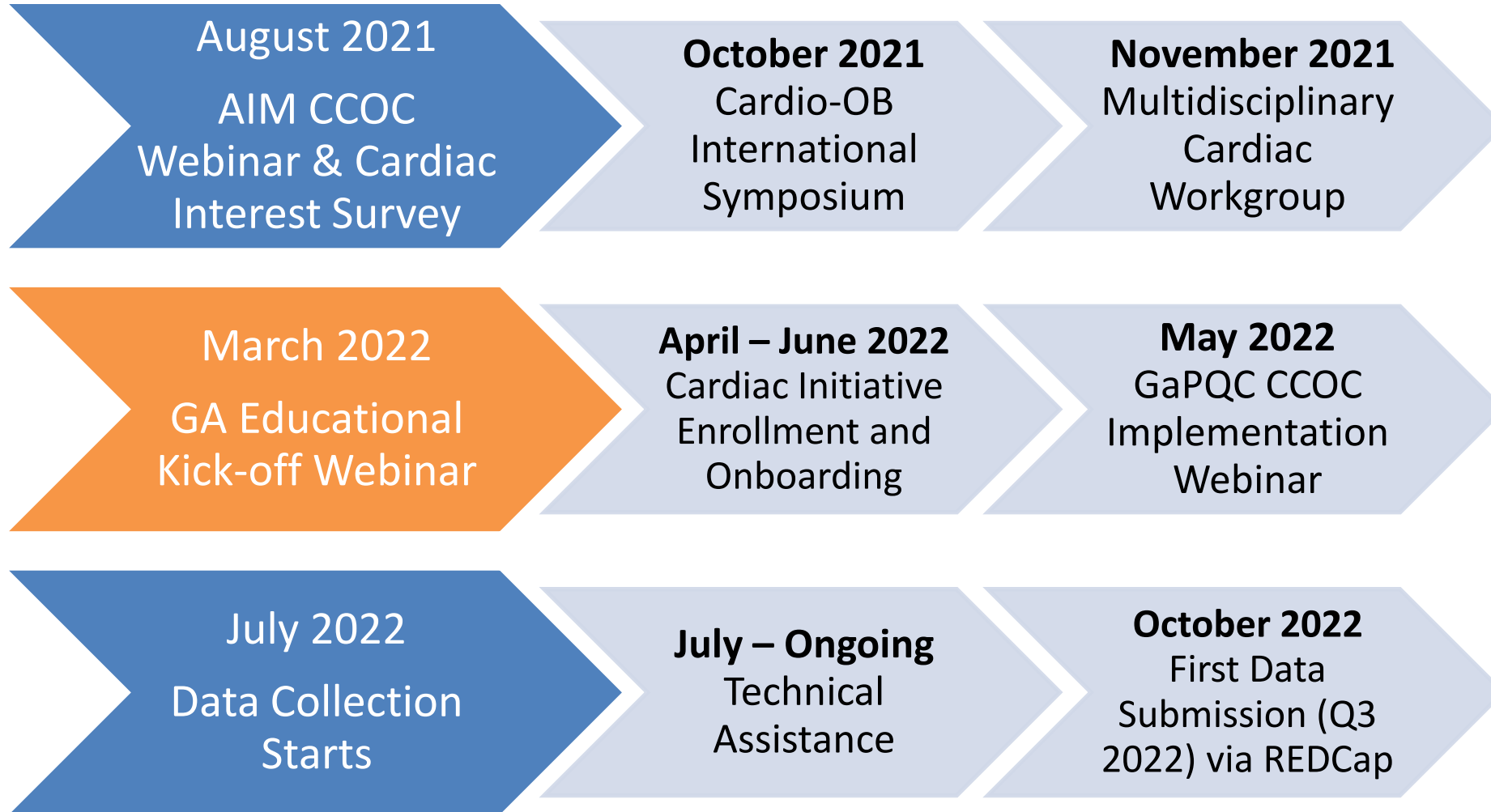


**Cardiac Conditions
in Obstetrical Care**

AIM Bundle Components



Cardiac Initiative Timeline



Cardiac Workgroup



Maternal Fetal Medicine
Obstetrics and Gynecology
Cardiology
Midwifery
Family Medicine
Emergency Medicine
Anesthesiology
Labor and Delivery
Maternal Outreach Education



SUBGROUPS

Clinician and Patient
Education

Intentional Cardiac
Screening

Acute Management of
the Cardiac Patient in
Low Resource Settings

Consultation &
Referral



CCOC Engagement Opportunities



Active Improvement

- ✓ Identify project champions and demonstrate facility support
- ✓ Complete Readiness Assessment
- ✓ Quarterly data submission via REDCap
- ✓ Receive quarterly hospital reports
- ✓ Improvement Coaching Support



Learning Collaborative

- ✓ Join monthly webinars, annual meeting
- ✓ No data submission
- ✓ No hospital reports
- ✓ No Improvement Coaching Support

Active Engagement Details



At minimum:

- Attend GaPQC Learning Sessions
- Submit a Quality Improvement (QI) Report Out, showing work related to implementing Key Interventions
- Complete an Initiative Specific Survey every 6 months
- Submit at least one quarter's worth of process & structure measure data during a 12- month period
- Communicate and celebrate your team's impact within your hospital and with the collaborative

Cardiac Resources on MS Teams



GP **Cardiac Conditions** Posts Files Wiki +

+ New ▾ ↑ Upload ▾ ↻ Sync 🔗 Copy link ↓ Download ⋮

Cardiac Conditions

📄 Name ▾

- 📁 Additional Resources
- 📁 AIM CCOC Patient Safety Bundle
- 📁 CMQCC Cardiac Resources
- 📁 Data and Reporting
- 📁 Maternal Cardiac Conditions Working Group



Cardiac Conditions in Obstetrical Care Interest Form



[CLICK HERE](#) to Complete the Survey

Please contact Lisa Ehle lisa.ehle@dph.ga.gov if
interested in joining the cardiac workgroup



Afshan Hameed, MD
Clinical Professor, Obstetrics & Gynecology
Clinical Professor of Cardiology
University of California, Irvine
School of Medicine



CARDIAC CONDITIONS IN PREGNANCY: HOW TO IMPROVE MATERNAL OUTCOMES?

Afshan B. Hameed, MD, FACC, FACOG
Professor, Maternal Fetal Medicine & Cardiology
Director Obstetrics & Quality and Safety
University of California, Irvine



Georgia Perinatal Quality Collaborative. March 1st , 2022

Disclosures

- I have no financial relationships to disclose

MATERNAL MORTALITY

AIM CCOC BUNDLE

UNIVERSAL CVD RISK ASSESSMENT

MATERNAL MORTALITY

WHAT?

- What is the leading cause of maternal mortality?

WHO?

- Who is at risk?
- Are there risk factors?

WHEN?

- When does CVD related mortality occur?
- What is the timeline?

Trends in pregnancy-related mortality in the United States: 1987-2017



■ Pregnancy-related mortality ratio

CDC.gov

Causes of pregnancy-related death in the United States: 2014-2017

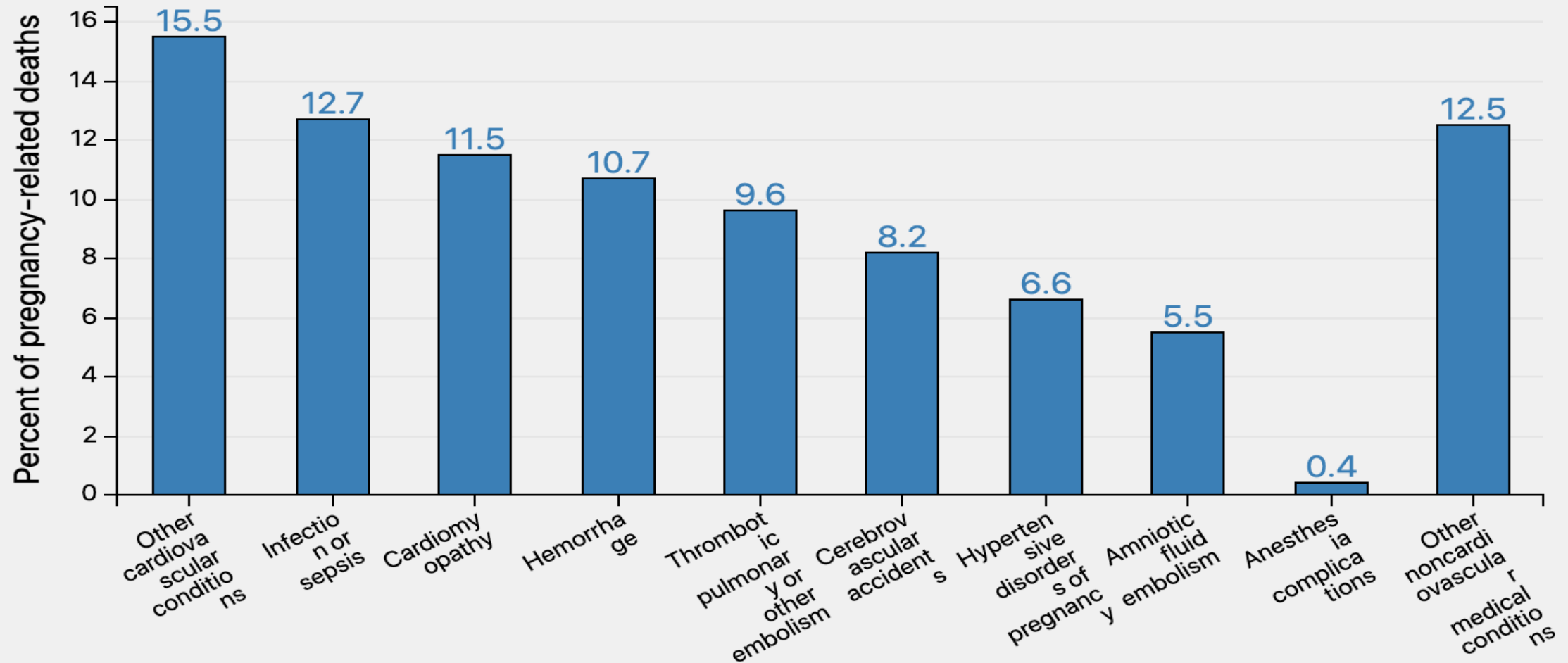


Figure 1: Maternal Mortality Ratio in U.S. and California, 1999-2016

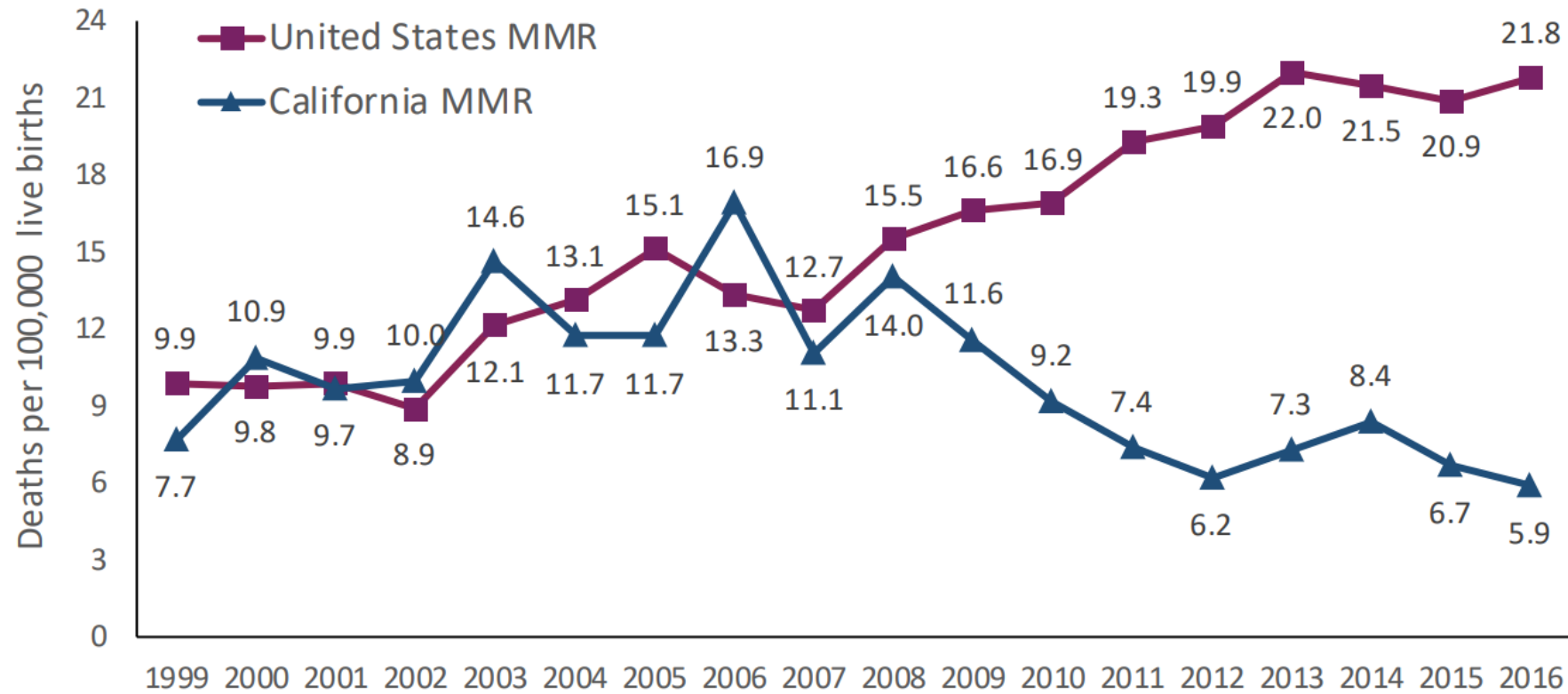
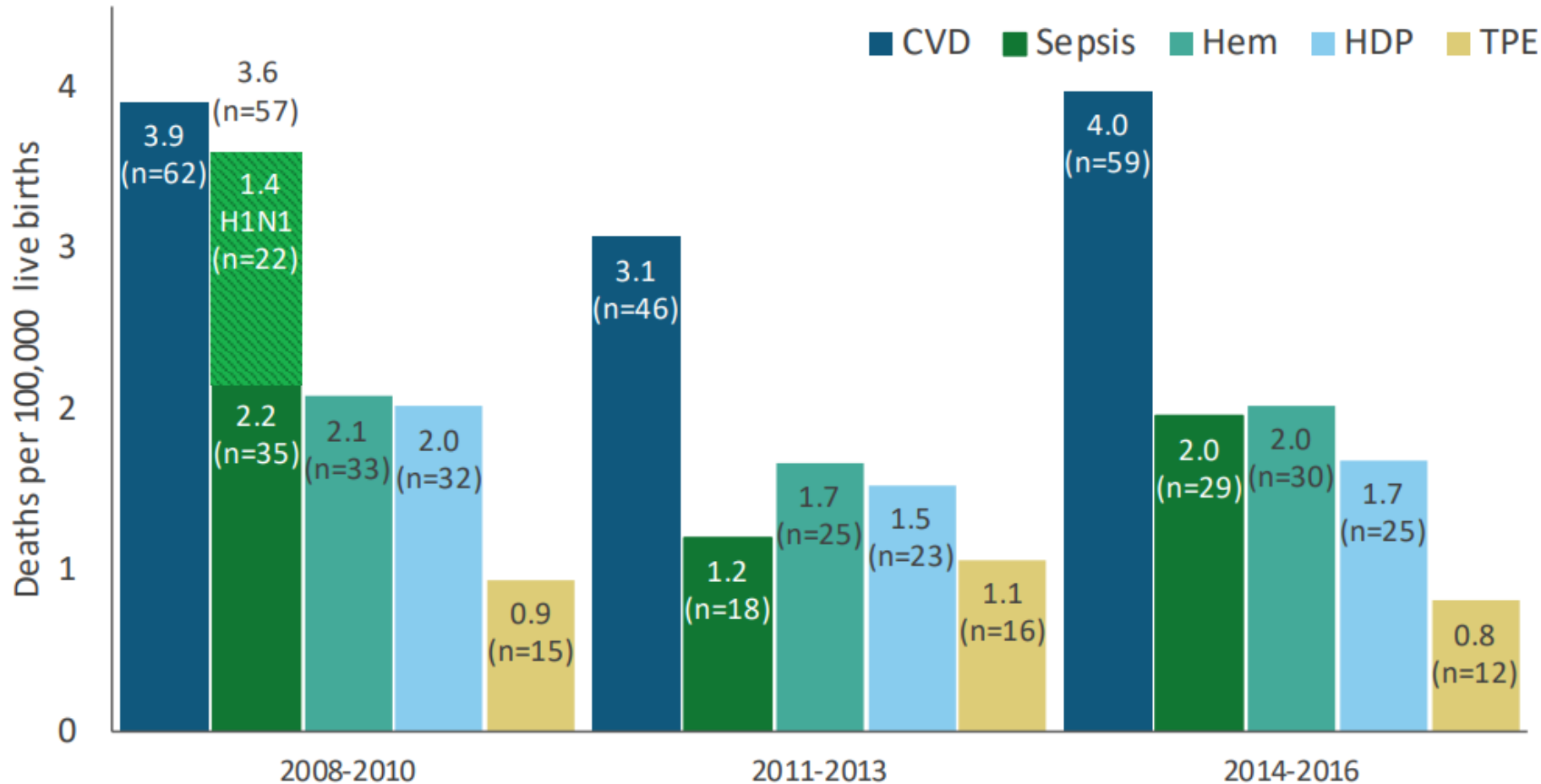


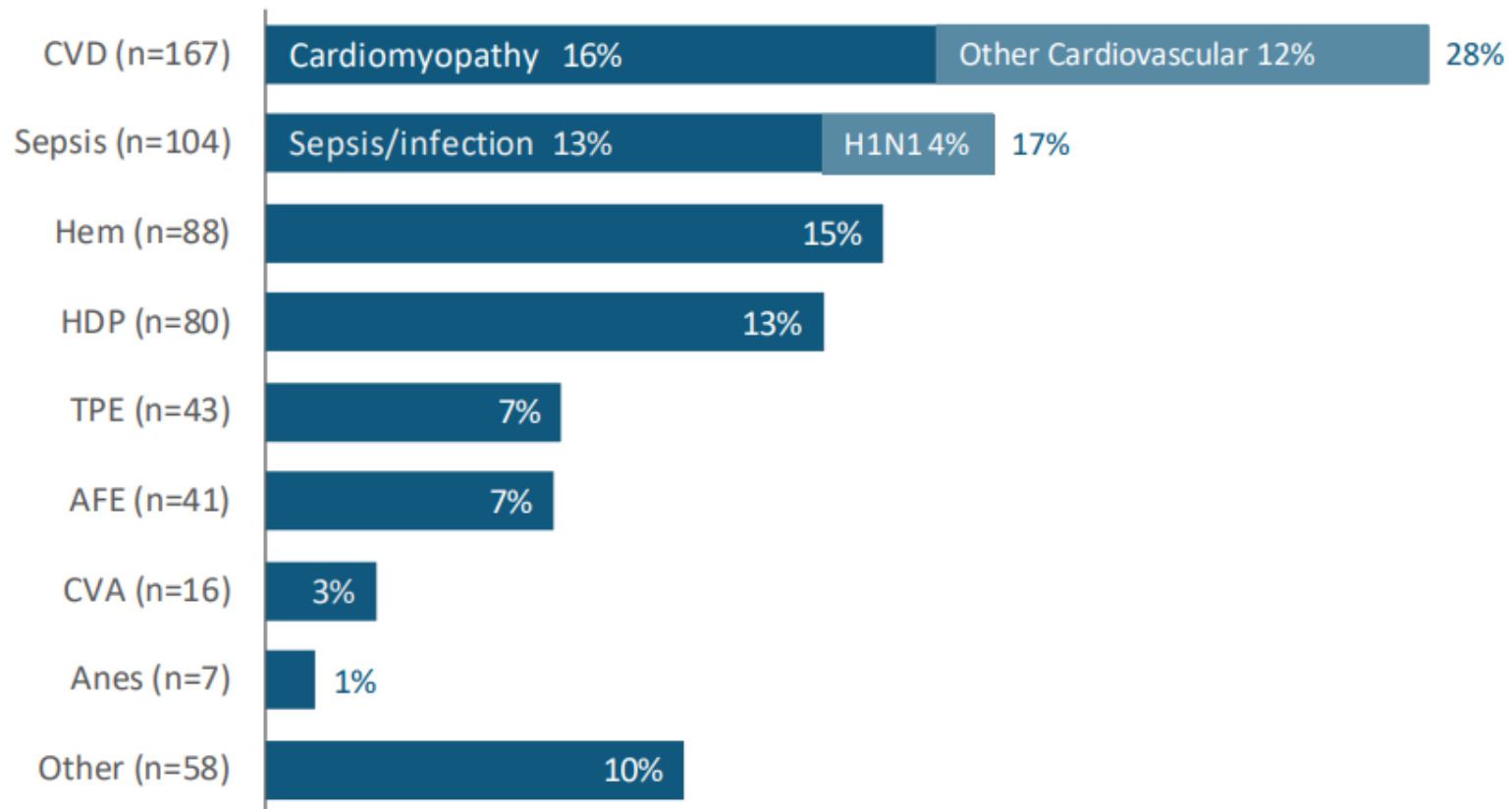
Figure 5: Pregnancy-Related Mortality Ratio by Cause, California 2008-2016



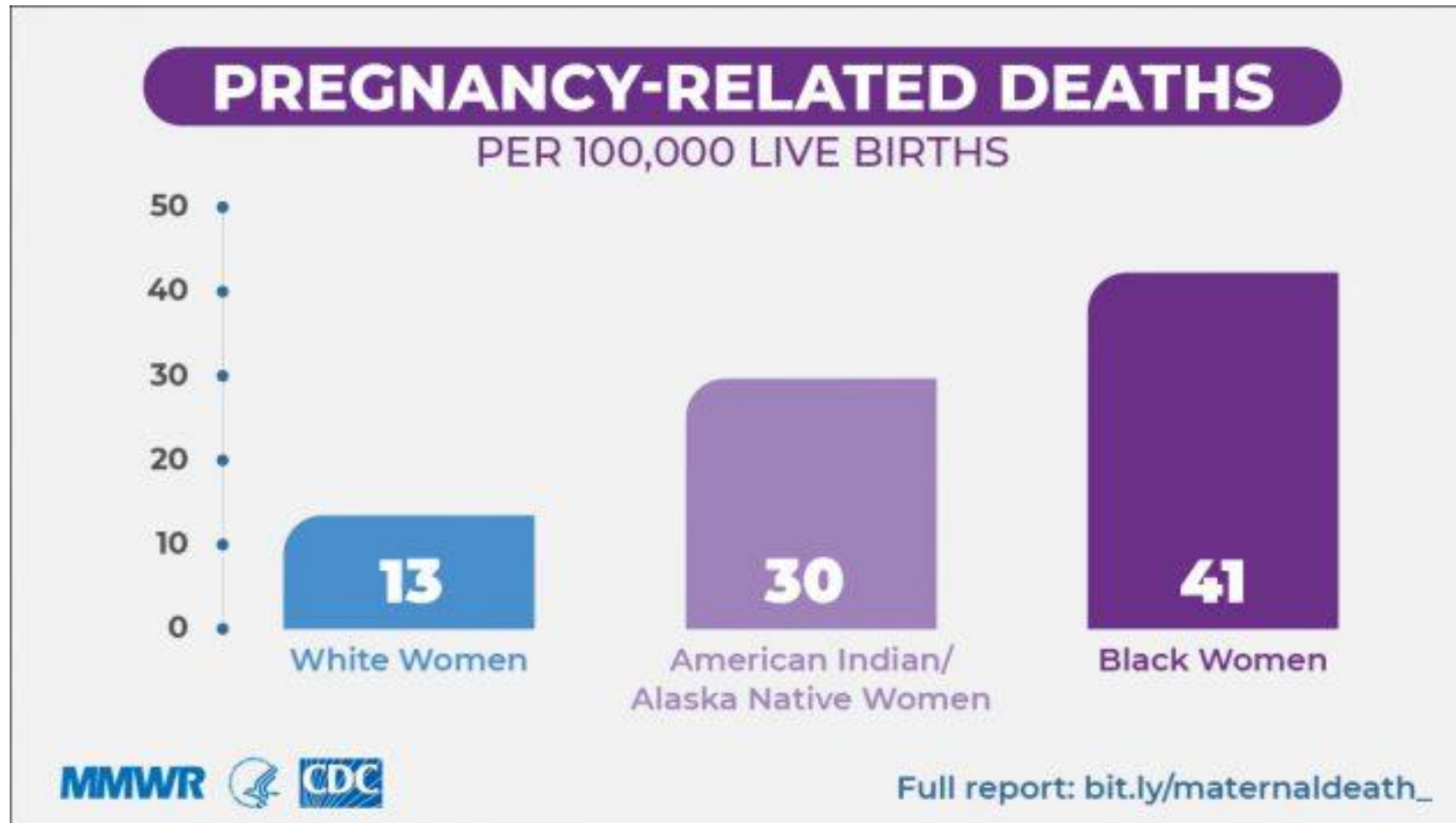
California Pregnancy Mortality Surveillance System (CA-PMSS)
Pregnancy Related Deaths 2008 - 2016



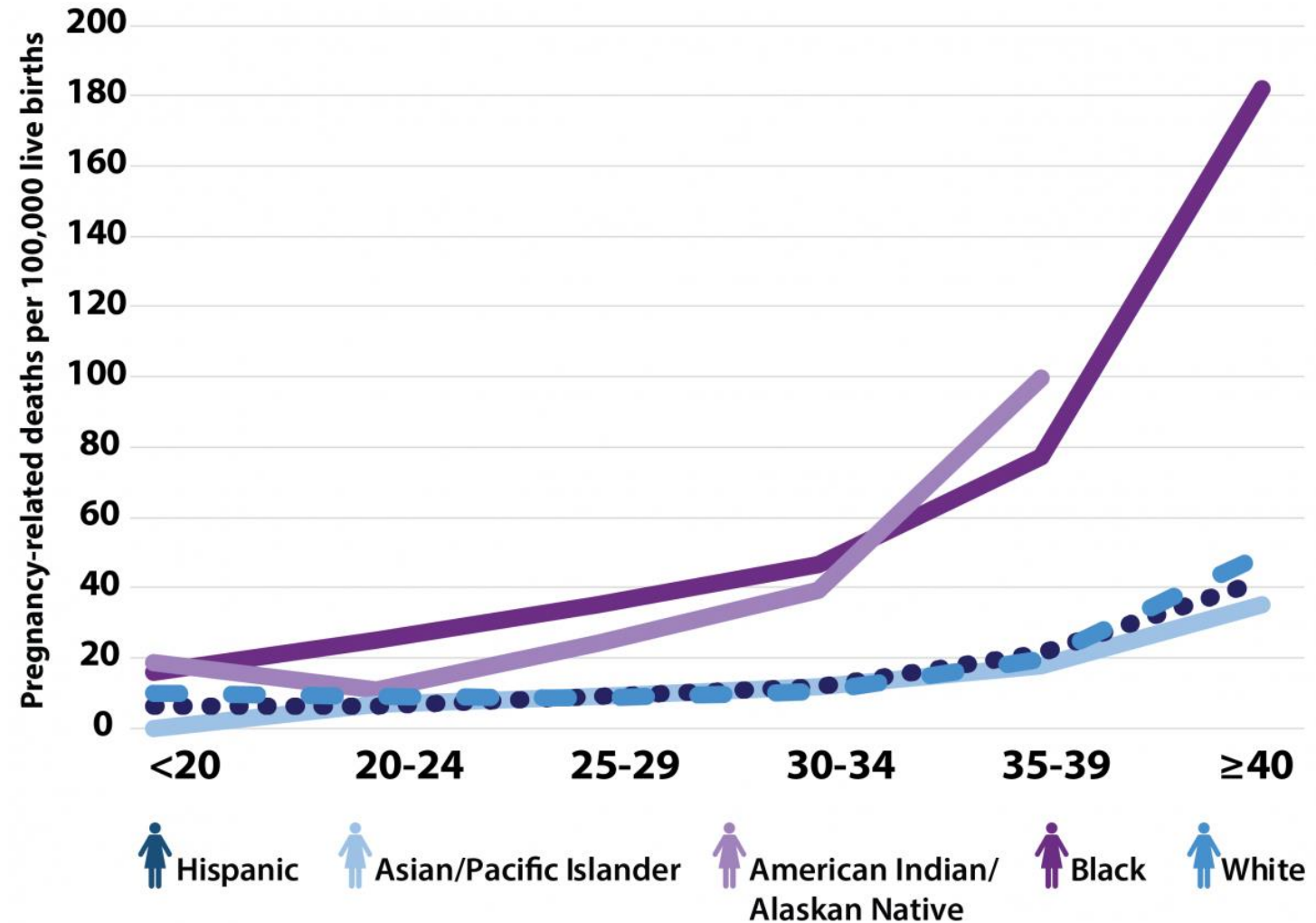
Figure 4: Pregnancy-Related Deaths by Cause, California 2008-2016 (N=608)



CDC 2007 - 2016



CDC 2007 - 2016



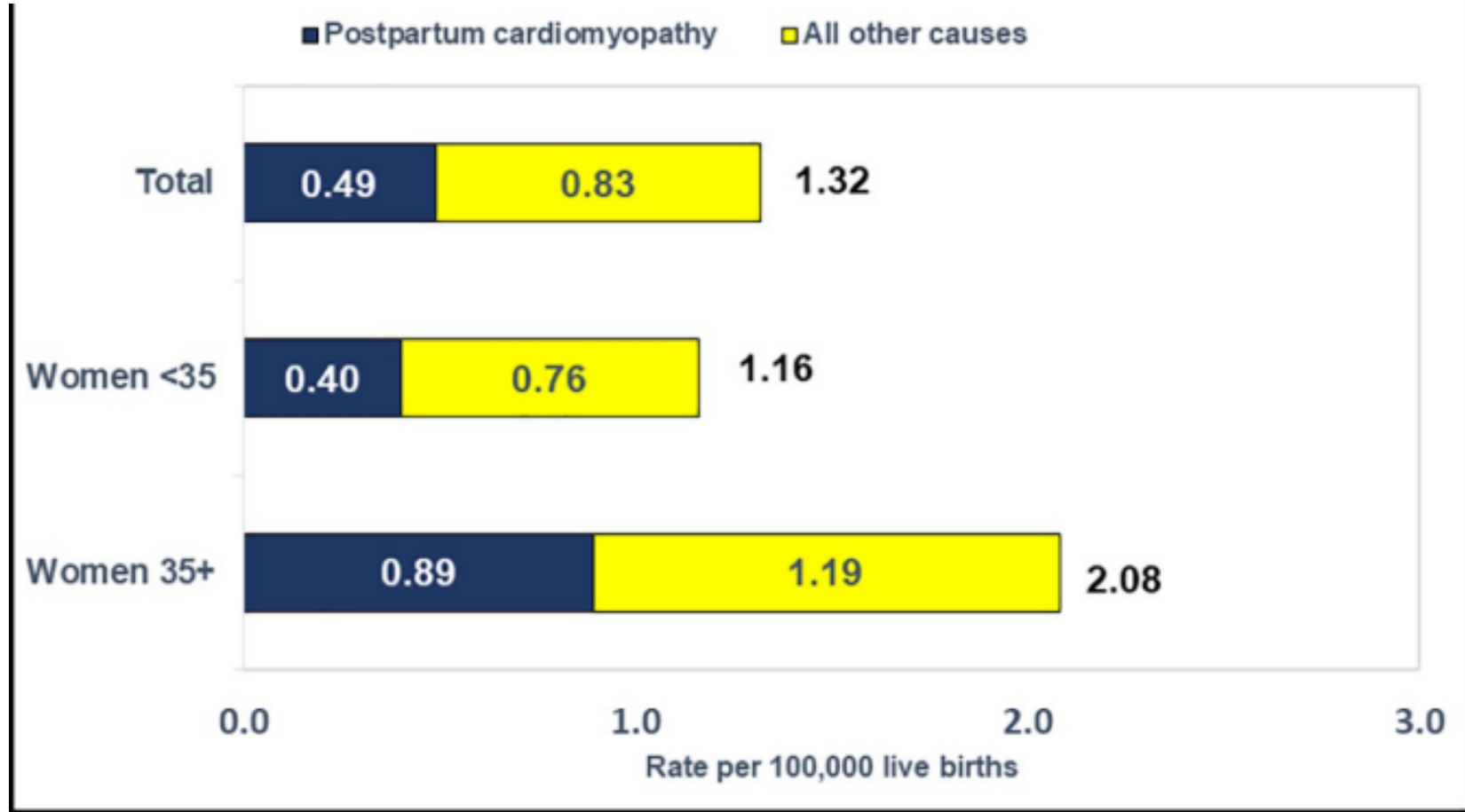
Causes contributing to the excess maternal mortality risk for women 35 and over, United States, 2016–2017

Marian F. MacDorman^{1*}, Marie Thoma², Eugene Declercq³, Elizabeth A. Howell⁴

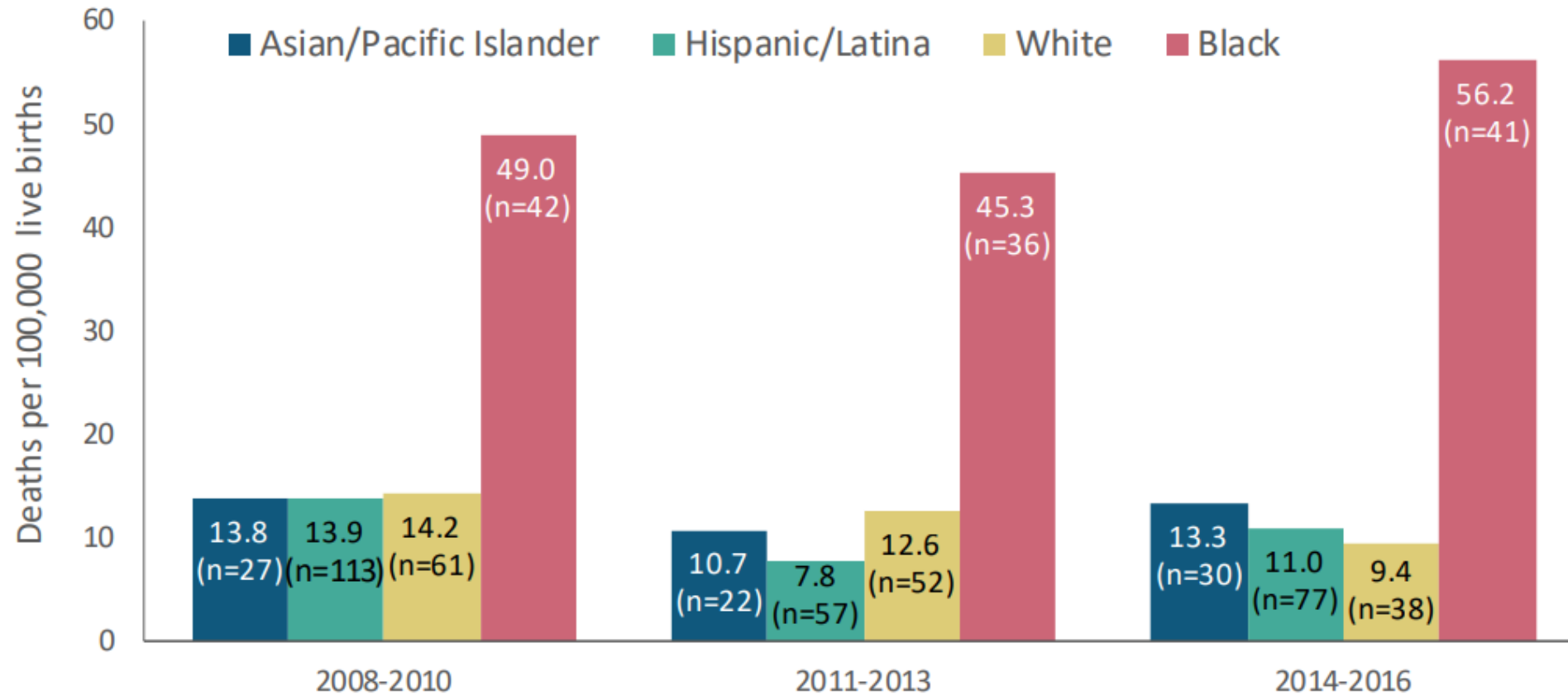
¹ Maryland Population Research Center, University of Maryland, College Park, MD, United States of America, ² Department of Family Science, University of Maryland School of Public Health, College Park, MD, United States of America, ³ Department of Community Health Sciences, Boston University School of Public Health, Boston, MA, United States of America, ⁴ Department of Obstetrics and Gynecology, University of Pennsylvania, Philadelphia, PA, United States of America

2021

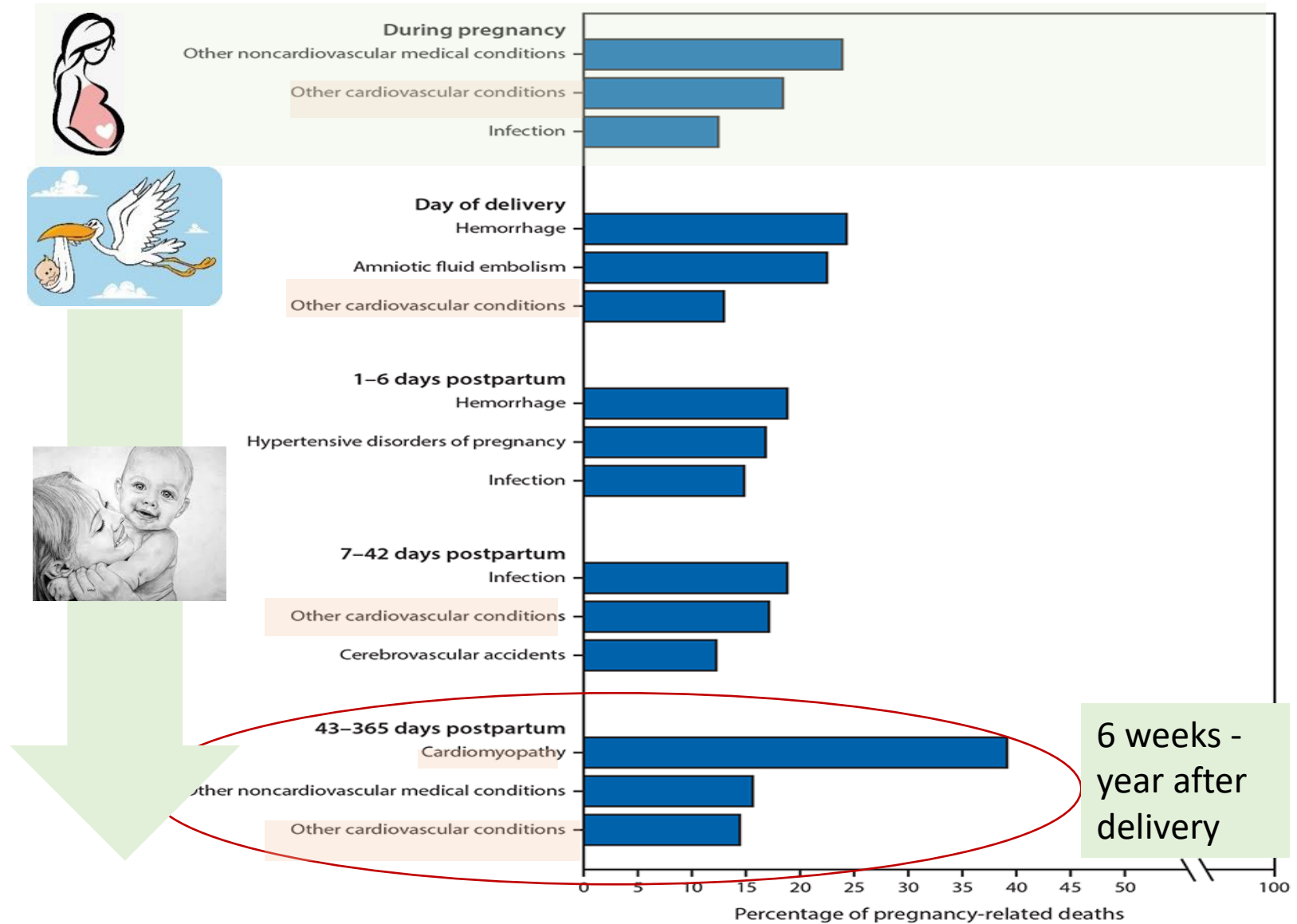
Late Maternal Mortality Rates for PPCMP and all other causes



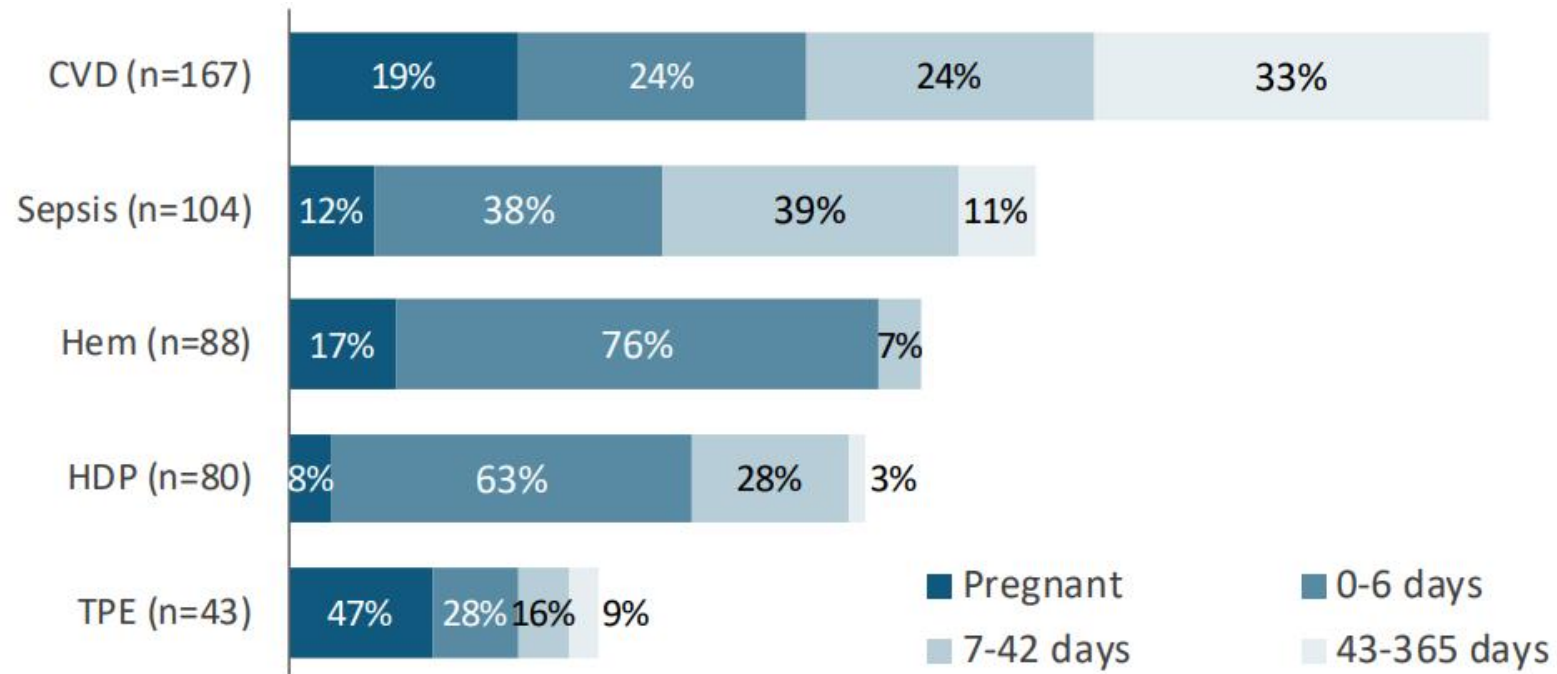
Pregnancy-Related Mortality Ratio by Race/Ethnicity, California 2008 - 2016



CAUSES OF MATERNAL MORTALITY IN THE UNITED STATES 2011-2015



Pregnancy-Related Deaths by Cause + Timing to Death, California 2008 – 2016 n=608



Timing of Diagnosis and Death

■ Timing of CVD Diagnosis (n=64)

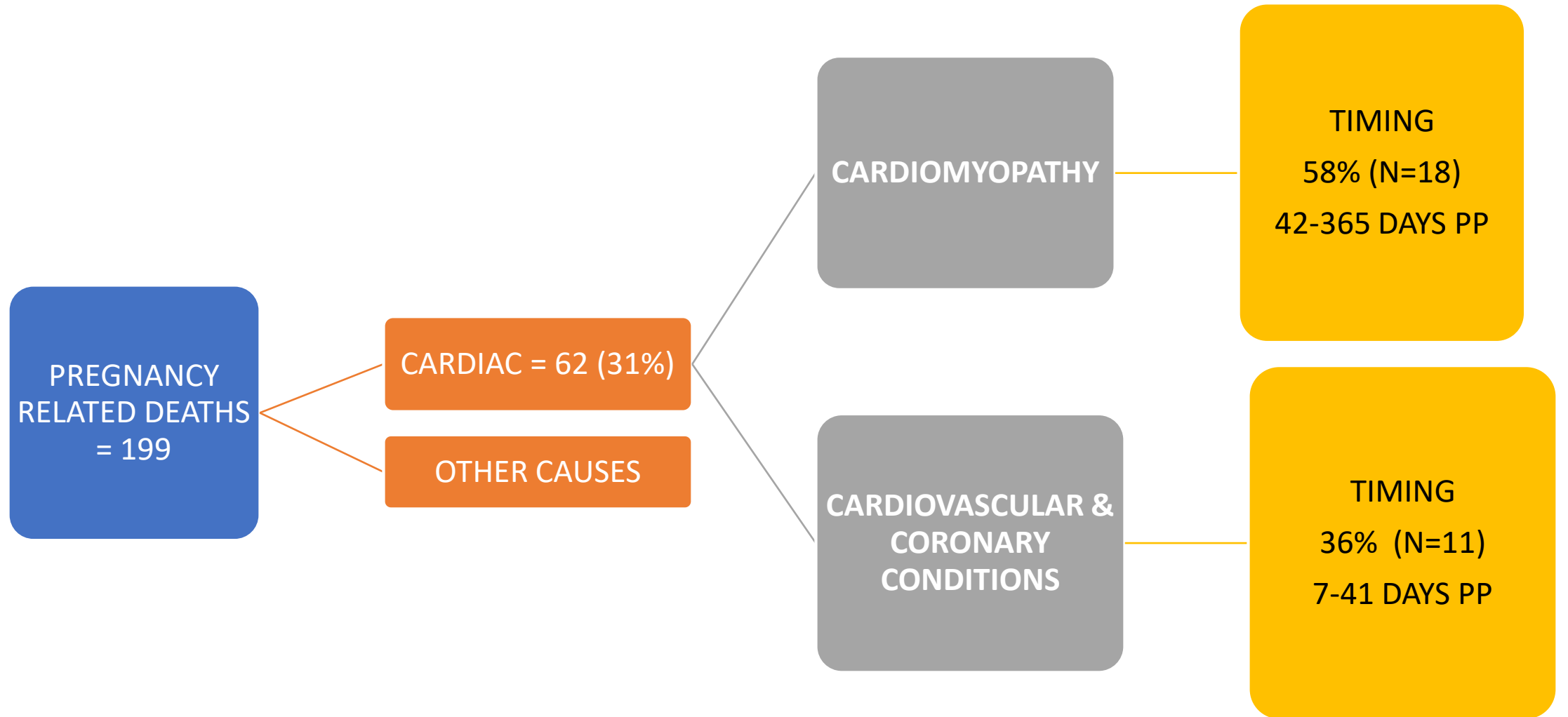


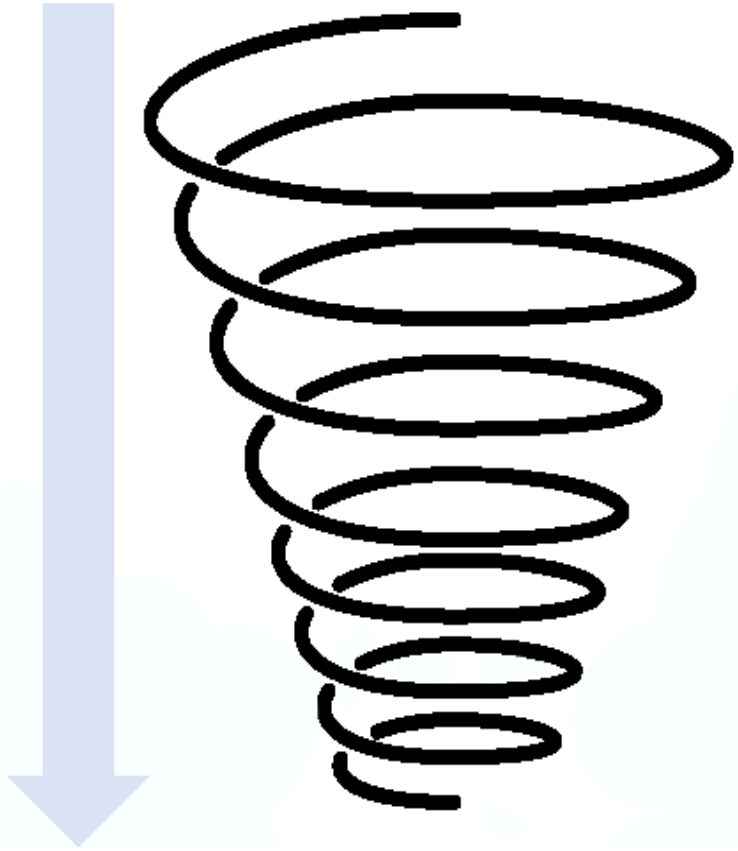
- Preexisting (prior to pregnancy)
- Prenatal period
- At labor and delivery
- Postpartum period
- Postmortem

■ Timing of Death

- 30% of all CVD deaths were >42 days from birth/fetal demise vs. 7.3% of non CVD pregnancy-related deaths
- Driven by Cardiomyopathy deaths, with 42.9% deaths >42 days

Georgia MMRC: 2012 - 2017





DEATH

- Heart failure
- Arrhythmia



Types of Cardiovascular Disease



KNOWN CARDIOVASCULAR
DISEASE

PREVIOUSLY UNKNOWN OR NEW
ONSET CARDIOVASCULAR DISEASE

Presentation of Women with CVD



Abnormal physical exam findings

- HTN \geq 140/90 (64%)
- HR \geq 120 (59%)
- Crackles, S3 or gallop rhythm (44%)
- O₂ \leq 90% (39%)

IMPROVING HEALTH CARE RESPONSE TO CARDIOVASCULAR DISEASE IN PREGNANCY AND POSTPARTUM: A CALIFORNIA QUALITY IMPROVEMENT TOOLKIT

The CVD Toolkit was developed by CMQCC at Stanford University under contract with CDPH with funding from federal Title V MCH Block grant

CMQCC Cardiovascular Disease Toolkit

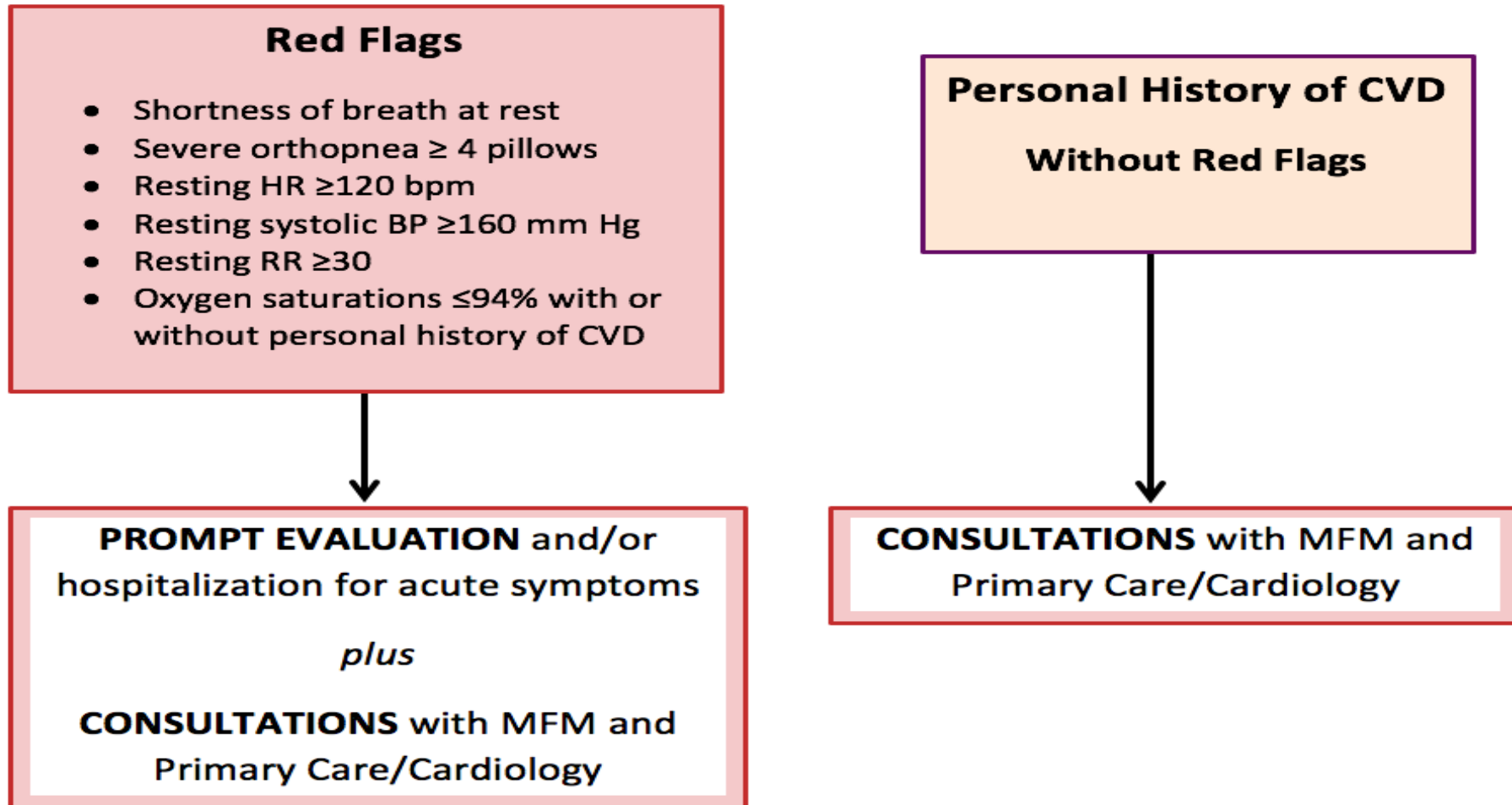
ALGORITHM VALIDATED IN 64 CVD DEATHS

**Detection rate 93% in symptomatic cases
Identified as **screen-positive** or high risk for CVD**

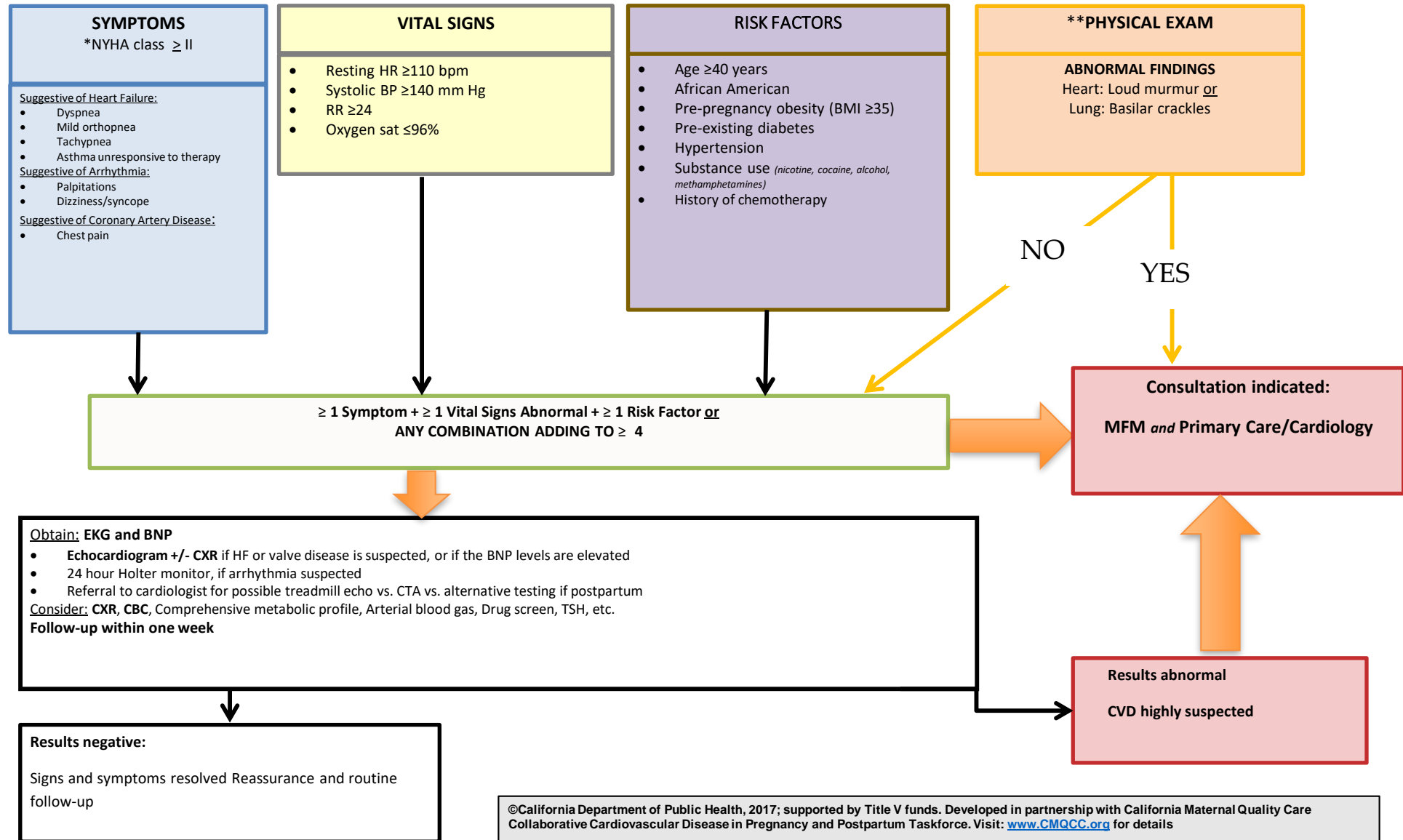
Hameed, AB, Morton, CH and A Moore. Improving Health Care Response to Cardiovascular Disease in Pregnancy and Postpartum Developed under contract #11-10006 with the California Department of Public Health, Maternal, Child and Adolescent Health Division. Published by the California Department of Public Health, 2017.

©California Department of Public Health, 2017; supported by Title V funds. Developed in partnership with California Maternal Quality Care Collaborative Cardiovascular Disease in Pregnancy and Postpartum Taskforce. Visit: www.CMQCC.org for details

CVD Assessment Algorithm for Pregnant and Postpartum Women



ALGORITHM 2. (No Red Flags and/or no personal history of CVD, and hemodynamically stable)



Cardiac Conditions in Obstetrical Care (CCOC)

<https://safehealthcareforeverywoman.org/aim/patient-safety-bundles/maternal-safety-bundles/cardiac-conditions-in-obstetrical-care/>



Defining Cardiac Conditions

*For the purpose of this Bundle, **cardiac conditions** refer to disorders of the cardiovascular system which may impact maternal health*

Defining Cardiac Conditions

- Congenital heart disease
- Cardiac valve disorders
- Cardiomyopathies
- Arrhythmias
- Coronary artery disease
- Pulmonary hypertension
- Aortic dissection

CCOC bundle elements: 5 Rs



Readiness- Every Unit

- Train all obstetric care providers to perform a basic Cardiac Conditions Screen.
- Establish a protocol for **rapid identification of potential pregnancy-related cardiac conditions in all practice settings to which pregnant and postpartum people may present.**
- Develop a patient education plan based on the pregnant and postpartum person's risk of cardiac conditions.
- Establish a multidisciplinary **"Pregnancy Heart Team"** or consultants appropriate to their facility's designated
- **Maternal Level of Care** to design coordinated clinical pathways for people experiencing cardiac conditions in pregnancy and the postpartum period.
- Establish coordination of appropriate **consultation, co-management and/or transfer** to appropriate level of maternal or newborn care.
- Develop trauma-informed protocols and training to address health care team member biases to enhance quality of care.
- Develop and maintain a set of **referral resources and communication pathways** between obstetric providers, community-based organizations, and state and public health agencies to enhance quality of care.*

Recognition & Prevention

- Obtain a **focused pregnancy and cardiac history in all care settings, including emergency department, urgent care, and primary care.**
- In all care environments assess and document if a patient presenting is pregnant or has **been pregnant within the past year.**
- Assess if escalating warning signs for an imminent cardiac event are present.
- Utilize standardized cardiac risk assessment tools to identify and stratify risk.
- Conduct a risk-appropriate work-up for cardiac conditions to establish diagnosis and implement the initial management plan.
- Screen each person for condition associated risk factors and provide linkage to community services and resources.*

Response – Every Event

- **Facility-wide standard protocols with checklists and escalation policies for management of cardiac symptoms.**
- Facility-wide standard protocols with checklists and escalation policies for management of people with known or suspected cardiac conditions.
- **Coordinate transitions of care** including the discharge from the birthing facility to home and transition from postpartum care to ongoing primary and specialty care.
- Offer reproductive life planning discussions and resources, including access to a full range of contraceptive options in accordance with safe therapeutic regimens. *
- Provide patient education focused on general life-threatening postpartum complications and early warning signs, including instructions of who to notify if they have concerns, and time and date of a scheduled postpartum visit.

Reporting Systems Learning – Every Unit

- For pregnant and postpartum people at high risk for a cardiac event, establish a culture of **multidisciplinary planning, admission huddles and post-event debriefs**.
- Perform multidisciplinary reviews of serious complications (e.g. ICU admissions for other than observation) to identify systems issues.
- **Monitor outcomes and process data** related to cardiac conditions, with disaggregation by race and ethnicity due to known disparities in rates of cardiac conditions experienced by Black and Indigenous pregnant and postpartum people.

Respectful Care- Every Unit, Every Provider, Every Team Member

- **Screen for structural and social drivers of health** that might impact clinical recommendations or treatment plans and provide linkage to resources that align with the pregnant or postpartum person's health literacy, cultural needs, and language proficiency.
- **Engage in open, transparent, and empathetic communication** with pregnant and postpartum people and their identified support network to understand diagnoses, options, and treatment plans. Include each pregnant or postpartum person and their identified support network as respected members of and contributors to the multidisciplinary care team.*

READINESS

RECOGNITION & PREVENTION

RESPONSE






REPORTING/SYSTEMS LEARNING

RESPECTFUL, EQUITABLE, AND SUPPORTIVE CARE

Every Unit/Provider/Team Member

- Screen for structural and social drivers of health that might impact clinical recommendations or treatment plans and provide linkage to resources that align with the pregnant or postpartum person's health literacy, cultural needs, and language proficiency.
- Engage in open, transparent, and empathetic communication with pregnant and postpartum people and their identified support network to understand diagnoses, options, and treatment plans. Include each pregnant or postpartum person and their identified support network as respected members of and contributors to the multidisciplinary care team.*

Quick Links

-  [Printable Bundle PDF](#)
-  [Cardiac Conditions in Obstetrical Care Element Implementation Details PDF](#)
-  [Cardiac Conditions in Obstetrical Care Core Data Collection Plans PDF](#)
-  [Cardiac Conditions in Obstetrical Care Bundle Implementation Resources PDF](#)
-  [Cardiac Conditions in Obstetrical Care Implementation Webinar](#)

Structure Measures



Process Measures



ALLIANCE FOR INNOVATION
ON MATERNAL HEALTH

P1: Standardized Pregnancy Risk Assessments for People with Cardiac Conditions

Denominator: Patients with cardiac conditions diagnosed prior to birth admission

Numerator: Among the denominator, those who received a pregnancy risk classification using a standardized cardiac risk assessment tool by time of birth admission

Optional Process Measure: CVD Assessment Among Pregnant and Postpartum People

Denominator: All birth admissions, whether from sample of entire population

Numerator: Among the denominator, those with documentation of a cardiovascular diseases assessment using a standardized tool

Rationale

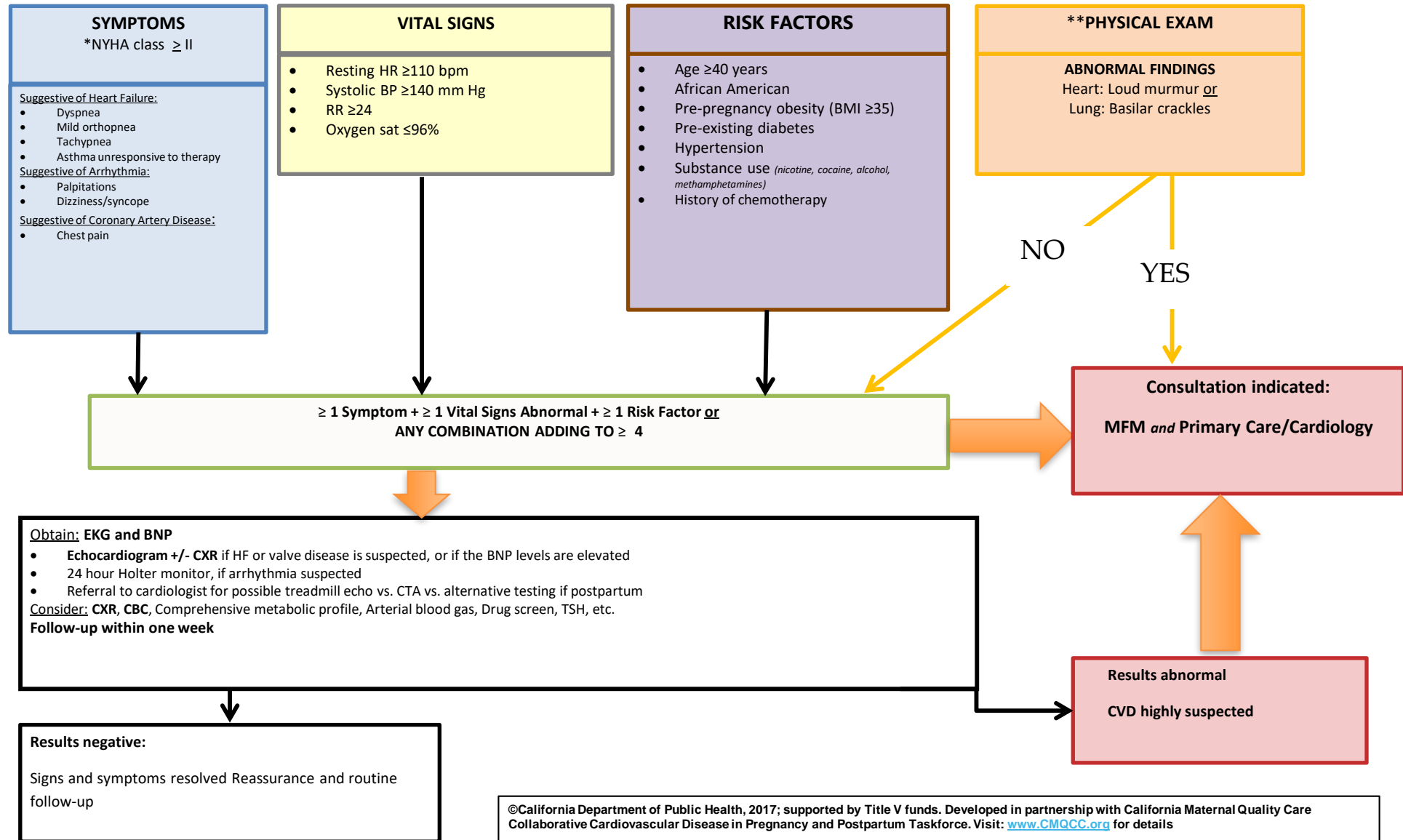
- Currently, there is one CVD assessment algorithm developed for pregnant and postpartum people – the CMQCC CVD Assessment Algorithm for Pregnant and Postpartum Women.
 - Only validated using pregnancy-related deaths; needs additional validation on patients in large-scale studies.
 - Despite limitations, recognized as an emerging best practice and an important tool for assessing symptoms and risk in a standardized way.

MATERNAL MORTALITY



AIM CCOC BUNDLE

**UNIVERSAL CVD RISK
ASSESSMENT**

ALGORITHM 2. (No Red Flags and/or no personal history of CVD, and hemodynamically stable)



California Cardiovascular Screening Tool: Findings from Initial Implementation

Elizabeth A. Blumenthal, MD, MBA¹ B. Adam Crosland, MD¹  Dana Senderoff, MD¹ 
Kathryn Santurino, MD² Nisha Garg, MD¹ Megan Bernstein, MD¹ Diana Wolfe, MD²
Afshan Hameed, MD¹

¹ Department Obstetrics and Gynecology, University of California, Irvine, Orange, California

² Department Obstetrics and Gynecology, Albert Einstein School of Medicine Montefiore, The Bronx, New York

Address for correspondence Elizabeth A. Blumenthal, MD, MBA, Department Obstetrics and Gynecology, University of California, Irvine, 101 The City Drive South, Orange, CA 92868 (e-mail: eblument@gmail.com).

Am J Perinatol Rep 2020;10:e362–e368.

California Cardiovascular Screening Tool: Findings from Initial Implementation

Elizabeth A. Blumenthal, MD, MBA¹ B. Adam Crosland, MD¹ Dana Senderoff, MD¹
 Kathryn Santurino, MD² Nisha Garg, MD¹ Megan Bernstein, MD¹ Diana Wolfe, MD²
 Afshan Hameed, MD¹

N=846 women screened

Screen Positive 8% (5% California, 19% New York)

NO SHOW to MFM Cardiology (70% in New York, 27% in California)

CVD Diagnosis Confirmed in 30% of Referred Cases

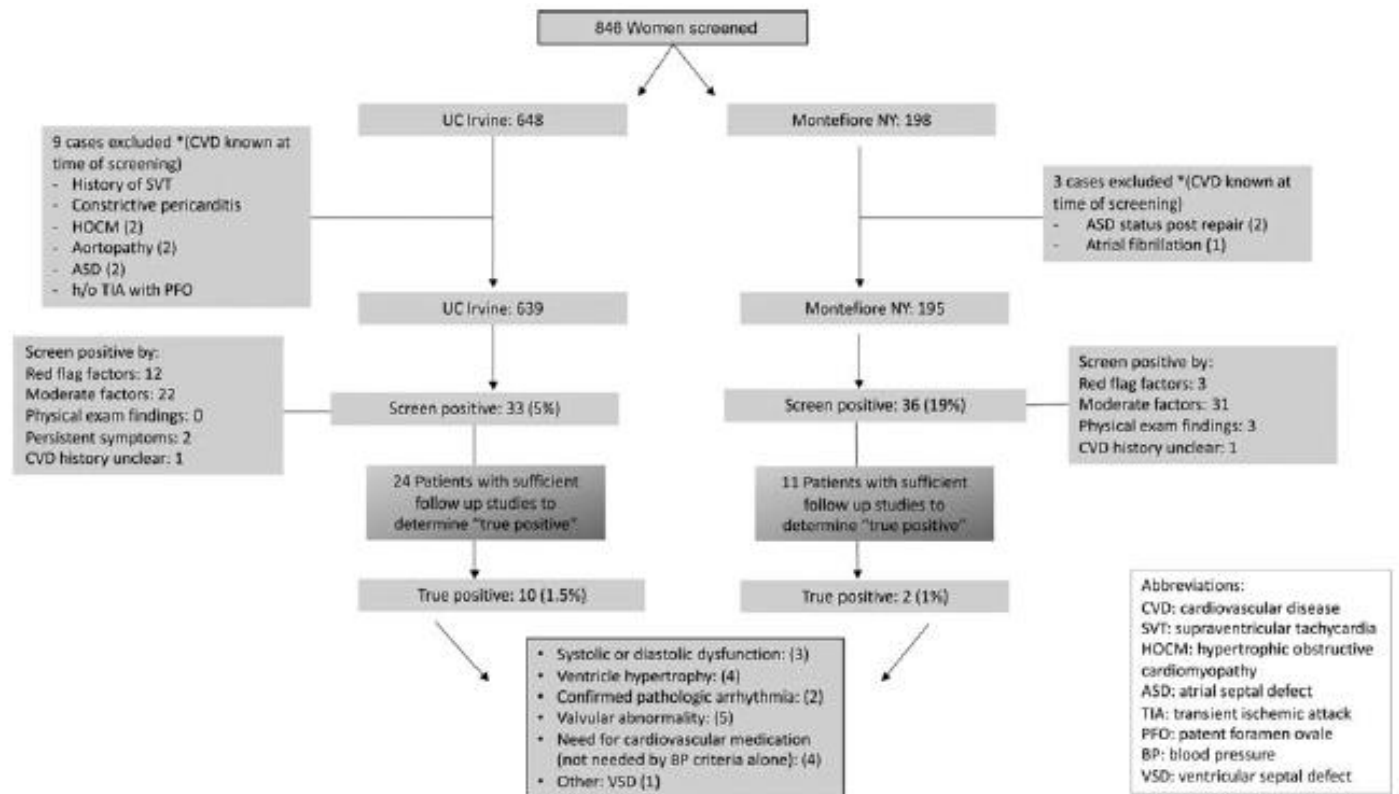


Fig. 2 Case selection. ASD, atrial septal defect; BP, blood pressure; CVD, cardiovascular disease; HOCM, hypertrophic obstructive cardiomyopathy; NY, New York; PFO, patent foramen ovale; SVT, supraventricular tachycardia; TIA, transient ischemic attack; UC, University of California; VSD, ventricular septal defect.

DEVELOPING CARDIOVASCULAR SCREENING MEASURES FOR PREGNANT AND POSTPARTUM WOMEN

Gordon and Betty MOORE Foundation Grant

Principal Investigator: Afshan Hameed, MD, FACOG, FACC

UCI Co-Investigators: Heike Thiel de Bocanegra, PhD, MPH

UCSD Co-Investigator: Maryam Tarsa, MD, MAS

UTenn Co-Investigator: Cornelia Graves, MD



DEVELOPING CARDIOVASCULAR SCREENING MEASURES FOR PREGNANT & POSTPARTUM WOMEN

Improving Diagnostic Excellence: Gordon and Betty Moore Foundation

1. CVD Risk Assessment =
$$\frac{\text{Pregnant + postpartum women screened for CVD using algorithm}}{\text{All pregnant + postpartum women seen at facility without prior history of known cardiac disease}}$$

2. CVD Risk Follow-up =
$$\frac{\text{Women who received follow up for CVD risk}}{\text{Women who screened positive for CVD risk}}$$

Approach



Integrate CVD algorithm
into the EMR



Clinicians receive immediate score

SCREEN POSITIVE

- Follow up imaging
- Follow up laboratory test
- Follow up consultations



Follow up monitored through EMR

Upload data to UCI REDCap

- Elicit feedback
- Review measures with TEP

CVD SCREENING STEP BY STEP



1

ADDITIONAL OB INFO >>> CVD RISK

O'Flannery, Myra

6/19/2020 visit with Major, Carol A, MD for Office Visit

Episodes Prenatal Information Genetic Screening Zika Preg Checklist Results Console Dating **CVD Risk**

Referring Provider Prenatal Care Source OB Providers UA Automated Overview & Plan Vitals and Notes Prenatal Physical

OB/Gyn Status Procedure Notes History

Cardiovascular Risk Assessment

Pull Data from Chart Pull Data from the chart for 1st assessment of cardiovascular risk. To reassess risk, data items must 1st be cleared before this button is used to recheck data

Self-Reported Symptoms (*NYHA Class >= II)	Vital Signs	Risk Factors
Suggestive of Heart Failure	Resting HR >=110 bpm	Age 40+
Shortness of breath	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Short of breath lying flat	Systolic BP >=140 mmHG	African American <input type="checkbox"/> Yes <input type="checkbox"/> No
Rapid heart rate	Respiratory Rate >=24	Pre-pregnancy obesity (BMI >=35) <input type="checkbox"/> Yes <input type="checkbox"/> No
Asthma unresponsive to therapy	Oxygen Sat <=96% <input type="checkbox"/> Yes <input type="checkbox"/> No	Pre-existing diabetes <input type="checkbox"/> Yes <input type="checkbox"/> No
Suggestive of Arrhythmia		Hypertension <input type="checkbox"/> Yes <input type="checkbox"/> No
Palpitations		Cancer Diagnosis or History <input type="checkbox"/> Yes <input type="checkbox"/> No
Fainting or loss of consciousness	Physical Exam	History of chemotherapy or chest radiation <input type="checkbox"/> Yes <input type="checkbox"/> No
Suggestive of Coronary Artery	Heart: Loud murmur <input type="checkbox"/> Yes <input type="checkbox"/> No	Substance Use
Chest pain	Lungs: Basilar crackles <input type="checkbox"/> Yes <input type="checkbox"/> No	Nicotine use: <input type="checkbox"/> Yes <input type="checkbox"/> No
		Alcohol use: <input type="checkbox"/> Yes <input type="checkbox"/> No
		Use of risky drugs: Cocaine, Depressants (Alcohol, Barbituates, Benzodiazepines), MDMA, Ecstasy, Methamphetamines, or Opiates <input type="checkbox"/> Yes <input type="checkbox"/> No

Mark All Symptoms Negative

2
a.

CALCULATING RISK

O'Flannery, Myra

Chart Rev... Results Leg... Ro... MyCh... Plan Wr... Add'l ...

6/19/2020 visit with Major, Carol A, MD for Office Visit

Episodes Prenatal Information Genetic Screening Zika Preg Checklist Results Console Dating **CVD Risk**

Referring Provider Prenatal Care Source OB Providers UA Automated Overview & Plan Vitals and Notes Prenatal Physical

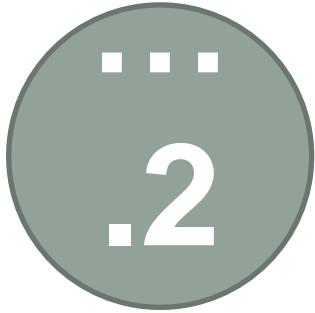
OB/Gyn Status Procedure Notes History

Shortness of breath	Yes No	Resting HR ≥ 110 bpm	Yes No	Age 40+	Yes No
Short of breath lying flat	Yes No	Systolic BP ≥ 140 mmHG	Yes No	African American	Yes No
Rapid heart rate	Yes No	Respiratory Rate ≥ 24	Yes No	Pre-pregnancy obesity (BMI ≥ 35)	Yes No
Asthma unresponsive to therapy	Yes No	Oxygen Sat $\leq 96\%$	Yes No	Pre-existing diabetes	Yes No
Suggestive of Arrhythmia		Physical Exam		Hypertension	Yes No
Palpitations	Yes No	Heart: Loud murmur	Yes No	Cancer Diagnosis or History	Yes No
Fainting or loss of consciousness	Yes No	Lungs: Basilar crackles	Yes No	History of chemotherapy or chest radiation	Yes No
Suggestive of Coronary Artery				Substance Use	
Chest pain	Yes No			Nicotine use:	Yes No
Mark All Symptoms Negative				Alcohol use:	Yes No
				Use of risky drugs: Cocaine, Depressants (Alcohol, Barbituates, Benzodiazepines), MDMA, Ecstasy, Methamphetamines, or Opiates	Yes No
				Substance use poses risk:	Yes No

Calculated Risk

Not at risk Possible Risk for Cardiovascular Disease

At Risk for Cardiovascular Disease



CALCULATED RISK = NOT AT RISK

Palpitations	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Physical Exam	History of chemotherapy or chest radiation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Fainting or loss of consciousness	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Heart: Loud murmur	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<i>Suggestive of Coronary Artery</i>			Lungs: Basilar crackles	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Chest pain	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Substance Use	
Mark All Symptoms Negative			Nicotine use:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
			Alcohol use:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
			Use of risky drugs: Cocaine, Depressants (Alcohol, Barbituates, Benzodiazepines), MDMA, Ecstasy, Methamphetamines, or Opiates	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
			Substance use poses risk:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Calculated Risk	<input checked="" type="checkbox"/> Not at risk		<input type="checkbox"/> Possible Risk for Cardiovascular Disease	
	<input type="checkbox"/> At Risk for Cardiovascular Disease			

2
b.

POSSIBLE RISK FOR CVD – ADDITIONAL ORDERS

O'Flaherty, Myra

Chart Rev... Results Leg... Ro... MyCh... Plan Wr... Add'l ...

6/19/2020 visit with Major, Carol A, MD for Office Visit

Episodes Prenatal Information Genetic Screening Zika Preg Checklist Results Console Dating **CVD Risk**

Referring Provider Prenatal Care Source OB Providers UA Automated Overview & Plan Vitals and Notes Prenatal Physical

OB/Gyn Status Procedure Notes History

Suggestive of Arrhythmia				Cancer Diagnosis or History	Yes No
Palpitations	Yes No			History of chemotherapy or chest radiation	Yes No
Fainting or loss of consciousness	Yes No	Physical Exam		Substance Use	
		Heart: Loud murmur	Yes No	Nicotine use:	Yes No
Suggestive of Coronary Artery		Lungs: Basilar crackles	Yes No	Alcohol use:	Yes No
Chest pain	Yes No			Use of risky drugs: Cocaine, Depressants (Alcohol, Barbituates, Benzodiazepines), MDMA, Ecstasy, Methamphetamines, or Opiates	Yes No
Mark All Symptoms Negative				Substance use poses risk:	Yes No

Calculated Risk

Not at risk **Possible Risk for Cardiovascular Disease**
At Risk for Cardiovascular Disease

Signed by: 6/19/2020 06:02 AM Now

Close Cancel Previous Next

Referring Provider

No ref. provider found

2
c.

SCREEN +

“AT RISK FOR CVD”

O'Flannery, Myra

Chart Rev... Results Leg... Ro... MyCh... Plan Wr... Add'l ...

6/19/2020 visit with Major, Carol A, MD for Office Visit

Episodes Prenatal Information Genetic Screening Zika Preg Checklist Results Console Dating **CVD Risk**

Referring Provider Prenatal Care Source OB Providers UA Automated Overview & Plan Vitals and Notes Prenatal Physical

OB/Gyn Status Procedure Notes History

Symptom	Yes	No	Value	Yes	No	Risk Factor	Yes	No
<i>Suggestive of Heart Failure</i>								
Shortness of breath	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Resting HR >= 110 bpm	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Age 40+	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Short of breath lying flat	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Systolic BP >= 140 mmHG	<input type="checkbox"/>	<input checked="" type="checkbox"/>	African American	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rapid heart rate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Respiratory Rate >= 24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pre-pregnancy obesity (BMI >=35)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Asthma unresponsive to therapy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Oxygen Sat <=96%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Pre-existing diabetes	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Suggestive of Arrhythmia</i>								
Palpitations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Physical Exam			Hypertension	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fainting or loss of consciousness	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Heart: Loud murmur	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Cancer Diagnosis or History	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Suggestive of Coronary Artery</i>								
Chest pain	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Lungs: Basilar crackles	<input type="checkbox"/>	<input checked="" type="checkbox"/>	History of chemotherapy or chest radiation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Substance Use								
Nicotine use:							<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alcohol use:							<input type="checkbox"/>	<input checked="" type="checkbox"/>
Use of risky drugs: Cocaine, Depressants (Alcohol, Barbituates, Benzodiazepines), MDMA, Ecstasy, Methamphetamines, or Opiates							<input type="checkbox"/>	<input checked="" type="checkbox"/>
Substance use poses risk:							<input type="checkbox"/>	<input checked="" type="checkbox"/>

[Mark All Symptoms Negative](#)

Calculated Risk

Not at risk	Possible Risk for Cardiovascular Disease
At Risk for Cardiovascular Disease	

5. AT RISK FOR CVD or POSSIBLE RISK = DEFAULT

ORDERS

3

a.

Web Links | MyChart | Sign My Visits | Schedule | In Basket | Remind Me | Chart | Encounter | DocOrders | Telephone Call | MyChart | Personalize | POC | ATTENDING (UCI) OBSTETRICS | Stork

O'Flannery, Myra

MO

O'Flannery, Myra
Female, 37 year old, 12/12/1982
MRN: 7008122
Needs Interpreter: None
Code: Not on file (no ACP docs)
OB Delivery Location: None

6/19 OFFICE VISIT
for Routine Prenatal Visit

T	HR	Resp	BP
—	92	18	138/78

O2	Ht	Wt
95%	5' 3"	90.7 kg

BMI
35.43 kg/m² ↓

THIS PREGNANCY
Hx: G2P1000
GA: 13w0d (12/25/2020)
Blood Type: None

LAST 3YR
No visits
No results

SOCIAL DETERMINANTS
Some not on file

HEALTH MAINTENANCE
UC Combo Cervical Cancer...
Tetanus (1 - Tdap)

OB/GYN PROBLEMS (0)
Other problems (1)

My Pat List Reminders: None +

6/19/2020 visit with Major, Carol A, MD for Office Visit

UC OB CVD RISK FOLLOW-UP

From BestPractice
OB Cardiovascular Risk Screen complete, **Patient At Risk for Cardiovascular Disease**. Accept the smart set to follow-up. Orders are defaulted based on positive symptoms with other orders to consider.

Recommended Orders

EKG

ECG 12 Lead
Routine, Normal
ECG Indication: Other (Add Indication to Comments)
Clinical history: Suspect maternal Cardiac Disease in Pregnancy
ECG with Interpretation? Yes

BNP

BNP Lavender
Routine, Expires: 12/19/2020, Blood
Tube: Lavender
Resulting Agency - UCI MEDICAL CENTER

Visit Diagnosis

Heart disease during pregnancy, antepartum [O99.419, I51.9]

Follow-up

Follow-up within 1 week for Cardiovascular Risk Screen testing results

Other Orders to Consider

Referrals

Consult/Referral to Maternal Fetal Medicine(high-risk/pre-pregnancy)
 Consult/Referral to Cardiology Clinic

OB/GYN (click to open Add'l OB Tools)

Prenatal Care Documentation Required

Cardiovascular Risk Screen Follow-up complete. Click Follow-up to place recommended orders.

Myra O'Flannery
6/19/2020 5:52 AM Office Visit
MRN: 7008122
Description: 37 year old female
Provider: Carol A Major, MD
Department: Uci Man Ob/Gyn
CSN: 33000126678

Recent Ultrasounds
No resulted procedures found.

Print Group [3331445969] is deprecated. It should not be used when creating new reports. If you are actively updating this report it may be beneficial to replace this print group with one of its alternatives...

ADD ORDER | ADD DX (0) | PRINT AVS | SIGN VISIT

ADDITIONAL REFERRALS & ORDERS

3
b.

The screenshot displays a medical chart for Myra O'Flannery, a 37-year-old female, dated 6/19/2020. The chart is titled "6/19/2020 visit with Major, Carol A, MD for Office Visit". The interface includes a top navigation bar with various tools like "Chart Re...", "Results", "Leg...", "Ro...", "MyCh...", "Plan", and "Wr...". A left sidebar provides patient information and vital signs. The main content area is titled "Other Orders to Consider" and contains several sections:

- Referrals:** Includes checkboxes for "Consult/Referral to Maternal Fetal Medicine(high-risk/pre-pregnancy)", "Consult/Referral to Cardiology Clinic", and "Consult/Referral to Internal Medicine".
- Echo (+ CXR if Heart Failure or valve disease suspected):** Includes checkboxes for "Complete 2D ECHO with Image Enhancement Agent if Necessary" and "X-Ray Chest Single View".
- Additional Orders:** Includes checkboxes for "Holter Monitor (24-48 HR)", "Thyroid Cascade", "CBC w/ Diff", "Comprehensive Metabolic Panel", "Arterial Blood Gas", and "Drug Screen, Serum".
- Additional Orders (Searchable):** A section with a search bar and the instruction: "You can search for an order by typing in the header of this section." Below this are buttons for "Associate", "Edit Multiple", and "Providers".

At the bottom of the chart area, there are buttons for "Restore", "Close", "Remove", "Pend", "Next", "Previous", and "Next". The right sidebar shows a patient summary for Myra O'Flannery, including her date of birth, MRN, and a list of recent ultrasounds. A warning message at the bottom right states: "Print Group [3331445969] is deprecated. It should not be used when creating new reports. If you are actively updating this report it may be beneficial to replace this print group with one of its alternatives..."

SELECT LOCATION AND SIGN

3
C.

Hyperspace - UCI MAN OB/GYN - POC - ATTENDING (UCI) OBSTETRICS

Web Links | DynaMed Plus | UpToDate | Sign My Visits | Schedule | In Basket | Remind Me | Chart | Encounter | DocOrders | Telephone Call | MyChart | Personalize | My Incomplete Notes | 0 | Log Out

O'Flannery, Myra

Chart Re... | Results | Leg... | Ro... | MyCh... | Plan | Wr... | SmartSet

POC | ATTENDING (UCI) OBSTETRICS | Stork

This Visit | Progress... | OB Ch... | Meani...

6/19/2020 visit with Major, Carol A, MD for Office Visit

Accept | Cancel

Priority: Routine | Routine | STAT

Class: Normal | Normal

Referral: To dept: [] | Geog areas: [] | Default Areas: IRVINE/RIVERSIDE

ECG Indication: Other (Add Indication) | Arrhythmia 427.9 (I49.9) | Atrial Fib 427.31 (I48.0) | CAD 414.01 (I25.10) | Chest Pain 786.50 (R07.9) | Pre-Op Cardiovascular Exam V72.81 (Z01.810) | SOB 786.05 (R06.02) | Tachycardia 785.0 (R00.0)

Clinical history: Suspect maternal Cardiac Disease in Pregnancy

ECG with Interpretation? Yes | No

Comments: + Add Comments (F6)

Sched Inst: + Add Scheduling Instructions

Process Inst:

Accept | Cancel

▼ BNP

- BNP Lavender | Routine, Expires: 12/19/2020, Blood
- Tube: Lavender | Resulting Analyte - UCI MEDICAL CENTER

+ ADD ORDER | + ADD DX (0)

PRINT AVS | SIGN VISIT

Current as of: Friday June 19, 2020 6:04 AM. Click to refresh.

- OB/GYN (click to open Add'l OB Tools)
- Prenatal Care Documentation Required
- Cardiovascular Risk Screen Follow-up complete. Click Follow-up to place recommended orders.

Myra O'Flannery

6/19/2020 5:52 AM Office Visit
MRN: 7008122

Description: 37 year old female
Provider: Carol A Major, MD
Department: Uci Man Ob/Gyn
CSN: 33000126678

Recent Ultrasounds

No resulted procedures found.

Print Group [3331445969] is deprecated. It should not be used when creating new reports. If you are actively updating this report it may be beneficial to replace this print group with one of its alternatives.

Testing a CVD Screening toolkit in pregnancy and postpartum

NIH R21

PI: Afshan B. Hameed, MD

University of California, Irvine, Medical Center Health Systems

UCI Health 1,500 births a year, 3% black

Hameed/Thiel de Bocanegra/Crosland

Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, New York

MMC, 6,000 births a year, 30% black

Wolfe/Bernstein

3 BENEFITS OF CVD SCREENING

IDENTIFICATION OF HIGH-RISK PATIENTS

- Further cardiac testing
- Appropriate follow up

PATIENT AND PROVIDER AWARENESS AND EDUCATION

- Healthcare provider to include CVD in the differential diagnosis
- Patient more likely to seek timely medical care

OPPORTUNITY TO MODIFY RISK FACTORS

- Prevention of CVD in future
- Improved maternal and fetal outcomes
- Healthier choices

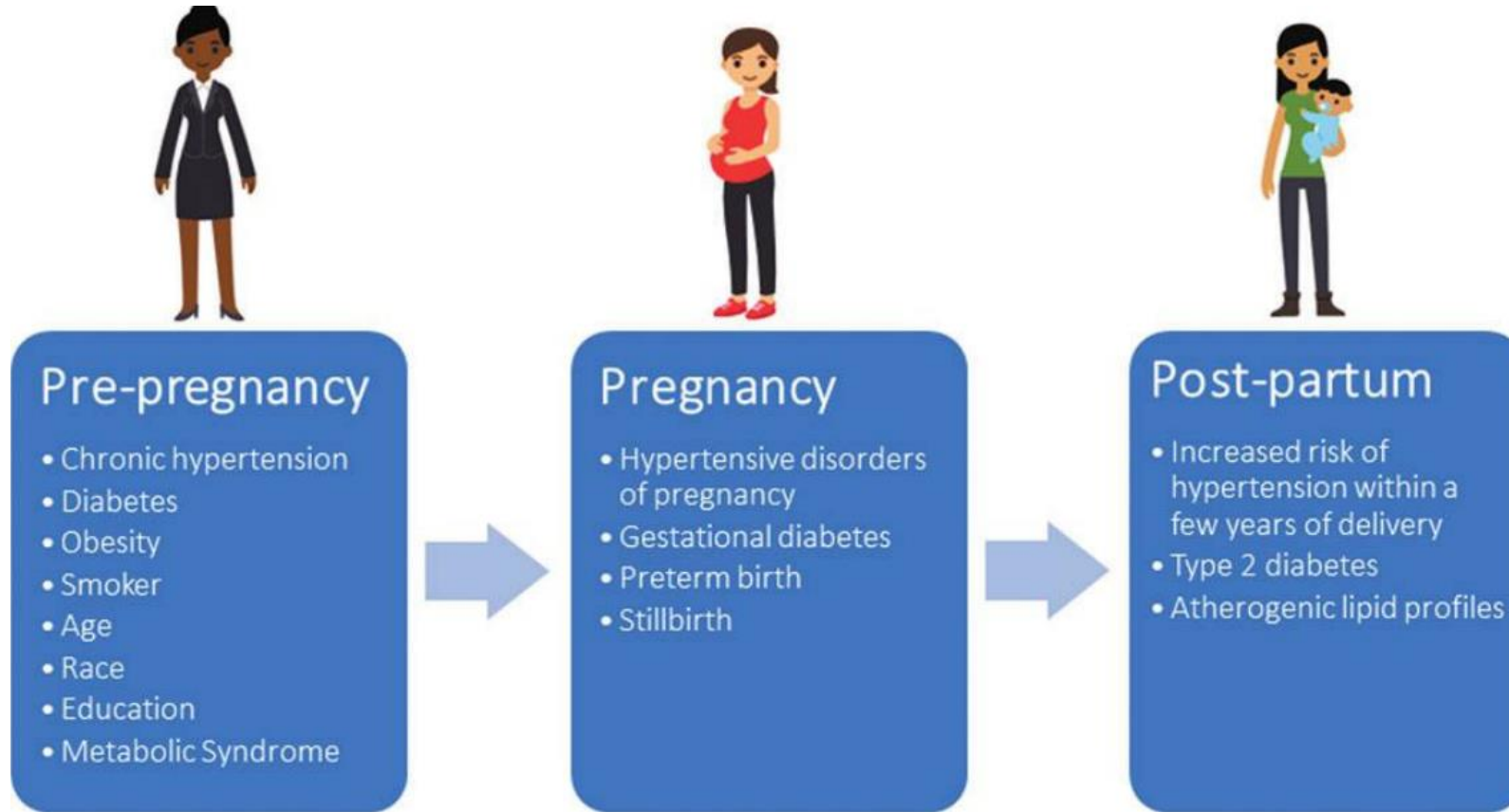
Pregnancy

Postpartum
Risk Evaluation

Transition to
Primary Care
Interconception
care

Maternal Morbidity and Mortality: Are We Getting to the “Heart” of the Matter?

Jasmina Varagic, MD, PhD, FAHA,¹ Patrice Desvigne-Nickens, MD,¹ Joyonna Gamble-George, MHA, PhD,²
Lisa Hollier, MD, MPH,³ Christine Maric-Bilkan, PhD,⁴ Megan Mitchell, MPH,⁵
Victoria L. Pemberton, RNC, MS, CCRC,¹ and Nicole Redmond, MD, PhD, MPH, FACP¹



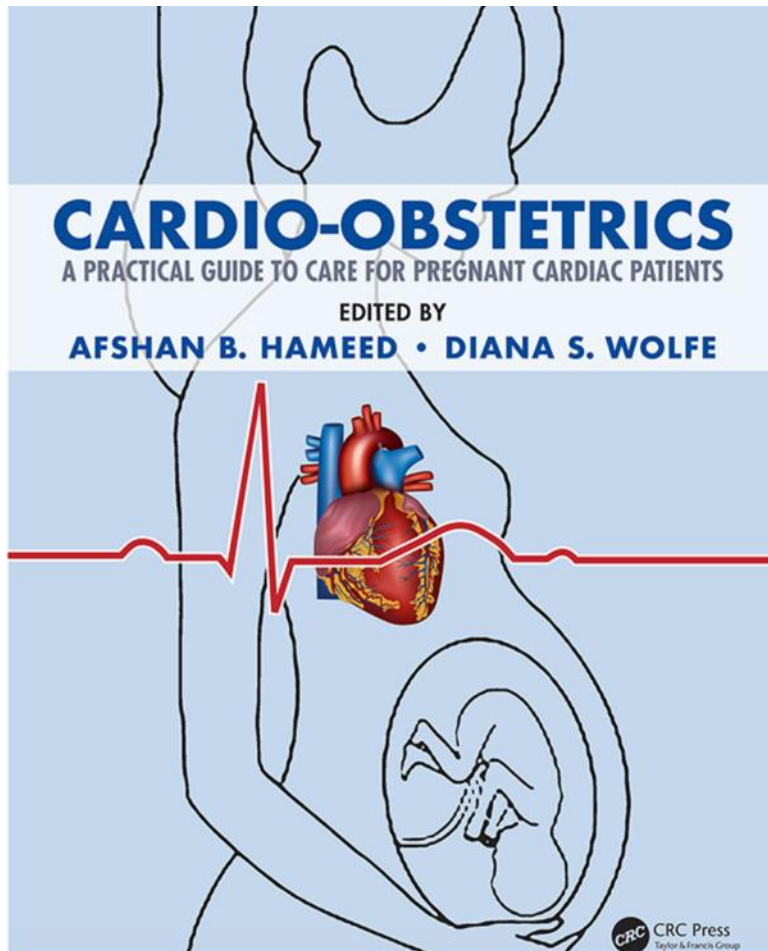
CVD risk
during
Pregnancy

CVD risk
after
Pregnancy





- CVD deaths are preventable - 25% to 68%
- A large proportion of CVD deaths are > 42 day postpartum
- Most of the women who died of CVD have underlying risk factors
- Most patients present with symptoms and/or vital sign abnormalities in the postpartum period



www.cmqcc.org



THANK YOU!

Questions?

gapqc@dph.ga.gov