California Health Benefits Review Program

Analysis of California Assembly Bill 2193
Maternal Mental Health

A Report to the 2017–2018 California State Legislature April 17, 2018

CALIFORNIA
HEALTH BENEFITS REVIEW PROGRAM

Key Findings:

Analysis of California Assembly Bill 2193
Maternal Mental Health

Summary to the 2017–2018 California State Legislature, April 17, 2018

CALIFORNIA HEALTH BENEFITS REVIEW PROGRAM

AT A GLANCE

The version of California Assembly Bill 2193 analyzed by CHBRP would require OB-GYNs to screen mothers for maternal mental health conditions at least once during pregnancy and once postpartum. It would also require that plans and policies develop a case management program for maternal mental health conditions.

1. CHBRP estimates that, in 2019, all 23.4 million Californians enrolled in state-regulated health insurance will have insurance subject to AB 2193.
2. **Benefit coverage.** 100% of enrollees with health insurance subject to AB 2193 have coverage for mental health screenings during the prenatal and postpartum periods. No enrollees currently have coverage for follow-up case management that would be fully compliant with AB 2193. The benefits for which AB 2193 requires coverage do not appear to exceed the essential health benefits (EHBs).
3. **Utilization.** Postmandate, CHBRP estimates that the overall number of pregnant women enrolled in DMHC-plans or CDI-policies would remain 407,000. The mental health screening rate would increase to 90%, which would increase the number of women screened by 43,000 women. This increase would result in an additional 10,000 women receiving needed mental health treatment after screening positive for a mental health condition.
4. **Expenditures.** AB 2193 would increase total net annual expenditures by $4,519,000 or 0.0029% for enrollees in DMHC-regulated plans and CDI-regulated policies. This is due to a $3,952,000 increase in total health insurance premiums paid by employers and enrollees for covered benefits, plus an increase of $567,000 for enrollee out-of-pocket costs.
5. **Medical effectiveness.** There is clear and convincing evidence that screening programs for postpartum women can reduce the risk of depression 3 to 5 months postpartum and increase the likelihood of depression remission or response at 6 to 14 months postpartum. There is insufficient evidence to conclude whether screening for anxiety disorders, bipolar disorders, or postpartum psychosis during pregnancy or postpartum leads to changes in relevant health outcomes. For case management to treat anxiety disorders, bipolar disorder, or postpartum depression, CHBRP finds insufficient evidence to conclude whether there is an associated change in health outcomes. However, CHBRP finds a preponderance of evidence that case management interventions are effective in promoting timely, frequent engagement with mental health treatment for perinatal depression.
6. **Public health.** In the first year postmandate, CHBRP estimates that due to AB 2193, 43,000 more women will be screened for maternal mental health disorders, which will result in increased linkages to treatment and symptom reduction.
7. **Long-term impacts.** The long-term public health impacts include a consistent improvement in access to maternal mental health treatment and related reduction in symptoms among those who are identified and screened.

CONTEXT

Maternal mental health (MMH) disorders comprise a range of distinct disorders, including depression, anxiety disorders, bipolar disorder, and postpartum psychosis.[1] To be characterized as an MMH disorder, women must demonstrate relevant symptoms for at least one of the following periods:

1. **Prenatal period** (i.e., during pregnancy, also called “antenatal”);
2. **Postpartum period** (i.e., within 1 year of giving birth, also called “postnatal”); or
3. **Perinatal period** (i.e., both during pregnancy and post-pregnancy — up to 1 year after giving birth, also called “peripartum”)**.**

Terminology and definitions for these periods may vary somewhat across sources. While also prevalent among new mothers, “baby blues,” which is characterized as emotional sensitivity, low mood, and/or feeling overwhelmed and occurring up 2 weeks postpartum, is not considered a MMH disorder

BILL SUMMARY

AB 2193 would require obstetrician-gynecologists (OB-GYNs) to screen mothers for maternal mental health conditions at least once during pregnancy and once postpartum. It would also require that health care service plans and health insurance policies develop a case management program for enrollees or insureds who may have a maternal mental health condition. The case management program shall include:

- Direct access to a clinician assigned to the provider and the patient;

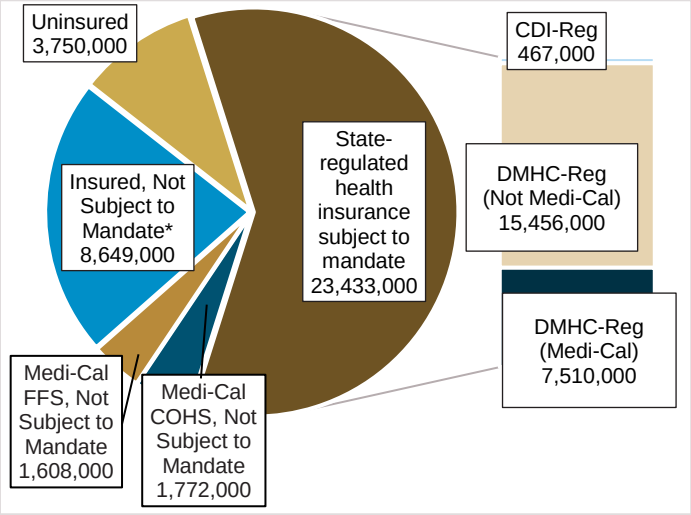
[1] Refer to CHBRP’s full report for full citations and references.

- Direct access for the enrollee to a therapist trained in maternal mental health;
- Direct access for the provider and enrollee to psychiatric consultation with a psychiatrist familiar with research related to pregnant and lactating women;
- When a treatment plan is available, clinical case managers to follow the enrollee's treatment and symptoms, and to document the enrollee's status to the enrollee's provider at least once every 8 months.

At the request of the California Assembly Committee on Health, CHBRP's analysis of AB 2193 incorporates one amendment in draft form and not yet published that would limit the scope of the bill to OB-GYNs instead of any provider treating a mother or a child.

Figure 1 notes how many Californians have health insurance that would be subject to AB 2193.

Figure 1. Health Insurance in CA and AB 2193



Source: California Health Benefits Review Program, 2018.

Notes: * Medicare beneficiaries, enrollees in self-insured products, etc.

Key: CDI = California Department of Insurance; COHS = County Organized Health System; DMHC = California Department of Managed Health Care; FFS = Fee-for-Service.

IMPACTS

Benefit Coverage, Utilization, and Cost

Benefit Coverage

At baseline, 100% of enrollees with health insurance subject to AB 2193 have coverage for mental health screenings during the prenatal and postpartum periods. No enrollees currently have coverage for follow-up case management that would be fully compliant with AB 2193. There are existing case management programs, but they do not appear to include all components of case management the bill outlines: direct access for the enrollee to a therapist trained in maternal mental health, direct access for the provider and enrollee to psychiatric consultation with a psychiatrist familiar with research related to pregnant and lactating women; and clinical case managers to follow the enrollee's treatment and symptoms, and to document the enrollee's status to the enrollee's provider at least once every 8 months.

Utilization

On the basis of existing literature, CHBRP assumes different rates of screening and reporting of depressive symptoms between women with private insurance coverage and women who are enrolled in Medi-Cal managed care plans.

Of an estimated total of 226,000 pregnant enrollees with commercial or CalPERS insurance subject to AB 2193, an additional 40,000 women with will receive some MMH screening, a 24% increase in overall screening rate. As a result of screening, an additional 5,000 women will be identified as having symptoms (22% increase), and an additional 2,000 women will be diagnosed with a MMH disorder (29% increase). This brings the total number of women who may be enrolled in case management as a result of AB 2193 to 9,000 women; of these, an additional 5,000 women will receive mental health services (250% increase).

Of an estimated total of 181,000 pregnant Medi-Cal managed care enrollees with insurance subject to AB 2193, an additional 3,000 women will receive some MMH screening, a 2% increase in the overall screening rate. As a result of screening, an additional 1,000 will be identified as having symptoms (2% increase). Although there will be no significant increase in the number of women diagnosed

due to already high screening rates for Medi-Cal, a total of 13,000 diagnosed women may be enrolled in case management as a result of AB 2193. Of these, 5,000 additional women will receive mental health services due to the more comprehensive case management required under AB 2193 (125% increase).

Expenditures

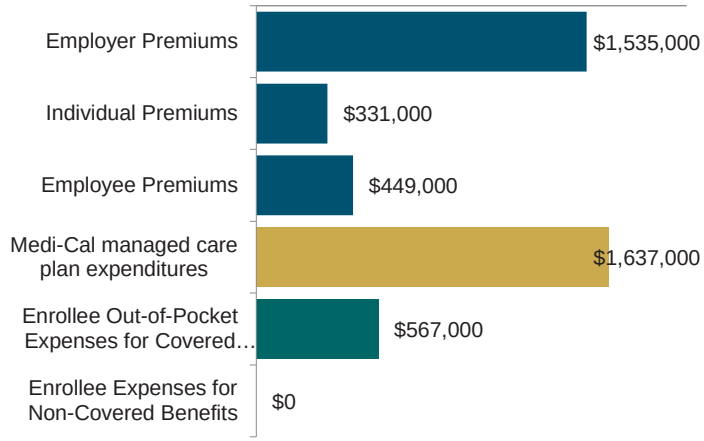
In the first year postmandate, AB 2193 would increase total net annual expenditures by $4,519,000 or 0.0029% for enrollees with DMHC-regulated plans and CDI-regulated policies.

This is due to a $3,952,000 increase in total premiums paid by employers and enrollees, plus an increase of $567,000 in enrollee expenses for covered benefits (out-of-pocket costs like deductibles and copayments).

This is equivalent to an increase of $1.54 on average per pregnant woman with coverage subject to AB 2193 who receives perinatal screening. CHBRP estimates are based on claims data and may underestimate the cost savings for enrollees due to carriers' ability to negotiate discounted rates that are unavailable to patients and their families.

Figure 2. Expenditure Impacts of AB 2193

Net Change: $4,519,000



Source: California Health Benefits Review Program, 2018.

Medi-Cal

Due to the increase in screening and connection to treatment for maternal mental health disorders, CHBRP estimates an increase in Medi-Cal managed care plan expenditures of $1,637,000 (0.0056%) in the first year postmandate.

CalPERS

CHBRP estimates an increase in CalPERS HMO employer expenditures of $108,000 (0.0020%) in the first year postmandate.

Number of Uninsured in California

AB 2193 would have no measureable impact projected on the number of uninsured in California.

Medical Effectiveness

CHBRP examined the medical effectiveness of the bill's major tenets — screening for maternal mental health disorders and case management for maternal mental health disorders. The majority of research literature is related to postpartum depression.

Postpartum depression screening: There is clear and convincing evidence that screening programs in postpartum women can reduce the risk of depression 3 to 5 months postpartum (compared to women who did not take part in the program), and increase the likelihood of depression remission or response at 6 to 14 months postpartum.

Perinatal screening for anxiety disorders, bipolar disorder, or postpartum psychosis: There is insufficient evidence to conclude whether screening for anxiety disorders, bipolar disorders, or postpartum psychosis during pregnancy or postpartum leads to changes in relevant health outcomes (condition risk, remission, treatment response).

Case management for perinatal depression: There is inconclusive evidence to determine whether case management leads to changes in health outcomes relevant to depression in pregnant and postpartum women (remission, symptom burden, functional status). However, CHBRP finds a preponderance of evidence from three primary studies and a well-conducted systematic review that case management interventions similar to the requirements proposed in AB 2193 are effective in promoting timely and frequent engagement with mental health treatment for perinatal depression.

Case management to treat anxiety disorders, bipolar disorder, or postpartum depression: CHBRP finds insufficient evidence to conclude whether case management for anxiety disorders, bipolar disorders, or postpartum psychosis during pregnancy or postpartum leads to changes in relevant health outcomes (remission, symptom burden, functional status). Insufficient evidence is not "evidence of no effect." It is possible that an impact could result, but current evidence is insufficient to inform an estimate.

Table A summarizes the medical effectiveness findings specific to perinatal depression. For a full summary table of the medical effectiveness findings, see the Medical Effectiveness section.

Table A. Abbreviated Medical Effectiveness Summary

	Perinatal Depression
Screening alone	Insufficient evidence
Screening/Intervention Program Participation	Clear and convincing evidence, effective –postpartum women Limited evidence, effective — pregnant women
Sharing Screening Results	Insufficient evidence
Screening Tool Accuracy	Preponderance of evidence, effective — EPDS accuracy Inconclusive evidence — PHQ accuracy
Case Management	Preponderance of evidence, effective — treatment engagement Limited evidence, not effective — depression outcomes
Treatment	Clear and convincing evidence, effective — behavioral interventions Preponderance of evidence, effective – pharmacotherapy

Source: California Health Benefits Review Program, 2018.

Abbreviations: EPDS, Edinburgh Postnatal Depression Scale; PHQ, Patient Health Questionnaire.

Public Health

In the first year postmandate, CHBRP estimates that due to AB 2193, 43,000 more women will be screened for maternal mental health disorders, which will result in increased linkages to treatment and symptom reduction.

CHBRP estimates that as a result of increased screening due to AB 2193, a total of 22,000 women will be eligible for case management, and of these, 10,000 additional women will receive treatment for a maternal mental health condition. It stands to reason that women enrolled in case management will be more likely to access the care and treatments to which they are referred, which may in turn lead to improved health outcomes, but the extent to which this will occur is unknown as the structure and intensity of MMH case management programs developed as a result of AB 2193 are likely to vary across health plans.

In the first year postmandate, despite increased utilization, the public health impact of prenatal and postpartum screenings and case management due to AB 2193 for other MMH disorders besides maternal depression is unknown due to insufficient or inconclusive evidence regarding screening/case management programs. It stands to reason that if appropriate screening tools are used, more women with these disorders will be detected and receive some form of treatment, the majority of which were shown to be effective. The absence of evidence is not "evidence of no effect." It is possible that an impact could result, but current evidence is insufficient to inform an estimate.

Long-Term Impacts

Following the 1-year period modeled in the CHBRP Cost and Coverage Model, CHBRP expects that the rates of annual utilization of maternal mental health screening, diagnosis, case management, and treatment would remain consistent with the model's findings. Growth in utilization of mental health services will be tempered by a projected shortage of mental health providers, most notably psychiatrists.

Long-term, the cost impacts of AB 2193 will most likely occur in the reduction of high-cost health care associated with emergency situations or hospitalization, although there will be some increase in costs due to increases in

appropriate preventive care, in proportion to the utilization changes discussed above.

The long-term public health impacts include a consistent improvement in access to maternal mental health treatment and linked reduction in symptoms among those who are identified and screened. More accurate and potentially higher prevalence estimates for MMH disorders may become apparent as more women are identified through increased screening.

Furthermore, increased screening by health care professionals may help normalize discussions around maternal mental health and increase awareness of these issues. Case management may be particularly helpful to low income women with MMH issues as case managers may be able to help keep them connected with MMH care.

According to the research literature, the increase in identification of maternal mental health conditions and their subsequent treatment will lead to better health outcomes for both mothers and their children.

Essential Health Benefits and the Affordable Care Act

It is likely that treatment for mental health conditions during pregnancy and the postpartum period as described in AB 2193 would fall under outpatient or inpatient behavioral or mental health services which are categorized as EHB-covered benefits in the description of the state's EHB benchmark plan. Benefits required by AB 2193 do not appear to exceed the definition of EHBs in California.

A Report to the California State Legislature

Analysis of California AB 2193 Maternal Mental Health

April 17, 2018

California Health Benefits Review Program
MC 3116; Berkeley, CA 94720-3116
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The California Health Benefits Review Program (CHBRP) was established in 2002. As per its authorizing statute, CHBRP provides the California Legislature with independent analysis of the medical, financial, and public health impacts of proposed health insurance benefit-related legislation. The state funds CHBRP through an annual assessment on health plans and insurers in California.

An analytic staff based at the University of California, Berkeley, supports a task force of faculty and research staff from multiple University of California campuses to complete each CHBRP analysis. A strict conflict-of-interest policy ensures that the analyses are undertaken without bias. A certified, independent actuary helps to estimate the financial impact. Content experts with comprehensive subject-matter expertise are consulted to provide essential background and input on the analytic approach for each report.

More detailed information on CHBRP's analysis methodology, authorizing statute, as well as all CHBRP reports and other publications are available at www.chbrp.org.

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Table 1. 2019 Impacts of AB 2193 Impacts on Benefit Coverage, Utilization, and Cost

	Baseline	Postmandate	Increase/ Decrease	Percentage Change
Benefit coverage				
Total enrollees with health insurance subject to state-level benefit mandates (a)	23,433,000	23,433,000	0	0%
Total enrollees with health insurance subject to AB 2193	23,433,000	23,433,000	0	0%
Percent of enrollees subject to AB 2193 who have Medi-Cal	32.0%	32.0%	0%	0%
With mandate compliant coverage of mental health screening & follow-up services	100.0%	100.0%	0%	0%
With mandate compliant provision of case management	0.0%	100.0%	100%	0%
Percent of enrollees subject to AB 2193 who have commercial or CalPERS coverage	68.0%	68.0%	0%	0%
With mandate compliant coverage of mental health screening & follow-up services	100.0%	100.0%	0%	0%
With mandate compliant provision of case management	0.0%	100.0%	100%	0%
Utilization and unit cost				
Total number of pregnant enrollees w/o preexisting mental health treatment	407,000	407,000	0	0%
Number of pregnant enrollees who are covered by Medi-Cal	181,000	181,000	0	0%
With no maternal mental health screening	21,000	18,000	−3,000	−14%
With some maternal mental health screening	160,000	163,000	3,000	2%
With mental health symptoms	40,000	41,000	1,000	2%
With diagnosis	13,000	13,000	0	0%
Receive mental health services	4,000	9,000	5,000	125%
Number of pregnant enrollees who are covered by commercial or CalPERS	226,000	226,000	0	0%
With no maternal mental health screening	62,000	22,000	−40,000	−65%
With some maternal mental health screening	164,000	204,000	40,000	24%

With mental health symptoms	23,000	28,000	5,000	22%
With diagnosis	7,000	9,000	2,000	29%
Receive mental health services	2,000	7,000	5,000	250%
Average cost per pregnant enrollee using maternal health services				
Covered by Medi-Cal				
All mental health services combined	$263	$263	0	0%
Mental health medication	$52	$52	0	0%
Covered by commercial or CalPERS insurance				
All mental health services combined	$580	$580	0	0%
Mental health medication	$52	$52	0	0%
Expenditures				
Premium expenditures by payer				
Private employers for group insurance	$69,302,946,000	$69,304,373,000	$1,427,000	0.0021%
CalPERS HMO employer expenditures (c)	$5,383,103,000	$5,383,211,000	$108,000	0.0020%
Medi-Cal Managed Care Plan expenditures (d)	$29,259,588,000	$29,261,225,000	$1,637,000	0.0056%
Enrollees for individually purchased insurance	$15,358,027,000	$15,358,358,000	$331,000	0.0022%
Enrollees with group insurance, CalPERS HMOs, Covered California, and Medi-Cal Managed Care (a) (b)	$21,267,154,000	$21,267,603,000	$449,000	0.0021%
Enrollee expenses				
Enrollee out-of-pocket expenses for covered benefits (deductibles, copayments, etc.)	$14,896,952,000	$14,897,519,000	$567,000	0.0038%
Enrollee expenses for noncovered benefits (e)	$0	$0	$0	0.00%
Total expenditures	$155,467,770,000	$155,472,289,000	$4,519,000	0.0029%

Source: California Health Benefits Review Program, 2018.

Notes: (a) This population includes persons with privately funded and publicly funded (e.g., CalPERS HMOs, Medi-Cal Managed Care Plans) health insurance products regulated by DMHC or CDI. Population includes enrollees aged 0 to 64 years and enrollees 65 years or older covered by employment sponsored insurance.

(b) Premium expenditures by enrollees include employee contributions to employer-sponsored health insurance and enrollee contributions for publicly purchased insurance.

(c) Of the increase in CalPERS employer expenditures, about 56.17% or $61,000 would be state expenditures for CalPERS members who are state employees or their dependents. It should be noted, however, that should CalPERS choose to make similar adjustments for consistency to the benefit coverage of enrollees associated with CalPERS' self-insured products, the fiscal impact on CalPERS could be greater.

(d) Does not include enrollees in COHS.

(e) Includes only those expenses that are paid directly by enrollees to providers for services related to the mandated benefit that are not currently covered by insurance. In addition, this only includes those expenses that will be newly covered, post-mandate. Other components of expenditures in this table include all health care services covered by insurance.

Key: CalPERS HMOs = California Public Employees' Retirement System Health Maintenance Organizations; CDI = California Department of Insurance; COHS=County Operated Health Systems; DMHC = Department of Managed Health.

POLICY CONTEXT

The California Assembly Committee on Health has requested that the California Health Benefits Review Program (CHBRP)[2] conduct an evidence-based assessment of the medical, financial, and public health impacts of AB 2193 Maternal Mental Health.

Bill-Specific Analysis of AB 2193 Maternal Mental Health

Bill Language

AB 2193 would require obstetrician-gynecologists (OB-GYNs) to screen mothers for maternal mental health conditions at least once during pregnancy and once postpartum. It would also require that health care service plans and health insurance policies develop a case management program for enrollees or insureds who may have a maternal mental health condition. The case management program shall include:

- Direct access to a clinician assigned to the provider and the patient;
- Direct access for the enrollee to a therapist trained in maternal mental health;
- Direct access for the provider and enrollee to psychiatric consultation with a psychiatrist familiar with research related to pregnant and lactating women;
- When a treatment plan is available, clinical case managers to follow the enrollee's treatment and symptoms, and to document the enrollee's status to the enrollee's provider at least once every 8 months.

At the request of the California Assembly Committee on Health, CHBRP's analysis of AB 2193 incorporates one amendment in draft form and not yet published at the time of this report's publication. The amendment would limit the scope of the bill to OB-GYNs instead of any provider treating a mother or a child. The full text of AB 2193 can be found in Appendix A.

Relevant Populations

If enacted, AB 2193 would affect the health insurance of approximately 23.4 million enrollees (59.8% of all Californians). This represents 100% of the 23.4 million Californians who will have health insurance regulated by the state that may be subject to any state health benefit mandate law — health insurance regulated by the California Department of Managed Health Care (DMHC) or the California Department of Insurance (CDI). If enacted, the law would affect the health insurance of enrollees in DMHC-regulated plans and CDI-regulated policies, exempting specialized health care service plan contract or specialized health insurance policy that does not deliver mental or behavioral health services to its enrollees or insureds.

In general, to be characterized as having an MMH disorder, women must demonstrate relevant symptoms for at least one of the following periods:

1. **Prenatal period** (i.e., during pregnancy);
2. **Postpartum period** (i.e., within 1 year of giving birth); or
3. **Perinatal period** (i.e., prenatal and postpartum periods) (CA Task Force, 2017).

[2] CHBRP's authorizing statute is available at http://chbrp.org/faqs.php.

Interaction with Existing Requirements

Health benefit mandates may interact and align with the following state and federal mandates or provisions.

California Policy Landscape

California law and regulations

Two California Assembly Concurrent Resolutions related to maternal mental health have passed: one resolution convened a state Task Force to address maternal mental health care and the other established a perinatal depression awareness month.

California Task Force on the Status of Maternal Mental Health Care

In 2014, the California Legislative Women's Caucus introduced Assembly Concurrent Resolution (ACR) 148 to explore untreated maternal mental health disorders and their impacts (CA Task Force, 2017). The resolution passed and initiated a multidisciplinary Task Force representing stakeholders in mental health, medicine, public health, nursing, research, insurance and hospitals. From 2015 to 2016, the California Task Force on the Status of Maternal Mental Health Care (the Task Force) examined existing barriers to screening and diagnosis, current treatment options, and evidence based and emerging treatments (CA Task Force, 2017). In December 2016, the Task Force published "California's Strategic Plan: A catalyst for shifting statewide systems to improve care across California and beyond." The report included an overview of the current state and recommendations for California to improve maternal mental health care (CA Task Force, 2017).

Perinatal Depression Awareness Month

In 2010, ACR 105 passed designating May as Perinatal Depression Awareness Month in California (Postpartum Support International, 2018). The resolution also requested that several stakeholders including the Department of Health Care Services, Department of Public Health, Department of Mental Health, First 5 California, the American College of Obstetricians and Gynecologists (ACOG) and Postpartum Support International work together on several issues. The ACR encouraged these stakeholders to explore ways to improve women's access to mental health care, increase awareness and education about perinatal depression, encourage the use of screening tools, and improve the availability of effective treatment options and community support services.[3]

California measures under consideration

CHBRP is aware of at least four other maternal mental health measures being considered in the State Legislature at the time of this report. The measures include:

- ACR 180 (Waldron) Maternal Mental Health Awareness Month, which would designate May 2018 as Maternal Mental Health Awareness Month.
- AB 244 (Cervantes) Maternal mental health, which would create a privately-funded pilot program in some counties designed to increase the capacity of health providers that serve pregnant and postpartum women up to one year after delivery to prevent, identify and manage postpartum depression and other mental health conditions.

[3] California Assembly Concurrent Resolution 105 (Resolution Chapter 9 of the Statutes of 2010).

- AB 1893 (Maienschein) Maternal mental health: federal funding, which would require the Department of Public Health to investigate and apply for federal funding opportunities regarding maternal mental health.
- AB 3032 (Frazier) Maternal mental health: quality management program, which would require a general acute care hospital or "special" hospital that has a perinatal unit to develop and implement a quality management program related to MMH disorders including but not limited to postpartum depression by January 1, 2020.

Other States

CHBRP is aware of at least 14 states that have passed laws related to perinatal mental health and most commonly to perinatal depression (CA, IL, MA, MI, ME, MN, OR, NJ, NY, TX, VA, VT, WA, WV) (Rowan P, 2015). State legislation related to perinatal mental health tends to fall into one or more of the following categories as described by Rowan et al.:

- Education mandates to provide information related to perinatal depression for women or their family members (CA, IL, MA, ME, MN, NJ, NY, OR, TX, VA, WV);
- Screening mandates that require providers to screen for perinatal depression (IL, MA, NJ, WV);
- Postpartum depression awareness campaigns aimed at the general public (CA, MI, OR, WA);
- Task force mandates that convene a state task force to study and produce recommendations related to perinatal mental health (CA, VT, TX, WV, OR).

Four states, Illinois, Massachusetts, New Jersey, and West Virginia, have passed laws that require screening for perinatal mental health conditions or for postpartum depression specifically (Rowan P, 2015). New Jersey was the first state to pass such a law in 2006 (Rhodes et al., 2013). The New Jersey Postpartum Depression Act requires health care professionals to educate women and their families about postpartum depression during pregnancy and postpartum. Additionally, New Jersey's law requires that physicians and other licensed health care professionals providing postpartum care screen new mothers for symptoms of postpartum depression prior to discharge post-delivery and "at the first few post-natal check-up visits (Kozhimannil et al., 2011).[4]

In 2010, Massachusetts passed the Postpartum Depression Act. The law established a Special Legislative Commission on postpartum depression to assess current research and evaluate the state's current practices (Commonwealth of Massachusetts, 2018). The law also established postpartum depression screening regulations and authorized funding to expand the Massachusetts Child Psychiatry Access Project (MCPAP) to MCPAP for Moms. MCPAP for Moms uses a multipronged approach to help providers identify and treat postpartum depression, including:

1. Training and toolkits about depression screening and assessment informed by evidence-based guidelines;

2. Psychiatric phone consultation for health care providers caring for pregnant and postpartum women;

3. Care coordination that links women to psychotherapy and support groups (Byatt et al., 2016).

[4] New Jersey P.L. 2006, c.12 (S213).

Federal Policy Landscape

Federal statutory and regulatory requirements ensure that all states provide maternity coverage for pregnant women up to 133% of the federal poverty level; this coverage must extend to 60 days post-partum (MACPAC, 2018).

In 2016, the Bringing Postpartum Depression Out of the Shadows Act (H.R. 3235) was signed into law as one component of the 21st Century Cures Act.[5] The Act authorizes the Secretary of Health and Human Services to grant states $5 million in grants annually (from 2018 to 2022) to screen and treat maternal depression; it is the first federal program to fund both screening and treatment of postpartum depression (Clark et al., 2017; Postpartum Support International, 2018; Wilkinson et al., 2017a).

Federal Mental Health Parity and Addiction Equity Act

The federal Mental Health Parity and Addiction Equity Act (MHPAEA) addresses parity for mental health benefits.[6] The MHPAEA requires that if mental health or substance use disorder services are covered, cost-sharing terms and treatment limits be no more restrictive than the predominant terms or limits applied to medical/surgical benefits. The MHPAEA applies to the large group, but the ACA requires small-group and individual market plans and policies purchased through a state health insurance marketplace to comply with the MHPAEA. This federal requirement is similar to the California mental health parity law,[7] although the state law applies to some plans and policies not captured in the MHPAEA.

AB 2193 contains more specific requirements than MHPAEA about coverage for maternal mental health conditions that health plans and policies must provide. Additionally, case management for maternal mental health conditions could be considered to be one aspect of part of mental health parity.

Affordable Care Act

A number of Affordable Care Act (ACA) provisions have the potential to or do interact with state benefit mandates. Below is an analysis of how AB 2193 may interact with requirements of the ACA as presently exists in federal law, including the requirement for certain health insurance to cover essential health benefits (EHBs).[8]

Any changes at the federal level may impact the analysis or implementation of this bill, were it to pass into law. However, CHBRP analyzes bills in the current environment given current law and regulations.

Essential Health Benefits

State health insurance marketplaces, such as Covered California, are responsible for certifying and selling qualified health plans (QHPs) in the small-group and individual markets. QHPs are required to meet a minimum standard of benefits as defined by the ACA as essential health benefits (EHBs). In

[5] H.R.6 - 21st Century Cures Act, 114th Congress (2015-2016).
[6] Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA), as amended by the ACA.
[7] H&SC Section 1374.72; IC Section 10144.5 and 10123.15.
[8] The ACA requires nongrandfathered small-group and individual market health insurance — including but not limited to QHPs sold in Covered California — to cover 10 specified categories of EHBs. Resources on EHBs and other ACA impacts are available on the CHBRP website: www.chbrp.org/other_publications/index.php.

California, EHBs are related to the benefit coverage available in the Kaiser Foundation Health Plan Small Group Health Maintenance Organization (HMO) 30 plan, the state's benchmark plan for federal EHBs.[9,10]

States may require QHPs to offer benefits that exceed EHBs.[11] However, a state that chooses to do so must make payments to defray the cost of those additionally mandated benefits, either by paying the purchaser directly or by paying the QHP.[12,13] State rules related to provider types, cost-sharing, or reimbursement methods would *not meet* the definition of state benefit mandates that could exceed EHBs.[14]

Treatment for mental health conditions during pregnancy and the postpartum period as described in AB 2193 would fall under either outpatient or inpatient behavioral or mental health services which are categorized as EHB-covered benefits in the description of the state's EHB benchmark plan.[15] Relevant to DMHC-regulated health plans, treatment for mental health conditions during pregnancy and postpartum falls under Knox-Keene coverage requirements.

AB 2193 does not appear to require coverage for a new state mandated benefit, and does not appear to exceed the definition of EHBs in California.

Federally Selected Preventive Services

The ACA requires that nongrandfathered group and individual health insurance plans and policies cover certain preventive services without cost-sharing when delivered by in-network providers and as soon as 12 months after a recommendation appears in any of the following:[16]

- The United States Preventive Services Task Force (USPSTF) A and B recommendations;
- The Health Resources and Services Administration (HRSA)-supported health plan coverage guidelines for women's preventive services;
- The HRSA-supported comprehensive guidelines for infants, children, and adolescents, which include:
    - The Bright Futures Recommendations for Pediatric Preventive Health Care; and

[9] The U.S. Department of Health and Human Services (HHS) has allowed each state to define its own EHBs for 2014 and 2015 by selecting one of a set of specified benchmark plan options. CCIIO, Essential Health Benefits Bulletin. Available at: cciio.cms.gov/resources/files/Files2/12162011/essential_health_benefits_bulletin.pdf.
[10] H&SC Section 1367.005; IC Section 10112.27.
[11] ACA Section 1311(d)(3).
[12] State benefit mandates enacted on or before December 31, 2011, may be included in a state's EHBs, according to the U.S. Department of Health and Human Services (HHS). Patient Protection and Affordable Care Act: Standards Related to Essential Health Benefits, Actuarial Value, and Accreditation. Final Rule. Federal Register, Vol. 78, No. 37. February 25, 2013. Available at: www.gpo.gov\fdsys\pkg\FR-2013-02-25\pdf\2013-04084.pdf.
[13] However, as laid out in the Final Rule on EHBs HHS released in February 2013, state benefit mandates enacted on or before December 31, 2011, would be included in the state's EHBs and there would be no requirement that the state defray the costs of those state mandated benefits. For state benefit mandates enacted after December 31, 2011, that are identified as exceeding EHBs, the state would be required to defray the cost.
[14] Essential Health Benefits. Final Rule. A state's health insurance marketplace would be responsible for determining when a state benefit mandate exceeds EHBs, and QHP issuers would be responsible for calculating the cost that must be defrayed.
[15] www.cms.gov/CCIIO/Resources/Data-Resources/Downloads/Updated-California-Benchmark-Summary.pdf.
[16] A resource on this ACA requirement is available on the CHBRP website: www.chbrp.org/other_publications/index.php.

  - The recommendations of the Secretary's Advisory Committee on Heritable Disorders in Newborns and Children; and

- The Advisory Committee on Immunization Practices (ACIP) recommendations that have been adopted by the Director of the Centers for Disease Control and Prevention (CDC).

In 2016, the USPSTF recommended with a grade "B" screening for depression in a general adult population including pregnant and postpartum women (Siu and USPSTF, 2016). The recommendation also states that screening should be implemented with systems in place to "ensure accurate diagnosis, effective treatment, and appropriate follow up."

Analytic Approach and Key Assumptions

For this analysis, key approaches and assumptions follow:

- **Postpartum time period***:* The postpartum period begins upon delivery of an infant. However, the length of the postpartum period is not officially defined and there is no clear consensus about the end of the postpartum period. In some cases, the postpartum period is considered to end 6 to 8 weeks after delivery (Berens., 2018; WHO, 1998), while other definitions of the postpartum period end 1 year after delivery (O'Connor et al., 2016a).

  The background and medical effectiveness sections describe research and findings that reflect the full range of postpartum period definitions. However, to complete the cost analysis, CHBRP had to define a specific postpartum period as this was not defined by the bill language. For the purpose of this analysis and informed by survey responses from health insurers, the cost analysis examined claims data up to 180 days after pregnancy, encompassing a 6-month postpartum period. The cost analysis examined the 6 months following delivery as health insurers typically define postpartum as between 6 to 8 weeks or in some cases, up to 4 months for complications. This 6-month period encompasses those time periods and allows a lag time for delayed postpartum care.

- **Maternal mental health conditions:** Maternal mental health conditions encompass a range of conditions and levels of severity. However, most research literature in maternal mental health focuses on maternal depression which is the most common maternal mental health disorder (CA Task Force, 2017). In parts of this analysis, CHBRP has used maternal depression research literature to inform estimates for a broader set of maternal mental health conditions in the absence of condition-specific research literature.

- **Women under current psychiatric care**: CHBRP eliminated women with a pre-existing mental health condition *who are currently under psychiatric care* from the analysis population. AB 2193 exempts women under the treatment of a psychiatrist from the requirement of perinatal mental health screenings. CHBRP is aware that pregnancy may impact a psychiatrist's treatment decisions, but cannot quantify this effect.

- **Women enrolled in pregnancy-only Medi-Cal coverage**: Finally, CHBRP excluded pregnant women in Medi-Cal who had coverage only through their pregnancy and 60-days postpartum, as this program is administered under fee-for-service Medi-Cal and is therefore not subject to AB 2193.

BACKGROUND ON MATERNAL MENTAL HEALTH DISORDERS

This section provides context for the potential impacts of AB 2193 by identifying and describing common maternal mental health (MMH) disorders and their prevalence, risk assessment and validated screening procedures to detect MMH disorders, case management, evidence-based treatments for MMH disorders, screening rates and access to MMH care, and disparities and social determinants of health for MMH disorders in California. Given the short timeframe to conduct this analysis, we summarized parts of a comprehensive report issued by the California Task Force on the Status of Maternal Mental Health Care (CA Task Force) in 2017 to inform this section of our analysis (CA Task Force, 2017).

Maternal Mental Health Disorders and Prevalence

MMH disorders comprise a range of distinct disorders that may arise or become exacerbated during pregnancy or after birth; in this analysis, we focused on the most common (i.e., depression and anxiety disorders) and the most severe (i.e., bipolar disorder and postpartum psychosis) MMH disorders (CA Task Force, 2017).

The prenatal period includes the 9-month period from conception until delivery and is divided into three trimesters. The definition of the postpartum period varies somewhat between sources, beginning at the birth of the child and ending six weeks to one year later (Biebel et al., 2015; CA Task Force, 2017). The term *perinatal* is used to define the entire pregnancy and postpartum period.

Hormonal shifts during pregnancy and postpartum hormonal shifts are linked to the unique increased risk of mental health disorders in perinatal women (Marcus, 2009; O'Hara and McCabe, 2013). Other mental health disorders that generally begin prior to a pregnancy, such as eating disorders and substance abuse, are excluded from this analysis. While also prevalent among new mothers, “baby blues,” which is characterized as emotional sensitivity, low mood, and/or feeling overwhelmed and occurring up to 2 weeks postpartum, is not considered a MMH disorder (CA Task Force, 2017). Although mothers with “baby blues” may present with symptoms that are similar to a MMH disorders, symptom episodes are shorter and less severe. Mothers with “baby blues” typically recover within 2 weeks of symptom onset without treatment (CA Task Force, 2017).

Maternal depressive disorders and prevalence

Perinatal depression is the most common MMH disorder in the United States with rates of approximately one in five women affected worldwide based on a meta-analysis of 291 studies using the Edinburgh Postnatal Depression Scale (EPDS) screening tool in 56 countries; the estimated prevalence rate for the United States was 13% across 42 studies (Hahn-Holbrook et al., 2017) Specific to California, the overall prevalence of perinatal depressive symptoms was 20.5% in 2013; prevalence rates for prenatal compared to postpartum depression were similar, at 14.9% and 12.8% respectively, with 7.2% of California women experiencing both (CA Task Force, 2017; Caldwell and Forquer, 2015).

Perinatal depression encompasses both major depressive disorder and minor depression (CA Task Force, 2017; Gavin et al., 2005). To receive a diagnosis of major depressive disorder, women must exhibit low spirits/mood, persistent sadness, indifference, feelings of inadequacy, and/or anxiety for most of the day for at least 2 weeks; changes in sleep, appetite, energy, and/or concentration; and/or possible suicidal ideation/actions (including psychotic features, though very rare) with varying levels of severity ranging from mild to severe (CA Task Force, 2017). Mild depression is characterized as having similar

symptoms as major depressive disorder; however, the number and duration of symptoms occurs with less frequency (CA Task Force, 2017).

The following table describes the prevalence of maternal depressive symptoms in California by key demographic characteristics (i.e., race/ethnicity, insurance type, and poverty level).

Table 2. Prevalence of Maternal Depressive Symptoms by Race/Ethnicity, Insurance Status, and Poverty Level in California, 2013

	Maternal Depressive Symptoms*
Overall	**20.5%**
Race/ethnicity	
Black	27.6%
Hispanic	23.9%
White	15.3%
Asian/Pacific Islander	15.9%
Native American/Alaska Native	26.6%
By insurance status	
Medi-Cal	25.1%
Private insurance	14.0%
Household income as a percent of FPL	
0%–100%	27.2%
101%–200%	20.4%
201%–300%	17.9%
301% and higher	12.2%

Source: Maternal and Infant Health Assessment, California Department of Public Health, 2013.

Note: * Includes depressive symptoms during the perinatal period.

Key: FPL = Federal Poverty Level.

Maternal anxiety disorders, PTSD, and prevalence

With reported rates of up to 20% prevalence among women, perinatal anxiety symptoms are nearly as common as maternal depression (Fairbrother et al., 2016) and are comprised of four distinct conditions: (1) generalized anxiety disorder, (2) panic disorder, (3) obsessive compulsive disorder, and (4) perinatal post-traumatic stress disorder (PTSD) (CA Task Force, 2017). A meta-analysis of maternal anxiety across 34 countries found that the prevalence of clinical diagnoses of any anxiety disorder during pregnancy was 15.2% and 9.9% in the first 6 months after giving birth (Dennis et al., 2017).

To receive a diagnosis of generalized anxiety disorder, an individual must exhibit 6 or more months of excessive worry on a day-to-day basis — on most days — with accompanying physiological symptoms with varying levels of severity ranging from mild to severe (CA Task Force, 2017). Panic disorder is characterized as recurring episodes of panic attacks in which an individual exhibits 10 to 15 minutes of intense anxiety paired with physiological symptoms such as a racing heart-beat, sweaty palms, and shortness of breath that impair regular function (CA Task Force, 2017). Obsessive-compulsive disorder is

described as intrusive thoughts leading to anxiety (i.e., obsessions), followed by behaviors — often rigid or ritualistic — aimed to diminish obsessive thoughts (i.e., compulsions) (CA Task Force, 2017).

Perinatal PTSD may result from an individual's perceived experience of a traumatic birth; flashbacks, nightmares, increased arousal, anxiety, and/or a feeling of detachment (CA Task Force, 2017). In a systematic review of 23 studies rated as methodologically sound from 14 countries, 4.9% of mothers experienced postpartum PTSD, with 4.6% experiencing symptoms lasting from 1 to 3 months, and 1.8% experiencing symptoms lasting longer than 3 months (Dekel et al., 2017). Prenatal PTSD, which is less commonly described but attributed to experiences of violence, abuse, diagnoses of fetal illness, or health complications — and assessed by a separate systematic review — had a prevalence of 4.6% across 35 studies, while postpartum PTSD had a prevalence of 5.4% across 28 studies (Yildiz et al., 2017).

Maternal bipolar disorder and prevalence

Bipolar disorder is relatively rare in the general population compared to anxiety and depression, with an estimated prevalence of 1.0% for type I, 0.8% for type II, and 2.4% for bipolar spectrum disorder, which is less restrictively defined than types I and II, but includes having a lifetime history of either type or recurrent subclinical episodes (Merikangas et al., 2007). Perinatal women's prevalence of bipolar disorder is believed to be similar to the general population, but having the condition leads to an increased risk for an episode of mental illness during pregnancy and postpartum periods (Wesseloo et al., 2015).

To receive a diagnosis of bipolar I disorder, a woman must exhibit a depressive manic state, comprised of highs, irritable mood, agitation, and/or a lack of sleep; she may also exhibit a depressive state (CA Task Force, 2017). Bipolar II disorder is characterized as having similar symptoms as bipolar I disorder, with moods cycling between high/hypomania (i.e., less-intense elevated mood) and low episodes (Severus and Bauer, 2013). Women diagnosed with bipolar disorder are at increased risk for a severe psychiatric episode in the postpartum period or postpartum psychosis, which is described below (Wesseloo et al., 2015).

Postpartum psychosis and prevalence

The most severe and rare of MMH disorders, postpartum psychosis has been estimated to occur in less than 0.3% of births (VanderKruik et al., 2017). Among women who have experienced prior episodes of postpartum psychosis, the prevalence of relapse during a subsequent postpartum period has been estimated at 31% (Wesseloo et al., 2015). Postpartum psychosis is defined as the sudden onset of severe symptoms such as disruption of thought processes, hallucinations, delusions, perceptual disturbances, paranoia, amnesia, and/or severe disruption of typical day-to-day behavior (CA Task Force, 2017). New mothers may exhibit symptoms 2 to 4 weeks postpartum and can start exhibiting symptoms as early as 2 to 3 days post-delivery (CA Task Force, 2017).

A bipolar episode in the postpartum period may be classified as postpartum psychosis due to the interrelationship between the two disorders (Wesseloo et al., 2015). However, not all women with bipolar disorder experience postpartum psychosis, and not all women who experience postpartum psychosis have a history of bipolar disorder or show symptoms outside of the postpartum period (Wesseloo et al., 2015). Due to rapidly changing symptoms and its sudden onset in the days or weeks after child-delivery, postpartum psychosis is classified as a psychiatric emergency (CA Task Force, 2017). Moreover, this severe disorder presents potentially fatal consequences as mothers have been known to exhibit suicidal and/or infanticidal actions (Brockington, 2017; CA Task Force, 2017).

Relevant Outcomes of Untreated Maternal Mental Health Disorders for Mother and Child

Short-term outcomes

The presence of MMH disorders during the preconception and prenatal periods are strong predictors of postpartum MMH disorders (Witt et al., 2011). If left untreated, MMH disorders can have serious short- and long-term health outcomes for both mother and offspring. For pregnant women, an undiagnosed MMH depressive disorder may contribute to severe health behaviors/outcomes such as substance abuse, poor nutrition, and stress-induced dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis (responsible for the development of biological systems in the fetus) and increased inflammation, which can all negatively impact the developing fetus/growing infant (Haeri et al., 2013; Maes, 2008; Marcus, 2009; Pariante and Lightman, 2008; Raposa et al., 2014). For example, infants may suffer severe health complications during and directly after birth such as preterm delivery, low birth weight, growth retardation, congenital abnormalities, diarrheal episodes, feeding problems, etc. (Marcus, 2009; Raposa et al., 2014).

Long-term outcomes

Perinatal depression also predisposes mothers to depression later in life, which can negatively impact a child's cognitive, physical, and social development throughout their lifetime (Halligan et al., 2007; McDermott et al., 2008; Raposa et al., 2014). Results from the Raposa et al. study indicated that maternal depressive symptoms during the perinatal period had both significant direct and indirect negative effects on the health of offspring before the age of 5 years (2014). This may be attributed to a mother's social interactions with her child during this formative period (Marcus, 2009). For example, mothers exhibiting depressive symptoms were found to be less alert, responsive, and sensitive in addition to being more intrusive when interacting with their child (Marcus, 2009). Moreover, offspring health issues at age five also predicted future self-health stress and difficulties with social functioning at age 20 years, thereby predicting youth depression at ages 22 to 25 years (Raposa et al., 2014).

Additionally, a number of studies have indicated a reduction in health-related quality of life (QOL) for women presenting MMH disorders during the perinatal period (Misri and Swift, 2015; Mourady et al., 2017). For example, in the Mourady et al. study depression was significantly associated with a decreased QOL in all domains (i.e., general, physical, psychological, social relationships, and environmental health) whereas excessive worry (i.e., anxiety) was associated with a decreased QOL among three domains, including physical, psychological, and environmental health (Mourady et al., 2017).

Maternal Mental Health Disorder Risk Assessments and Screening Recommendations

In May 2015, the American Congress of Obstetricians and Gynecologists (ACOG) issued a recommendation for OB/GYNs to screen for depression and additional MMH disorders at least once during the perinatal period using a validated screening tool (ACOG, 2015a). Similarly, in January 2016, the United States Preventive Services Taskforce (USPSTF) released an updated recommendation for screening for depression in the general population, including pregnant and postpartum women (Siu and USPSTF, 2016). To align benefits and services with expert recommendations, the Centers for Medicaid & Medicare Services (CMS) issued guidance in May 2016 (CMS, 2016), to announce the provision and coverage of maternal depression screening during well-child visits and its role in the care of Medicaid beneficiaries, particularly mothers and children (Wachino, 2016).

According to the CA Task Force, women should be educated on the various MMH disorders and be assessed for risk prior to pregnancy and several times throughout their reproductive years (CA Task Force, 2017). Furthermore, women should be screened at least once during the perinatal period. During pre-conception, pregnancy, and/or postpartum, the CA Task Force advises that a woman's health care

provider conduct a mental health assessment and screening for depression, anxiety, and/or bipolar disorders (CA Task Force, 2017). In addition to screening for MMH disorders, discussion should be held regarding MMH risk factors such as mental health history, family history of MMH disorders and general health promotion (e.g., healthy diet to support a growing fetus, sufficient sleep, adequate physical activity, etc.).

Experts recommend using a standardized screening tool to identify and diagnose for potential MMH disorders of which several screening tools have been developed for perinatal depression, anxiety, and bipolar disorder (CA Task Force, 2017). Currently, no tool has been developed to screen and diagnose for psychosis, as such it is imperative that all perinatal health care providers, expecting mothers/new mothers, and partners/families understand the symptoms for postpartum psychosis for prompt identification (CA Task Force, 2017).

Case Management and Treatments for Maternal Mental Health Disorders

Case management

In the context of MMH, the case management program requirements described in AB 2193 reflects elements of traditional mental health case management, such as having a case manager who facilitates linkages to specialized care and monitors their clients' progress, and collaborative or integrated care models, which promote communication across the multiple providers a patient sees to coordinate care for both physical and mental health issues (Byatt et al., 2015; Grote et al., 2015). The specific manner and intensity with which these models of care are applied vary in practice, but are used to increase access to a range of treatments and providers, and help women remain engaged in care (Byatt et al., 2015; Sit et al., 2009). In an integrated care model for MMH, the case manager may be the central nexus through which providers (e.g., psychiatrist, OB-GYN, primary care providers, therapists) communicate about a specific woman's diagnosis, treatment, and progress (Mary C Kimmel et al., 2017).

Treatments for maternal and mental health disorders

According to the Massachusetts Child Psychiatry Access Program (MCPAP) for Moms Adult Provider Toolkit treatment options for MMH disorders vary based on the severity of symptoms, and may include a combination of self-care (e.g., sleep, hygiene, healthy diet), community/social support, psychotherapy (i.e., talk therapy), pharmacotherapy (i.e., treatment using medication), and/or inpatient hospitalization when safety or ability to care for oneself is deemed a concern (Byrns et al., 2014; CA Task Force, 2017). It is important for providers to align treatment with a patient's primary symptoms and preferences (Meltzer-Brody and Jones, 2015). Psychotherapy interventions used to treat the spectrum of MMH disorders include interpersonal psychotherapy (IPT), partner-assisted IPT, cognitive behavioral therapy, and group psychoeducation (Brandon et al., 2012; Meltzer-Brody and Jones, 2015; Sockol, 2015).[17] For perinatal women with more severe MMH symptoms, pharmacotherapy may be appropriate (Meltzer-Brody and Jones, 2015). To make an informed decision as to whether to initiate, continue, or discontinue pharmacotherapy during the perinatal period, providers are encouraged to evaluate the risk-to-benefit ratio, weigh the potential for adverse fetal or infant drug exposure outcomes against safety and health risks of non-treatment, and consider the duration and severity of previous depressive episodes, previous

[17]Interpersonal psychotherapy (IPT) focuses on changing problematic interpersonal behaviors. Partner-assisted IPT utilizes the same techniques as IPT and involves the partner as an active participant throughout treatment. Cognitive behavioral therapy (CBT) is a type of psychotherapy that aims to assist patients identify, evaluate, and modify their distressing beliefs and alter poor behaviors. Group psychoeducation utilizes the principles of CBT in group therapy settings (Brandon et al., 2012; Meltzer-Brody and Jones, 2015; Sockol, 2015).

response to treatment, and past attempts to discontinue pharmacotherapy (Meltzer-Brody and Jones, 2015). Finally, for the most severe or acute MMH cases, inpatient psychiatric treatment (i.e., hospitalization) may also be considered, such as for bipolar women presenting with a severe postpartum episode or postpartum psychosis (Meltzer-Brody and Jones, 2015).

Maternal Mental Health Disorder Screening and Access to Care in California and the United States

Maternal Mental Health Pregnancy and Postpartum Screening Rates

Prenatal maternal mental health screening

In California in 2013, four in five women (81.1%) reported being screened for prenatal depressive symptoms during their pregnancy (Caldwell and Forquer, 2015). Data from the 2013 to 2014 Maternal and Infant Health Assessment (MIHA) survey administered by the California Department of Public Health (CDPH), estimates that women with Medi-Cal coverage during pregnancy are more likely to be screened than women with private insurance coverage (88.1% in Medi-Cal versus 72.7% with private insurance coverage) (Caldwell and Forquer, 2015). Counties with the lowest screening rates (approximately 70% to 75%) included Orange, Kern, and Ventura counties (Caldwell and Forquer, 2015).

Postpartum maternal mental health screening

Data on postpartum screening for maternal depression or any other MMH disorders in California was not found. Women may be less likely to attend postpartum visits, when postpartum depression screenings are likely to occur, compared to prenatal visits (DCHS, 2015; de Bocanegra et al., 2017). Pregnant women generally receive 10 to 12 prenatal visits and only one or two recommended postpartum visits, increasing the probability that postpartum MMH screening is conducted less frequently than prenatal screening.[18] Furthermore, as previously mentioned, definitions of the timeframe for the postpartum period vary greatly, ending six weeks to one year after delivery. MIHA survey data indicated that 87.5% of all California women reported attending at least one postpartum medical visit sometime in the first six months after birth, while a study using 2007 data from the Los Angeles Mommy and Baby (LAMB) study yielded a finding of 92% (CDPH, 2016; DiBari et al., 2014). Both of these studies found that women on Medi-Cal were less likely to report a postpartum visit in the first 6 months than those with private insurance; the LAMB study found that 85.6% of women on Medi-Cal attended a post-partum visit compared to 95.0% of those with private insurance, and the CDPH MIHA study reported 81.4%, compared to compared to 94.7% of those with private insurance (CDPH, 2016; DiBari et al., 2014).

The gap for attending more *timely* postpartum visits may be even wider for women on Medi-Cal; a recent study using Medi-Cal administrative data estimated that 49% of women on Medi-Cal attended a recommended postpartum visit between 21 to 56 days after a birth (Thiel de Bocanegra et al., 2017). It is important to address the discrepancy in estimates between this study, which uses detailed administrative data based on a narrow postpartum timeframe, and the MIHA and LAMB studies, which use self-report data from recent mothers on any postpartum visit in a wider timeframe. The MIHA and LAMB studies may capture more visits than the narrower timeframe in the Thiel de Bocanegra et al. study, but in using self-report survey data, may also be more subject to bias (e.g., recall, social acceptability, or self-selection bias), and may to some extent overestimate the rate at which Medi-Cal women attend postpartum visits in the first six months postpartum. Because AB 2193 does not define the specific timeframe of the

[18] Personal communication, content expert Melanie Thomas, MD, MS, UC San Francisco, March 26, 2018.

postpartum period in which screening should occur, any women screened as a result may not receive a screening in a timely fashion; it is possible that this 30% difference in estimates represents women who are screened later, after MMH symptoms may have appeared, leading to a delay in treatment.

It has been estimated that among women who are *not* screened for maternal depression, only 18% to 25% of cases are ever identified by women seeking help on their own (Castro et al., 2015; Goodman and Tyer-Viola, 2010; O'Connor et al., 2016a; Wilkinson et al., 2017b).

The following table describes the prevalence of self-reported prenatal depression screening and postpartum visits in California by key demographic characteristics (i.e., race/ethnicity and health insurance type).

Table 3. Prevalence of Self-Reported Prenatal Depression Screening and Postpartum Visit Attendance by Insurance Status and Race/Ethnicity in California, 2013

	Received Prenatal Depression Screening (a)	Attended Postpartum Visit (b)
Overall	**81.1%**	**87.5%**
By insurance status		
Medi-Cal	88.1%	81.4%
Private insurance	77.2%	94.7%
Race/ethnicity		
Black	87.2%	83.3%
Hispanic	86.2%	83.9%
White	76.4%	91.3%
Asian/Pacific Islander	69.3%	92.9%

Source: Maternal and Infant Health Assessment Survey, California Department of Public Health, 2013 to 2014.

(a) Maternal Mental Health in California: Data from the California Maternal and Infant Health Assessment Survey, 2014 (Caldwell and Forquer, 2015).

(b) Data from the Maternal and Infant Health Assessment Survey: California Statewide, County, and Regional Snapshots of Maternal and Infant Health Data, 2013-2014. (CDPH, 2016).

Access to Maternal Mental Health Care

Despite high screening rates, findings from a nationally representative survey of recent mothers estimated that only 12% of women who report or screen positive for maternal depressive symptoms actually receive mental health care in the United States (Byatt et al., 2016). An earlier systematic review by the same author of 17 studies, 13 of which were from the United States, found that screening without any subsequent intervention to facilitate access to care led to only 22% of women with perinatal depressive symptoms seeking care (Byatt et al., 2015). Studies examining the impact of interventions targeting at least one of three specific barriers to care regarding patients (e.g., engagement and follow-up), care providers (e.g., training in MMH issues), and practices (e.g., availability of referral resources, completing assessments onsite) found that the more barriers an intervention addressed, the higher the proportion of symptomatic women who accessed some form of MMH treatment, from an average of 31% for low-intensity interventions up to 72% to 90% for high-intensity interventions (Byatt et al., 2015). As an example, one of the highest intensity intervention cited in the review, the Perinatal Depression Management Program, includes screening, identification of cases, assessments done onsite to confirm symptoms, training of providers to educate the client, self-care kits for women, a warm handoff from the

provider to a case manager, and a workflow algorithm to create an integrated stepped care model approach to MMH issues based on severity with most mental healthcare services provided onsite (Miller et al., 2012).

Although case management may help pregnant and postpartum women access available services, an important barrier to accessing MMH care that AB 2193 does not directly address is a general lack of specialists and services to which perinatal care providers can refer a woman who screens positive for MMH issues. California is facing a shortage of mental health care professionals in general, meeting only 48% of projected need, and the shortage is especially severe for clinicians trained to treat MMH issues (CA Task Force, 2017; Coffman et al., 2018). Only 19% of California counties have any psychiatrists that specialize in mental health issues related to female reproductive health (i.e., 11 of 58), clustered mostly around urban areas: the Bay area, coastal southern California, and the central coast (CA Task Force, 2017). If current MMH trends continue, the supply of behavioral health professionals in California will continue to be inadequate in meeting the projected need for maternal and behavioral health services (Coffman et al., 2018).

The case management intervention defined by AB 2193 requires certain aspects that would qualify as an intervention to address access to care for the patient and the provider through patient support and referral pathways to therapist and psychiatric mental health clinicians, but it is unclear what level of intensity these case management plans will have in practice, how they will be tailored to each individual women and her family, or if/how referrals will occur in areas with few clinicians specializing in MMH care.

Disparities[19] and Social Determinants of Health[20] in Maternal Mental Health

Per statute, CHBRP includes discussion of disparities and social determinants of health (SDoH) as it relates to MMH prevalence, screening, and treatment. Disparities are differences between groups that are modifiable. CHBRP found literature identifying disparities by race/ethnicity and gender/age.

Disparities

Race/ethnicity

Tables 2 and 3 (earlier in this section) show that in California, African American and Hispanic/Latina women are more likely to have symptoms of maternal depression, but are also more likely to receive a prenatal depression screening compared to white and Asian women (CA Task Force, 2017; Caldwell and Forquer, 2015; CDPH, 2016). Despite higher rates of symptoms and access to screenings, minority women have lower rates of successful linkages to MMH services.[21] In a prospective cohort study, specific to Medi-Cal beneficiaries, researchers found that only one-half of women enrollees sought out postpartum care (Thiel de Bocanegra et al., 2017). Within this cohort, black women were less likely to seek

[19] Several competing definitions of "health disparities" exist. CHBRP relies on the following definition: Health disparity is defined as the differences, whether unjust or not, in health status or outcomes within a population. Wyatt et al., 2016.

[20] CHBRP defines social determinants of health as conditions in which people are born, grow, live, work, learn, and age. These social determinants of health (economic factors, social factors, education, physical environment) are shaped by the distribution of money, power, and resources and impacted by policy (adapted from Healthy People 2020; CDC, 2014). See CHBRP's SDoH white paper for further information: www.chbrp.org/analysis_methodology/docs/Incorporating Relevant Social_Determinants of Health in CHBRP Analyses Final to WEBSITE 033016.pdf.

[21] Personal communication, content expert Melanie Thomas, MD, MS, UC San Francisco, March 26, 2018.

postpartum care than white and Hispanic/Latina women (Thiel de Bocanegra et al., 2017). As Hispanic/Latina women on Medi-Cal more frequently lose coverage three months postpartum due to pregnancy status, Hispanic/Latina women may be more extrinsically motivated to seek postpartum services between 21 and 56 days after delivery (Thiel de Bocanegra et al., 2017). Interestingly, there appears to be a gap in the cascade of care — in a U.S.-based study examining utilization of mental health services among publicly insured white and African American pregnant and postpartum women, researchers found that African-American women had a 50% lower probability of using available services than white women. This may be attributed to the finding that African American women generally do not seek mental health services until their MMH disorders become severe (Song et al., 2004).

It's important to note that findings from U.S.-based studies on racial and ethnic disparities and the risk for maternal depression and/or anxiety have varied as to the effect of race/ethnicity on depression and/or anxiety (CA Task Force, 2017). These varied findings may be attributed to the influence of socioeconomic status — more so than race and ethnicity — which is estimated to have a stronger association with postpartum depression and may not always be well controlled (O'Hara and McCabe, 2013).

Gender and age

Across the United States, perinatal depression is about three times as common among women compared to men, with approximately 11% of women experiencing postpartum depressive symptoms compared to 4% of new fathers experiencing depressive symptoms in the first year of their child's birth (Dave et al., 2010; Ko et al., 2017). As previously mentioned, pregnancy and postpartum hormonal shifts have also been attributed to the increased risk of MMH disorders in perinatal women (Marcus, 2009; O'Hara and McCabe, 2013). In a study evaluating the relationship between maternal age and depression, researchers found that postpartum women of advanced maternal age (i.e., 40 to 44 years of age) had a significantly higher risk for PPD compared to younger women (30 to 35 years of age) with an adjusted odds ratio of 3.72 (Muraca and Joseph, 2014). At the other end of the age range for childbearing women, adolescent and young adult mothers with unintended pregnancy may also be at greater risk for MMH issues; one study of nationally representative data from National Longitudinal Study of Adolescent to Adult Health found they were 1.21 times more likely to have perinatal depressive symptoms compared to those in the same age range who had intended to become pregnant (Hall et al., 2017).

Social Determinants of Health

Social determinants of health (SDoH) include factors outside of the traditional medical care system that influence health status and health outcomes (e.g., income, education, geography, etc.). CHBRP found literature on how socioeconomic status, stigma, and geography may impact prevalence of MMH disorders and access to MMH screening and treatment.

Socioeconomic status

In Tables 2 and 3, compared to women with private insurance, a greater proportion of women on Medi-Cal screened positive for maternal depression symptoms and received a prenatal depression screening, but a lower proportion attended a postpartum visit where maternal depression screening may occur (Caldwell and Forquer, 2015; CDPH, 2016). Socioeconomic status (SES) may be a significant factor in disparities in maternal depression among women of color compared to white women and among mothers who are younger (i.e., teenage/young adult) or facing an unplanned or first-time pregnancy compared to mothers who are slightly older, have planned pregnancies, or have other children already. These groups of women may face additional life stressors related to lower income or less financial stability, which may heighten symptoms of depression and anxiety (Goyal et al., 2010; Leathers and Kelley, 2000). Compared to women with higher SES, women with low SES may also be more likely to experience domestic

violence (Brown et al., 1999; Escribà-Agüir et al., 2013), have significant childhood trauma (Blalock et al., 2013), and have acute/chronic stressors and physical conditions such as a lack of social support, diabetes, or a mental health disorder prior to pregnancy, all of which are linked to higher rates of maternal depression (Song et al., 2004; Walmer et al., 2015).

Barriers to accessing MMH care are also greater for women of low SES compared to those with high SES, which may in part explain why women of color and women with Medi-Cal coverage have higher rates of maternal depression and are less likely to have a postpartum visit compared to white women and women with private insurance. A systematic review regarding access to MMH care among low income women in western countries found that a lack of transportation, homelessness or poor housing conditions, and concerns over the cost of MMH care represent significant barriers (Hansotte et al., 2017). Furthermore, women with Medi-Cal coverage due to pregnancy status but who otherwise do not meet eligibility requirements lose coverage 60 days postpartum, presenting additional barriers to MMH care (Thiel de Bocanegra et al., 2017). Even among those who had health insurance, concerns or perceptions that mental health care would not be covered hindered access to MMH care for low-income women (Hansotte et al., 2017).

Stigma

Mental health stigma is a significant barrier to accessing MMH care, as concerns about being judged for having a mental illness may be compounded by fears of being perceived as being an unfit mother, or in some cases, fears that reaching out to a medical professional for help will lead to involuntary hospitalization or a report to Child Protective Services (CA Task Force, 2017). A survey of 291 women at a community clinic in North Carolina found that beliefs and concerns about talking to their doctor about potential MMH disorder symptoms would prevent disclosure from taking place for 19% of women surveyed, reflecting the role of internalized stigma (e.g., feeling ashamed or like a bad mother for having mental health issues) and social stigma (e.g., fearing that reporting symptoms will lead to poor regard or treatment, or reports to Child Protective Services) and how they can impact access to care (Prevatt and Desmarais, 2018). These findings were echoed in a systematic review regarding access to MMH care among low income women in western countries which found that stigma was a major barrier, and indicated that stigma may be especially detrimental to some racial/ethnic and immigrant minorities who have specific beliefs about mental health and MMH issues that present a significant barrier to accessing care or speaking to a provider about these issues (Hansotte et al., 2017).

Health literacy

A lack of knowledge or awareness of how women may be affected by mental health disorders during pregnancy or postpartum may prevent women from recognizing symptoms in themselves or knowing what to do or where to go to access care (Hansotte et al., 2017). Health literacy issues in regards to seeking and obtaining care for MMH issues are especially prevalent among women with limited English speaking ability (e.g., recent immigrant women or women from insular immigrant communities) or lower educational attainment (Hansotte et al., 2017).

Geography

Geographical isolation due to living in an area with fewer mental health or reproductive healthcare providers also limits access to care; transportation can be an issue for women living in both rural and urban areas, as rural-living women may have further distances to travel to access care, while women living in low-income urban areas may not have providers in an accessible area or face poor public transportation systems (CA Task Force, 2017; Hansotte et al., 2017). Home-visiting programs and

telephone-based screening programs for MMH issues have been developed to help address these barriers for pregnant and postpartum women (Bhat et al., 2017; Figueiredo et al., 2015).

Societal Impact of Maternal Mental Health Issues in the United States

The presence of MMH issues in California/the United States creates a societal impact. In dollar terms, the societal impact can be indirect (lost wages, etc.) as well as direct (medical care, etc.). The CA Task Force used findings from 2010 to estimate that California's annual indirect costs of untreated maternal depression was approximately $2.25 billion dollars, based on $7,200 in productivity loss for the mother and $15,300 in costs incurred due to poor child developmental and behavioral outcomes and subsequent impacts on the child's education and productivity (CA Task Force, 2017; Diaz and Chase, 2010). Adjusting for inflation, this would be $8,358.74[22] for the mother and $17,762.33[23] for the child in 2019 dollars, for a total of $26,121.07 per mother-child pair per year. The year 2019 is used to adjust for inflation in the case that this estimate can be applied to any estimated change in utilization of treatments in the *Cost* section that are identified as effective in the *Medical Effectiveness* section, and described in the *Public Health* section. Please note, the societal impact discussed here is relevant to a broader population than AB 2193 impacts, which would affect the health insurance of a subset of Californians (see *Policy Context*). In addition, *Benefit Coverage, Utilization, and Cost Impacts* estimates cost impacts on payers. Such figures represent a subset of the total societal impact related to MMH issues.

[22] "2019 Inflation Prediction | Future Inflation Calculator." FinanceRef Inflation Calculator, Alioth Finance, 24 Mar. 2018, http://www.in2013dollars.com/2010-dollars-in-2019?amount=7200&future_pct=0.0167.
[23] "2019 Inflation Prediction | Future Inflation Calculator." FinanceRef Inflation Calculator, Alioth Finance, 24 Mar. 2018, http://www.in2013dollars.com/2010-dollars-in-2019?amount=15300&future_pct=0.0167.

MEDICAL EFFECTIVENESS

As discussed in the *Policy Context* section, AB 2193 would require DMHC-regulated health plans and CDI-regulated policies to cover screening mothers for maternal mental health conditions at least once during pregnancy and once postpartum. It would also require that DMHC-regulated plans and CDI-regulated policies develop a comprehensive case management program for enrollees who screen positive for a maternal mental health condition and who are subsequently diagnosed, including direct access to a case manager, a therapist, and a psychiatrist familiar with research related to pregnant and lactating women. When a treatment plan is available, clinical case managers must document the enrollee's status to the enrollee's provider at least once every 8 months.

The medical effectiveness review summarizes the evidence[24] on the benefits and harms of screening for maternal mental health conditions, the accuracy of screening instruments, and the benefits and harms of treatment for maternal mental health conditions, including case management, on health outcomes.

Research Approach and Methods

Studies of screening for maternal mental health conditions and subsequent case management and treatments were identified through searches of PubMed, the Cochrane Library, Web of Science, EconLit, and Business Source Complete, the Cumulative Index of Nursing and Allied Health Literature, and PsycINFO. Websites maintained by the following organizations that produce and/or index meta-analyses and systematic reviews were also searched: the Agency for Healthcare Research and Quality (AHRQ), the International Network of Agencies for Health Technology Assessment (INAHTA), the National Health Service (NHS) Centre for Reviews and Dissemination, the National Institute for Health and Clinical Excellence (NICE), and the Scottish Intercollegiate Guideline Network.

The search was limited to abstracts of studies published in English.

For screening and treatment (including case management) of prenatal and postpartum depression, the search was limited to studies published from 2015 to present. CHBRP relied on a systematic review from the United States Preventive Services Task Force (USPSTF) published in 2016 for findings from studies published prior to 2015. As this bill also encompasses other maternal mental health conditions, we conducted a targeted search to identify relevant screening and treatment studies for anxiety disorders, bipolar disorder, and postpartum psychosis, which is consistent with the most common and severe maternal mental health conditions outlined by the California Task Force on Maternal Mental Health. In order to identify relevant screening and treatment studies for maternal mental health conditions beyond perinatal depression, CHBRP performed a targeted literature search, including (1) reviewing the excluded studies list from the 2016 USPSTF report to identify studies excluded due to a mental health condition other than postpartum depression, (2) reviewing references provided by our content experts, and (3) reviewing reference lists of recent studies to identify relevant older studies.

Of the 1,136 articles found in the literature review, 180 were reviewed for potential inclusion in this report on AB 2193, and a total of 42 studies were included in the medical effectiveness review for this report. The other articles were eliminated because they did not include a pregnant or postpartum population,

[24] Much of the discussion below is focused on reviews of available literature. However, as noted in the ME approach document (see p.8 in the document posted here), in the absence of "fully-applicable to the analysis" peer-reviewed literature on well-designed randomized controlled trials (RCTs), CHBRP's hierarchy of evidence allows for the inclusion of other evidence.

performed screening outside a routine clinical care setting (e.g., neonatal intensive care unit), investigated a less common screening tool or treatment, or did not report any relevant outcomes. A more thorough description of the methods used to conduct the medical effectiveness review and the process used to grade the evidence for each outcome measure is presented in Appendix B: Literature Review Methods.

The conclusions below are based on the best available evidence from peer-reviewed and grey literature. Unpublished studies are not reviewed because the results of such studies, if they exist, cannot be obtained within the 60-day timeframe for CHBRP reports.

Key Questions

1. Does screening for maternal mental health conditions among pregnant and postpartum women result in improved health outcomes?

2. Does sending screening results to primary care providers result in improved health outcomes?

3. What is the accuracy of maternal mental health screening instruments in pregnant and postpartum women?

4. What are the adverse effects of screening for maternal mental health conditions in pregnant and postpartum women?

5. Among women with maternal mental health conditions, does treatment, including case management, result in improved health outcomes?

6. What are the adverse effects of (a) treatment, including (b) case management, for maternal mental health conditions in pregnant and postpartum women?

Methodological Considerations

We defined perinatal mental health conditions as those occurring during pregnancy or within the first 12 months of delivery, which is consistent with the definition of postpartum depression used in the 2016 USPSTF recommendation on depression screening (Gaynes et al., 2005; O'Connor et al., 2016b). As described previously, we included a broad definition of maternal mental health conditions, including perinatal depression, anxiety disorders (including obsessive-compulsive disorder, perinatal post-traumatic stress disorder [PTSD], and panic disorder), bipolar disorder, and postpartum psychosis. We considered conditions to meet the definition of a “maternal mental health condition” if the onset occurred during pregnancy or if it was a preexisting disorder identified during the perinatal period. To determine the effectiveness of screening for maternal mental health conditions, and the impact of sharing results with a primary care provider, this review included only randomized or controlled comparative trials which compared women who received screening with women who did not receive screening or whose screening results were not acted upon. Since the bill specifies that OB/GYNs should be performing the screening, we excluded studies of screening programs in other settings (e.g., pediatric well-child visits, neonatal ICU). We only included studies using the most common screening tools — EPDS, PHQ, GAD-7 and MDQ — as outlined by the California Task Force (California Task Force on the Status of Maternal Mental Health Care, 2017). Studies of treatment were primarily limited to common behavioral interventions and pharmacology, which is consistent with the structure of the 2016 USPSTF systematic review on adult depression. Less common treatments, such as electroconvulsive therapy and hormonal interventions, were discussed when CHBRP’s literature review indicated that they were primary therapies for one of our included maternal mental health conditions.

Outcomes Assessed

To assess the effectiveness of screening for maternal mental health conditions (RQs 1-2), we included randomized controlled trials or controlled clinical trials reporting changes in condition symptomology, condition remission or response, suicide, and all-cause mortality. To assess the accuracy of maternal mental health screening tools (RQ3), we included diagnostic accuracy studies reporting the sensitivity[25], specificity[26], and positive[27] and negative[28] predictive values of the tools compared with a diagnostic reference standard, such as a structured or semi-structured clinical interview[29] with a trained interviewer. To assess the harms of screening (RQ4), we included trials and cohort studies reporting outcomes such as treatment avoidance, deterioration in patient-provider relationship, labeling/stigma, and inappropriate or unnecessary treatment. To assess the effectiveness of behavioral and pharmacologic treatments for maternal mental health conditions (RQ5) we included systematic reviews of the literature that summarized literature on condition symptomology, condition remission or response, and quality of life; primary trials examining case management were also included. To assess the harms of treatment (RQ6) we included systematic reviews reporting on maternal health outcomes such as preeclampsia, postpartum hemorrhage, miscarriage, cardiac effects, and suicidality; and infant health outcomes such as perinatal death, preterm birth, low birth weight, pulmonary and cardiac effects, and other fetal malformations.

Study Findings

As mentioned previously, the medical effectiveness review pertaining to screening and treatment of postpartum depression relied on a 2016 systematic review from the USPSTF. We also included additional studies identified by the CHBRP literature search addressing screening and treatment for anxiety disorders, bipolar disorder and postpartum psychosis: six additional studies assessed screening instrument accuracy, one additional study addressing screening harms, 20 addressed treatment effectiveness and 13 addressed treatment harms.

The following figures in this section summarize CHBRP's findings regarding the strength of the evidence for the effects screening and treatment for maternal mental health conditions addressed by AB 2193. Separate figures are presented for screening test and treatment for which the bill would mandate coverage and for each outcome for which evidence of the effectiveness of a treatment is available. The title of the figure indicates the test, treatment or service for which evidence is summarized. The statement under the title presents CHBRP's conclusion regarding the strength of evidence about the effect of a particular test, treatment, or service on a specific relevant outcome and the number of studies on which CHBRP's conclusion is based. For test, treatments, and services for which CHBRP concludes that there is *clear and convincing*, *preponderance*, *limited*, or *inconclusive evidence*, the placement of the highlighted box indicates the strength of the evidence. If CHBRP concludes that evidence is insufficient, a figure that states "Insufficient Evidence" will be presented.

[25] Sensitivity measures the proportion of positive screening tests that correctly identified individuals with a mental health condition

[26] Specificity measures the proportion of negative screening tests that correctly identified individuals without a mental health condition

[27] Positive predictive value (PPV) is the proportion of "true positives" (i.e., those with the disease who screen positive) relative to the total number of positive screening results

[28] Negative predictive value (NPV) is the proportion of "true negatives" (i.e., those without the disease who screen negative) relative to the total number of negative screening results

[29] A structured clinical interview, or diagnostic interview, is a diagnostic exam used to diagnose DSM-IV major mental or personality disorders.

Given the breadth of the mental health conditions, screening tools, and treatments covered in this section, CHBRP has included a summary of evidence table (Table 6) at the end of the Medical Effectiveness section, summarizing the findings presented in the following sub-sections.

Effectiveness of Screening for Maternal Mental Health Conditions

The 2016 USPSTF review did not identify any trials comparing the effects of usual perinatal care versus screening plus usual perinatal care on perinatal depression outcomes. The review did identify six trials examining the benefits of participation in a perinatal depression screening program; however, all of the trials employed additional intervention elements beyond depression screening, such as patient/provider education, home visits from midwives, etc. As such, it is not possible to isolate the effects of screening on outcomes alone. While these trials do not directly address whether screening alone is beneficial, they can provide evidence as to whether being identified at risk for perinatal depression as part of a larger perinatal depression intervention leads to improved outcomes. The results of these trials will be discussed in more detail below.

The CHBRP literature review did not find any trials assessing the effectiveness of screening for other maternal mental health conditions, nor did CHBRP identify any trials published since 2015 (the end date for the systematic review conducted for the USPSTF) assessing the effectiveness of screening for perinatal depression on relevant health outcomes.

Summary of findings regarding the effectiveness of perinatal screening for depression, anxiety disorders, bipolar disorder, and postpartum psychosis: As CHBRP did not identify any trials that compared the effectiveness of screening alone versus usual care, CHBRP concludes that there is insufficient evidence to determine whether screening alone for perinatal depression, anxiety disorders, bipolar disorder, or postpartum psychosis impacts health outcomes such as depression symptoms, suicidal ideation, attempts or deaths, health status, or quality of life. Please note that the absence of evidence is not "evidence of no effect." It is possible that an impact — desirable or undesirable — could result, but current evidence is insufficient to support any impact.

Figure 3. Effectiveness of Perinatal Screening for Depression, Anxiety Disorders, Bipolar Disorder, and Postpartum Psychosis

Effectiveness of participation in a screening and intervention program for maternal mental health conditions

Depression

As noted above, the 2016 USPSTF review identified six trials examining the benefits of perinatal depression screening/intervention programs (5 in postpartum women and one in pregnant women). None of the trials compared screening alone plus usual care to usual care alone - all of the trials were assessing depression prevention/treatment and employed additional intervention elements beyond screening. In all of the trials, women in both the intervention and control arms were screened with the Edinburgh Postnatal Depression Scale (EPDS); in the intervention arms, women with scores exceeding a predefined threshold were further evaluated and engaged in additional intervention activities, such as

non-directive counseling or cognitive behavioral therapy. Some trials also included provider-focused activities, such as training in depression screening and diagnosis process, care plan development, or guideline education. All of the trials involved either midwives (two trials), public health nurse visitors (two trials), family physicians (one trial), or nurses (one trial).

Among postpartum women, the five trials showed that participation in a depression screening prevention/treatment program resulted in a 28% to 59% reduction in depression risk at 3- to 5-month follow-up, compared to usual care. Three trials reported the impact of screening program participation on remission (no longer screening positive at follow-up) or treatment response (showing a predetermined level of improvement, measured by an EPDS or PHQ-9 score). These trials reported a 21% to 33% increase in the likelihood of remission or treatment response at 6 to 14 months postpartum.

The USPSTF review only identified a single trial looking at screening in pregnant women; the results of that trial compared to the postpartum trials show that effect of the intervention was smaller than those seen in postpartum women and was not significant. The trial did find a 182% increased likelihood of remission or treatment response, but this was only measured at 2.8 months follow-up (O'Connor et al., 2016b).

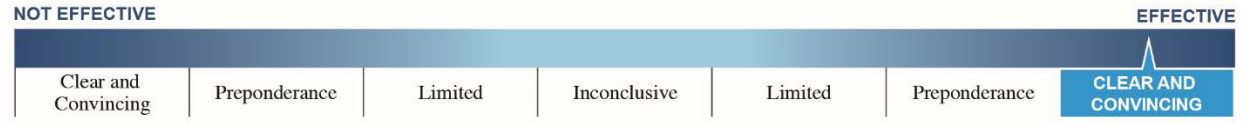
The CHBRP literature review did not find any trials published since 2015 (the end date for the systematic review conducted for the USPSTF) assessing the effectiveness of screening for perinatal depression on relevant health outcomes.

Summary of findings regarding participation in prenatal depression screening programs with additional interventions: Based on a well-conducted systematic review including a single trial conducted in pregnant women, CHBRP finds that there is limited evidence that a screening program that incorporates additional interventions beyond screening **pregnant** women can reduce the risk of depression remission or response, but this was only measured at 2.8 months follow-up.

Figure 4. Effectiveness of Participation in Prenatal Depression Screening Programs With Additional Interventions

Summary of findings regarding participation in postpartum depression screening programs with additional interventions: Based on a well-conducted systematic review including 5 trials, CHBRP concludes that there is clear and convincing evidence that screening/intervention programs that incorporates additional interventions beyond screening **postpartum** women can reduce the risk of depression 3 to 5 months postpartum (compared to women who did not take part in the program), and increases the likelihood of depression remission or treatment response at 6 to 14 months postpartum.

Figure 5. Effectiveness of Participation in Postpartum Depression Screening Programs With Additional Interventions



Anxiety Disorders, Bipolar Disorder, and Postpartum Psychosis

The CHBRP literature review did not find any trials assessing the effectiveness of screening for maternal mental health conditions, including anxiety disorders, bipolar disorder, and postpartum psychosis, on relevant health outcomes such as changes in condition risk, remission, or treatment response.

Summary of findings regarding perinatal screening/intervention programs for anxiety disorders, bipolar disorder, or postpartum depression: CHBRP finds insufficient evidence to conclude whether screening programs for anxiety disorders, bipolar disorders, or postpartum psychosis during pregnancy or postpartum leads to changes in relevant health outcomes (condition risk, remission, treatment response).

Figure 6. Effectiveness of Perinatal Screening/Intervention Programs for Anxiety Disorders, Bipolar Disorder, and Postpartum Psychosis

Effectiveness of sharing maternal mental health screening results

Neither the USPSTF review nor the CHBRP literature search identified any trials directly comparing the effectiveness of sharing the results of a depression screener with the patient's primary care provider versus women whose results were not shared. Four of the six trials on perinatal depression included in the 2016 USPSTF review did incorporate sharing of results in some form with various providers (e.g., midwives, public health nurses), but this was always performed as part of a larger perinatal depression prevention or treatment intervention protocol, including elements such as telephone or in-home counseling, and patient and/or provider education (O'Connor et al., 2016b).

The CHBRP literature review did not find any trials assessing the effectiveness of sharing screening results for perinatal anxiety disorders, bipolar disorder or postpartum psychosis.

Summary of findings regarding the effectiveness of sharing maternal mental health screening results: CHBRP finds insufficient evidence that the sharing of screening results alone results in beneficial outcomes; however, there is evidence that sharing results as one component of a broader perinatal depression prevention/treatment intervention, can lead to improved outcomes.

Figure 7. Effectiveness of Sharing Maternal Mental Health Screening Results

Accuracy of Maternal Mental Health Screening Instruments

In addition to the 2016 USPSTF review, which summarized data from 11 studies reporting the accuracy of the EPDS and PHQ-9 for perinatal depression, the CHBRP literature review also identified six additional studies reporting the accuracy of screening instruments for anxiety disorders and bipolar disorders in pregnant and postpartum women. The results of these studies, as well as those included in the 2016 USPSTF review, are summarized below in Table 4; additional study details are presented in **Appendix C.**

As noted in the Background section, there is currently not a commonly used tool to screen for symptoms of psychosis. The CHBRP review did not identify any studies investigating the accuracy of any screening instrument for identifying symptoms of postpartum psychosis. While the MDQ, which is used to screen for bipolar disorder, does assess symptoms of mania (California Task Force on the Status of Maternal Mental Health Care, 2017), CHBRP did not identify any studies evaluated the accuracy of this tool in detecting symptoms of postpartum psychosis.

Table 4. Studies of Screening Instrument Accuracy for Detecting Maternal Mental Health Conditions

Condition [a]	Study Population	Condition Prevalence in Study Population	Cut-Off [b]	Sens. [c]	Spec. [d]	PPV [e]	NPV [f]	Source
Edinburgh Postnatal Depression Scale (EPDS)								
Major depressive disorder	Pregnant women	6.0%	≥13	1.00	0.87	NR	NR	USPSTF 1 study (O'Connor et al., 2016b)
Major depressive disorder	Postpartum women	1.5% - 17.5%	≥13	0.67 — 0.95	0.88 — 0.99	NR	NR	USPSTF 6 studies (O'Connor et al., 2016b)
Major depressive disorder	Pregnant and postpartum women	28.4%	≥13	0.81	0.96	NR	NR	USPSTF 1 study (O'Connor et al., 2016b)
Minor or major depression	Postpartum women	8.0% - 39.7%	≥10	0.63 — 0.84	0.79 — 0.90	NR	NR	USPSTF 4 studies (O'Connor et al., 2016b)
Minor or major depression	Pregnant and postpartum women	33.7%	≥10	0.84	0.81	NR	NR	USPSTF 1 study (O'Connor et al., 2016b)
Anxiety [g]	Pregnant women	20.4% (49/240)	≥13	0.89	0.40	0.37	0.84	(Simpson et al., 2014)
Anxiety [g]	Pregnant women	20.4% (49/240)	≥10	0.77	0.27	0.36	0.79	(Simpson et al., 2014)
Anxiety	Pregnant and postpartum women	49.5% (45/91)	≥13	0.70	0.82	0.79	0.74	(Grigoriadis et al., 2011)
Any SCID disorder [h]	Postpartum women	27% (2690/10004)	≥13	0.30	0.95	0.67	0.79	(Howard et al., 2018)
Edinburgh Postnatal Depression Scale — Anxiety Subscale (EPDS-3A)								
Anxiety [g]	Pregnant women	20.4% (49/240)	NR	0.68	0.64	0.46	0.81	(Simpson et al., 2014)
Anxiety	Postpartum women	7.6% (18/238)	≥6	0.67	0.88	0.32	0.97	(Matthey, 2008)
Anxiety	Pregnant and postpartum women	49.5% (45/91)	≥3	0.88	0.49	0.62	0.81	(Grigoriadis et al., 2011)
Patient Health Questionnaire (PHQ)								
Major depressive	Pregnant women	6.1% (13/213)	≥3 (PHQ-2)	0.77	0.59	NR	NR	(Smith et al., 2010) [i]

Condition [a]	Study Population	Condition Prevalence in Study Population	Cut-Off [b]	Sens. [c]	Spec. [d]	PPV [e]	NPV [f]	Source
disorder								
Major depressive disorder	Pregnant women	6.1% (13/213)	≥4 (PHQ-2)	0.62	0.79	NR	NR	(Smith et al., 2010) [i]
Major depressive disorder	Postpartum women	4.6% (20/438)	Any 2 yes (PHQ-2)	0.75	0.88	NR	NR	(Gjerdingen et al., 2009a) [i]
Major depressive disorder	Postpartum women	4.6% (20/438)	Any yes (PHQ-2)	1.00	0.62	NR	NR	(Gjerdingen et al., 2009a) [i]
Major depressive disorder	Pregnant women	6.1% (13/213)	≥10 (PHQ-8)	0.77	0.62	NR	NR	(Smith et al., 2010) [i]
Major depressive disorder	Pregnant women	6.1% (13/213)	≥11 (PHQ-8)	0.77	0.68	NR	NR	(Smith et al., 2010) [i]
Major depressive disorder	Postpartum women	4.6% (20/438)	≥10 (PHQ-9)	0.75	0.91	NR	NR	(Gjerdingen et al., 2009a) [i]
Minor or major depression	Pregnant women	13.5% (17/126)	Any yes (PHQ-2)	1.00	0.68	NR	NR	(Mann et al., 2012) [i]
Mood Disorder Questionnaire (MDQ)								
Bipolar	Postpartum women [j]	45.6% (57/125)	≥7 w/ supplement questions	0.75	0.87	0.83	0.81	(Sharma and Xie, 2011)
Bipolar	Postpartum women j	45.6% (57/125)	≥8 w/o supplement questions	0.88	0.85	0.83	0.89	(Sharma and Xie, 2011)
Bipolar	Pregnant and postpartum women	15.0% (18/120)	≥7 w/ supplement questions	0.39	0.91	0.37	0.92	(Frey et al., 2012)
Bipolar	Pregnant and postpartum women	15.0% (18/120)	≥7 w/o supplement questions	0.89	0.84	0.43	0.98	(Frey et al., 2012)

Source: California Health Benefits Review Program, 2018.

Notes: (a) Major depressive disorder is a mood disorder defined by the DSM-IV based on specific symptomatic and functional criteria. Minor depression is also a mood disorder, but it does not satisfy the DSM-IV criteria for major depressive disorder, but does require patients experience at least two depressive symptoms for 2 weeks (Fils et al., 2010).

(b) The cut-off score indicates the threshold at which a patient would have symptoms suggestive of a mental health condition and would be referred for psychiatric evaluation.

(c) Sensitivity measures the proportion of positive screening tests that correctly identified individuals with a mental health condition.

(d) Specificity measures the proportion of negative screening tests that correctly identified individuals without a mental health condition.

(e) Positive predictive value (PPV) is the proportion of "true positives" (i.e., those with the disease who screen positive) relative to the total number of positive screening results.

(f) Negative predictive value (NPV) is the proportion of "true negatives" (i.e., those without the disease who screen negative) relative to the total number of negative screening results.

(g) Anxiety disorders in Simpson et al. (2014) include generalized anxiety disorder (14.6%), obsessive-compulsive disorder (1.7%), social anxiety disorder (2.1%) and panic disorder, with or without agoraphobia (2.1%).

(h) Any SCID diagnosis includes those conditions defined by the DSM-IV as either Axis I (major mental disorders) or Axis II (personality disorders). In Howard (2018), patients were diagnosed with depression, anxiety, OCD, eating disorder, PTSD, bipolar I or II, borderline personality.

(i) These studies were included in the 2016 USPSTF systematic review. Because these studies evaluated different PHQ versions and using differing scoring approaches, the USPSTF did not pool this data; therefore, we have presented individual study data, instead of aggregate data.

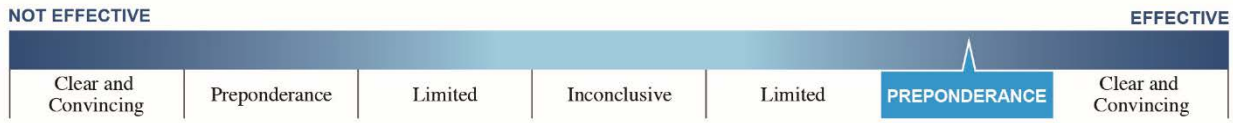
(j) These prevalence rates are elevated above bipolar prevalence in the general population because this study was of a subgroup of women who had a history of a DSM-IV diagnosis (prior to pregnancy) of major depressive disorder or bipolar disorder.

Depression

Edinburgh Postnatal Depression Scale (EPDS). The 2016 USPSTF review identified 8 studies examining the accuracy of the English-language EPDS in identifying perinatal depression compared to a diagnostic interview (the EPDS has also been studied in other languages, such as Chinese, Japanese, French and Spanish). Six of the EPDS studies assessed the accuracy in postpartum women, while one study each assessed pregnant women and women at any point during pregnancy up to 26 weeks postpartum; two studies were conducted in the United States. Using an EPDS cutoff score of 13 (indicating probable major depressive disorder, or MDD), sensitivity and specificity was generally high, with sensitivities ranging from 0.63 to 1.00 and specificity ranging from 0.87 to 0.99 (O'Connor et al., 2016b).

Summary of findings regarding EPDS screening for depression: Based on one well-conducted systematic review including eight studies, CHBRP concludes that there is a preponderance of evidence that the Edinburgh Postnatal Depression Scale (EPDS) can accurately identify depression among pregnant and postpartum women.

Figure 8. Accuracy of the EPDS for Detecting Perinatal Depression



Patient Health Questionnaire (PHQ). The 2016 USPSTF review identified three studies reporting the accuracy of the English-language Patient Health Questionnaire (PHQ) in pregnant and postpartum women, compared to a diagnostic interview. These studies looked at three different versions of the PHQ — PHQ2, PHQ-8, and PHQ-9 — and used three different scoring approaches for the PHQ2. The range of sensitivity and specificity was wide across all instruments and scoring approaches (O'Connor et al., 2016b).

Summary of findings regarding the accuracy of PHQ screening for depression: Based on evidence from three studies, CHBRP concludes that there is inconclusive evidence that the PHQ can accurately identify depression among pregnant and postpartum women. The limited number of identified studies

used different PHQ versions and scoring approaches which impedes CHBRP's ability to reach a conclusion regarding the strength of the evidence.

Figure 9. Accuracy of the PHQ for Detecting Perinatal Depression

Anxiety disorders

Edinburgh Postnatal Depression Scale (EPDS). CHBRP identified three studies assessing the accuracy of the EPDS or EPDS-3A (anxiety subscales of the full EPDS) in screening for anxiety disorders compared to a diagnostic interview (Grigoriadis et al., 2011; Matthey, 2008; Simpson et al., 2014). The sensitivity in two studies was similar (0.67 in Matthey and 0.68 in Simpson et al.). Sensitivity was highest in the third study (0.88), but with the lowest specificity (0.49) (Grigoriadis et al., 2011).

Summary of findings regarding EPDS/EPDS-3A screening for anxiety disorders: Based on evidence from three studies, CHBRP concludes that there is inconclusive evidence that the EPDS or EPDS-3A can accurately identify symptoms of anxiety in pregnant or postpartum women. The limited number of identified studies used different cut-off scores which impedes CHBRP's ability to reach a conclusion regarding the strength of the evidence.

Figure 10. Accuracy of the EPDS/EPDS-3A for Detecting Perinatal Anxiety Disorders

Generalized Anxiety Disorder-7 (GAD-7). **Generalized Anxiety Disorder.** While the GAD-7 has been validated in the general population (Christensen et al., 2011; Spitzer et al., 2006), CHBRP identified a single study assessing its accuracy in a perinatal population. Simpson et al. found that using a higher cut-off score (13 vs. 10) resulted in accuracy similar to that in a general population. The authors also concluded that the properties of the GAD-7 resulted in better identification of GAD than either the EPDS or EPDS-3A (Simpson et al., 2014).

Summary of findings regarding GAD-7 screening for anxiety disorders: Although there is strong evidence supporting its validity in the general population, based on evidence from a single study, CHBRP concludes that there is limited evidence that the GAD-7 can accurately identify anxiety disorders in pregnant and postpartum women.

Figure 11. Accuracy of the GAD-7 for Detecting Perinatal Anxiety Disorders

Bipolar disorder

Mood Disorder Questionnaire (MDQ). CHBRP identified two studies that assessed the accuracy of the MDQ in detecting bipolar disorder in the perinatal period (Frey et al., 2012; Sharma and Xie, 2011). Both

studies compared the accuracy of the MDQ using traditional scoring (presence of 7 symptoms plus supplementary questions on symptoms/functional impairment) and alternative scoring approaches (different cut-off scores and without the supplementary questions). Both studies found that the MDQ performed better without the supplementary questions compared with traditional scoring.

Summary of findings regarding MDQ screening for bipolar disorder: Based on evidence from two studies, CHBRP concludes that there is limited evidence that the MDQ can accurately identify bipolar symptoms in pregnant or postpartum women when the tool is used without the supplementary questions on symptoms and functional impairment.

Figure 12. Accuracy of the MDQ for Detecting Perinatal Bipolar Disorder

Harms of Maternal Mental Health Screening

Only one of the six trials included in the 2016 USPSTF review reported on harms associated with depression screening in pregnant or postpartum women; this trial reported no adverse effects of screening, such as treatment avoidance, stigma, changes in provider relationship, unnecessary treatment, or other physical harms of screening (O'Connor et al., 2016b). One recent cross-sectional study in Canada reported women's perceptions of prenatal mental health screening. The study enrolled 238 consecutive women recruited from prenatal classes and maternity clinics and administered the Barriers and Facilitators of Mental Health Screening Questionnaire, which is a 63-item screening tool designed to identify barriers and facilitators of mental health screening in pregnancy. Of the 238 women screened, 25% had been previously diagnosed with depression or depressive symptoms, and the vast majority received their prenatal care from either an OB/GYN or a family physician; only 6% received care from a nurse or midwife. Of the 238 women screened, only one considered screening a negative experience and the most commonly reported harm was embarrassment (16/238; 6.7%) (Kingston et al., 2015).

One potential harm of screening for depression without further screening for mania is under-diagnosis of bipolar disorder. A 2008 study by Sharma et al. found that among women diagnosed with postpartum depression, 54% met criteria for bipolar disorder that was not previously diagnosed (Sharma et al., 2008). Merrill (2015) found that 21% of women who scored $\geq$10 on the EPDS (indicating major or minor depression) also screened positive for bipolar disorder on the MDQ; this increased to 57% when using an EPDS cutoff of $\geq$13 (indicating major depressive disorder) (Merrill et al., 2015).

Another potential harm of maternal mental health screening is false-positive or false-negative screening results. The false-positive rate (FPR) of a screening instrument is the rate of positive screening test results among women without a maternal mental health condition. These are women who would be unnecessarily referred for a psychiatric evaluation. The false-negative rate (FNR) is the rate of negative screening test results among women with a maternal mental health condition. These are women with a maternal mental health condition who would be missed by the screening instruments. False-positive and false-negative rates varied widely depending on the screening tool used and the targeted mental health condition.

For major depressive disorder screening, the FPR of the EPDS ranged from 1% to 13%, based on studies included in the 2016 USPSTF review (O'Connor et al., 2016b). For major depressive disorder screening with the PHQ varied widely based on instrument variation and scoring approach. Screening postpartum women with the PHQ-9 using a cut-off of $\geq$10 yielded a FPR of 9% compared to screening

with the PH-2 using a cut-off of ≥3 which yielded a FPR of 41%. For the majority of instrument variations and scoring approaches, the FPRs of the PHQ generally surpassed 20% (O'Connor et al., 2016b). Screening for minor or major depression using the EPDS yielded a FPR ranging from 10% to 21%; the FPR rate was higher (32%) in the single study evaluating this condition using the PHQ (PHQ-2) (O'Connor et al., 2016b). For anxiety screening, the FPR of the full EPDS ranged from 18% (Grigoriadis et al., 2011) to 73% (Simpson et al., 2014). The FPR was lower when women were screened with the EPDS anxiety subscale (EPDS-3A); rates ranged from 12% (Matthey, 2008) to 51% (Grigoriadis et al., 2011). Studies reported less variability in FPRs for bipolar disorder screening with the MDQ, ranging from 9% (Frey et al., 2012) to 15% (Sharma and Xie, 2011).

For major depressive disorder screening the EPDS, the FNR ranged from 0% to 33%. For major depressive disorder screening with the PHQ, the FNR ranged from 0% (PHQ-2, any yes response) to 38% (PHQ-2, cut-off ≥4), but the majority of FNRs fell between 23% and 25% (O'Connor et al., 2016b). Screening for minor or major depression with the EPDS resulted in a FNR ranging from 16% to 37%; the FNR was lower (0%) in the sing study evaluating this condition using the PHQ (O'Connor et al., 2016b). The FNR for anxiety screening ranged from 11% (Simpson et al., 2014) to 30% (Grigoriadis et al., 2011) using the full EPDS and from 12% (Grigoriadis et al., 2011) to 33% (Matthey, 2008) using the anxiety subscales (EPDS-3A). For bipolar screening with the MDQ, two studies found similar FNRs when omitting the supplemental questions (Sharma and Xie, 12%; Frey et al., 11%), but FNR ranged from 25% (Sharma and Xie, 2011) to 61% (Frey et al., 2012) when the supplemental MDQ questions were used.

Summary of findings regarding the harms of screening for maternal mental health conditions: Although theoretical harms for mental health conditions include stigma, changes in provider relationship, unnecessary treatment, etc., none of the perinatal depression screening programs included in this review identified such outcomes. Studies have reported the potential for misidentification of bipolar disorder during perinatal depression screening. Screening for maternal mental health disorders may result in false-positive and false-negative test results, either subjecting women to unnecessary psychiatric evaluation or not identifying women with a maternal mental health condition. False-positive and false-negative rates varied widely depending on the screening tool used and the targeted mental health condition.

Effectiveness of Case Management for Maternal Mental Health Conditions

Case management (CM), as defined by AB 2193, is a collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for healthcare options and services to meet the needs of individuals and their families while undergoing treatment for a health condition. The case management program for patients with maternal mental health (MMH) conditions established by AB 2193 includes four primary components: (1) direct support in accessing treatment, (2) direct access to a designated clinician for both the patient and the care manager, (3) support in achieving timely access to a therapist specializing in MMH as well as patient-provider and provider-provider psychiatric consultations, and (4) monitoring of a patient's treatment plan by a clinical case manager who is empowered to suggest treatment amendments and provide progress reports.

CHBRP's literature review looked for studies that evaluated a range of case management models similar to the program described by AB 2193, and excluded studies that did not appear to satisfy the previously-described program criteria. However it was not always possible to determine whether the programs described in the included studies met all of the criteria specified in the bill. Included studies were evaluated for healthcare use outcomes and relevant health outcomes associated with MMH conditions.

Depression

Health Care Engagement

The 2016 USPSTF review identified a single RCT (Gjerdingen et al., 2009b) that examined the benefits of a 9-month stepped-care intervention (i.e., case management) among 506 postpartum women who screened positive for depression (PPD) at seven family practice and pediatric clinics in Minneapolis/St. Paul. Whereas the usual care controls received treatment for PPD at their primary care provider's discretion, the case management intervention involved referral to a primary care provider, patient education, biweekly telephone consultation with a care manager, and means of referral to mental health providers who utilized both behavioral and pharmacologic treatment approaches. At the 9-month follow-up, women in the CM group reported significantly greater use of mental health treatments with antidepressants and psychotherapy as compared with women who received usual care from their PCP (93.8% vs. 55.6%; p=0.019).

In addition to the USPSTF review, CHBRP identified one systematic review and two primary studies that assessed the impact of CM on healthcare engagement among pregnant and postpartum women. In the systematic review, which looked at care coordination interventions to enhance perinatal women's' participation in depression care, Byatt et al. (2015) identified 17 studies that examined rate and frequency of mental health care use among pregnant and postpartum women who screened positive for depression. After inclusion, reviewers stratified the studies into three categories of intensity: (1) those with no barrier-reducing interventions beyond screening, (2) studies that addressed up to two patient care barriers, such as referrals or provider feedback, and (3) studies that employed comprehensive barrier-reducing interventions similar to the program described in AB 2193. On average, 22% of perinatal women in screening-only studies had at least one mental health-related visit; comparatively, the rate of mental health visits doubled in studies that employed at least one care-facilitating intervention (range, 44%-54%). The highest rates of mental health care engagement (average 81% with at least one mental health visit) were observed in the two studies that employed comprehensive case management reflective of the criteria for CM stipulated in AB 2193 (Byatt et al., 2015).

CHBRP identified two additional primary studies that assessed the impact of CM on health care engagement among pregnant and postpartum women. In a retrospective comparative cohort study (n=78), Truitt et al. (2013) examined the differential impact of a collaborative case management intervention, as compared with routine primary care, on healthcare engagement outcomes among women with postpartum depression (PPD). Whereas routine care was defined as a follow-up visit with a PCP after a positive PPD screen and referral to a psychiatrist or therapist, and a prescription for medication if indicated, CM included the addition of routine depression symptom evaluations with the PHQ-9, weekly treatment review by a psychiatrist, and regular telephone follow-up with a care manager. At the final study follow-up, women enrolled in CM were more likely to have three or more mental health contacts within 3 months of their PPD diagnosis as compared with women who received routine care (100% vs. 33%; $p < 0.01$) and were significantly more likely to initiate mental health care in a timely manner (average days from PPD diagnosis, 6.1 vs. 31.4; $p < 0.01$). Women in the CM group were also more likely to have a documented mental health evaluation at each of the 3-, 6-, and 12-month follow-up visits as compared with routine care (range, 53.3% to 80% vs 9.5% to 14.3%; $p < 0.01$.).

Findings from a more recent single-arm pilot study that evaluated mental health care engagement among pregnant and postpartum women (M. C. Kimmel et al., 2017) with PPD who were enrolled in case management at a large academic primary care practice suggest that women with more care manager interactions are more likely to utilize mental health care services . Women who initiated weekly or monthly texting contact with their care managers were significantly more likely to have had, on average, 6 more sessions with their psychiatrist compared with women who had limited or no contact (p=0.03); similarly,

women who had a care manager home visit had five more visits with psychiatrists than those who did not have a home visit (p = 0.04).

Summary of findings regarding the impact of case management on healthcare engagement for perinatal depression: CHBRP finds a preponderance of evidence from three primary studies and a well-conducted systematic review that case management interventions similar to the program proposed in AB 2193 are effective in promoting timely and frequent engagement with mental health treatment for perinatal depression.

Figure 13. Effectiveness of Case Management for Engagement with Treatment for Depression in Perinatal Women

Health Outcomes

In the previously described case management trial (n=506) identified by the 2016 USPSTF (Gjerdingen et al., 2009b), women who were randomized to the CM intervention received more treatment compared with the usual care controls; however, no treatment benefit was observed between groups with respect to depressive symptoms, clinical depression remission, general health ratings, and daily functioning; in fact, at the 9-month follow-up, more women in the usual care group (72%) no longer screened positive for depression (PHQ-9 score <10) compared with women enrolled in stepped care (56%) at follow-up (p = 0.46) (O'Connor et al., 2016b).

CHBRP identified one[30] additional trial that evaluated the potential maternal health benefits of collaborative care interventions among low-income pregnant and postpartum women who screened positive for depression. In a multisite study of depression outcomes in low-income pregnant women receiving care in public health clinics, Grote et al. (2015) randomized 168 pregnant women with screen-detected depression to either a collaborative prenatal care program that included depression case management (MOMCare) or usual care. Participants were evaluated for depression severity and depression remission via the Hopkins Symptom Checklist-20 (SCL-20) at 3-, 6-, 12-, and 18-month follow-ups. Women in the MOMCare group demonstrated significant within-group improvements in depression severity at every follow-up time point; moreover, when compared with usual care, MOMCare was significantly more effective at reducing depression severity at 6 months (mean difference, −0.24; 95% CI, −0.46 to 0.03; p = 0.03) and 18 months (mean difference, −0.25; 95% CI, −0.45 to 0.04; p = 0.02), but no significant differences were observed between groups at the 3-month and 12-month time points. Although almost half (48.3%) of the women in MOMCare achieved depression remission at 18-months follow-up as compared with 29.2% of women in the usual care group, this difference was not significant (Grote et al., 2015).

Summary of findings regarding the impact of case management on relevant health outcomes for perinatal depression: CHBRP finds inconclusive evidence from two high-quality RCTs to determine whether case management leads to changes in health outcomes relevant to depression in pregnant and postpartum women (i.e., remission, symptom burden, functional status). Whereas one trial found no

[30] CHBRP also identified a case management study conducted by Rojas et al. (2007) that was excluded because the intervention did not include individual CM, which is a component of CM stipulated by AB 2193.

comparative treatment benefits with CM, sporadic treatment benefits were observed with CM in the other the trial as compared with usual care controls.

Figure 14. Effectiveness of Case Management for Treatment of Perinatal Depression

Anxiety disorders, bipolar disorders, and postpartum psychosis

The CHBRP literature review did not identify any studies that examined the effectiveness of case management for anxiety disorders, bipolar disorder, or psychosis in pregnant and postpartum women on relevant health outcomes such as condition remission, reduction in condition severity/symptoms, or improvement in functional status.

Summary of findings for case management to treat anxiety disorders, bipolar disorder, or postpartum depression: CHBRP finds insufficient evidence to conclude whether case management for anxiety disorders, bipolar disorders, or postpartum psychosis during pregnancy or postpartum leads to improved health care use (care linkage, adherence to prescribed treatments) or changes in relevant health outcomes (remission, symptom burden, functional status).

Figure 15. Effectiveness of Case Management for Treatment of Anxiety Disorders, Bipolar Disorder, and Postpartum Psychosis

Harms of Case Management for Maternal Mental Health Conditions

Depression, anxiety disorders, bipolar disorders, and postpartum psychosis

The CHBRP literature review did not identify any studies that examined potential maternal or infant harms associated with case management for depression, anxiety disorders, bipolar disorder, or psychosis in pregnant and postpartum women on relevant maternal and infant health outcomes.

Summary of findings for harms of case management for maternal mental health conditions: CHBRP finds that there is insufficient evidence to conclude whether there are harms associated with case management for depression, anxiety disorders, bipolar disorder, or psychosis in pregnant and postpartum women that would moderate any potential treatment benefits.

Effectiveness of Maternal Mental Health Treatments

In addition to the literature on treatment for depression in pregnant and postpartum women summarized in the 2016 USPSTF review, CHBRP included systematic reviews and selected representative studies of treatments for anxiety disorders, bipolar disorders, and postpartum psychosis that occur during the

perinatal period. Table 5 describes common treatments for maternal mental health conditions and which conditions each treatment addresses.

Table 5. Common Treatments for Maternal Mental Health Conditions

Treatment Type	Description	Conditions
BEHAVIORAL TREATMENTS		
Cognitive behavioral therapy (CBT)	CBT is a form of therapy focused on changing maladaptive patterns of thinking and behavior through reflection.	Depression, anxiety, bipolar
Interpersonal psychotherapy (IPT)	IPT is a form of therapy focused on changing problematic interpersonal behavior patterns.	Depression, anxiety, bipolar, psychosis
Mindfulness training	Mindfulness is the practice of achieving awareness and attention through the meditative acceptance of one's present emotions, thoughts, and physical state.	Depression, anxiety
Psychoeducation (PE)	PE provides individuals with basic information about diagnoses, symptoms, medications, medication side effects, treatment options, and symptoms that signal a relapse. Psychoeducation is often provided in groups, although it can be provided in a one-to-one format.	Depression, anxiety, bipolar, psychosis
PHARMACOLOGIC TREATMENTS		
Antidepressants	Medications that can help relieve symptoms of depression, anxiety disorders, and other conditions by correcting chemical imbalances of neurotransmitters in the brain that are believed to be responsible for changes in mood and behavior. Major types include SSRIs, SNRIs, and TCAs.	Depression, anxiety, bipolar, psychosis
Antipsychotics	Antipsychotic drugs help regulate the functioning of brain circuits that control thinking, mood, and perception and are used as a short-term treatment to control hallucinations, delusions, or mania symptoms.	Bipolar, psychosis
Mood stabilizers (including anticonvulsants)	A large class of drugs that help to reduce rapid and extreme shifts in mood. Lithium is the most widely-used drug of this class. Many anticonvulsant drugs that are used to treat epilepsy are also used as mood stabilizers since they help to suppress the excessive rapid firing of neurons which may be associated with mood shifts.	Anxiety, bipolar, psychosis
Benzodiazepines	A class of drug with sedative and anticonvulsant properties intended for use as short-term relief from symptoms of anxiety.	Anxiety

Source: California Health Benefits Review Program, 2018.

Key: SSNI = serotonin-norepinephrine reuptake inhibitor; SSRI = selective serotonin uptake inhibitor; TCA = tricyclic antidepressant..

Clinical trials evaluating the effectiveness of pharmacologic treatments for the major mental health conditions that may occur during pregnancy have generally excluded perinatal women. This is due to the prevailing opinion that it is unethical to test medications in pregnant and breastfeeding women when risks to the infant are unknown. Consequently, most of the direct evidence for mental health treatment effectiveness in perinatal women is classified as low quality, as defined by CHBRP methodology (Appendix B). Given the paucity of direct evidence, treatment guidelines for maternal mental health conditions are largely informed by studies performed in the general population as it is assumed that pregnant and postpartum women would respond similarly to these treatments. Therefore, in the following sections on pharmacologic treatment effectiveness, CHBRP provides broad summaries of effectiveness in the general population and, to the extent that it is available, presents direct evidence of effectiveness in perinatal women.

Depression

Behavioral Interventions

Behavioral treatments are the preferred treatment for depression that occurs in perinatal women. These treatments include cognitive behavioral therapy and psychoeducational interventions, which are described in Table 5.

CBT. The USPSTF review identified 10 trials that examined the effectiveness of CBT-based interventions among pregnant and postpartum women with screen-detected depression. All of the trials evaluated depression remission as scoring below a predetermined cutoff point on a depression symptom scale, such as the EPDS. A pooled analysis of these studies showed that CBT interventions were 34% more likely to result in depression remission among pregnant women as compared with usual care (pooled RR, 1.34; 95% CI, 1.19 to 1.50; I^2, 7.9%). Among the trials that reported continuous symptom scores, women in the CBT arms consistently demonstrated greater reductions in depressive symptoms as compared with women receiving usual care, with EPDS scores declining by 2 to 6 points in the usual care groups compared with 5 to 10 points in the intervention groups; results of a pooled analysis showed that the mean difference in change between the CBT and usual care groups with respect to EPDS scores for depressive symptoms was −0.82 (95% CI, −1.10 to −0.54).

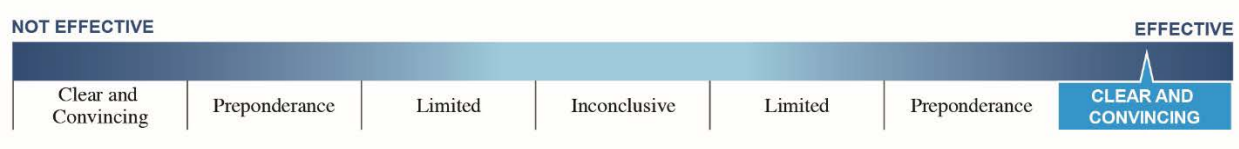
CHBRP's literature review did not find any additional studies of CBT among perinatal women for treatment of screen-detected depression.

Psychoeducation. The USPSTF review found 6 trials that evaluated the effectiveness of psychoeducation interventions for the treatment of screen-detected depression in perinatal women. Due to differences in approach and study design, the authors of the 2016 USPSTF review were unable to draw unifying conclusions about the effectiveness of psychoeducation-based interventions for depression treatment in postpartum women from the six included trials. However, O'Connor et al. (2016b) noted that greater reductions in depressive symptoms were generally related to high intensity, longer-term interventions regardless of whether the intervention was counseling-, coaching-, or education-focused.

CHBRP's literature review did not find any additional studies of psychoeducation among perinatal women for treatment of screen-detected depression.

Summary of findings regarding the effectiveness of behavioral interventions for treatment of perinatal depression: CHBRP finds clear and convincing evidence from a well-conducted systematic review of 16 clinical trials, that behavioral treatments, particularly CBT, are effective in reducing depressive symptoms and increase the likelihood of depression remission among pregnant and postpartum women. Greater reductions in depressive symptoms appear to be associated with higher intensity, long-term interventions.

Figure 16. Effectiveness of Behavioral Interventions for the Treatment of Perinatal Depression



Pharmacotherapy

Antidepressants are the most commonly-prescribed pharmacologic treatment for depression in pregnant and postpartum women. Antidepressants are a broad class of drugs, the most common of which are selective serotonin reuptake inhibitors (SSRIs), serotonin and noradrenaline reuptake inhibitors (SNRIs), and tricyclic antidepressants (TCAs).

The 2016 USPSTF review found a single trial assessing the effectiveness of antidepressants for treatment of pregnant and postpartum women with screen-detected depression. Appleby et al. (1997) randomized 87 postpartum women to one of four groups: depression treatment with an SSRI (fluoxetine) or placebo with either one or six sessions of CBT from a psychologist. At the 3-month planned follow-up, significant improvements in depressive symptoms from baseline (as measured by mean EPDS scores) were observed in all groups ($p < 0.05$); however, participants who were prescribed the antidepressant showed greater improvement (mean difference, 40.7%; 95% CI, 10.9% to 60.6%) as compared with the two placebo groups (Appleby et al., 1997).

Although there is a paucity of high-quality direct evidence in perinatal women for the effectiveness of antidepressants as treatment for depression, evidence from randomized controlled trials performed in the general population indicate that antidepressants are effective in reducing depressive symptoms and increase the likelihood of depression remission. A recent systematic review of the effectiveness of 21 common antidepressants and corresponding network meta-analysis of 522 trials (n = 166,477) performed in general adult populations with major depression found that all antidepressants are more effective than placebo at reducing the symptoms of depression and increasing the likelihood of depression remission, with odds ratios ranging from 1.37 (95% CI, 1.16 to 1.63) with reboxetine to 2.13 (95% CI, 1.89 to 2.41) (Cipriani et al., 2018). No significant differences were observed in treatment efficacy between men and women; therefore CHBRP assumes that perinatal women with depression would exhibit similar responses to these medications.

Summary of findings regarding the effectiveness of pharmacologic interventions for treatment of perinatal depression: CHBRP concludes that there is a preponderance of evidence that antidepressants are effective interventions lead to improvements in perinatal depression outcomes, including remission of depression and reduction in depressive symptoms. CHBRP's conclusion is based on results from a well-conducted systematic review that identified one controlled trial of antidepressant use in postpartum women and a large-scale network meta-analysis of 522 trials conducted in the general population. CHBRP assumes that treatments effective for broad populations produce similar outcomes for women with perinatal depression.

Figure 17. Effectiveness of Pharmacologic Interventions for the Treatment of Perinatal Depression

Anxiety disorders

As described in the *Background* section, perinatal anxiety disorders include generalized anxiety disorder, panic disorder, obsessive compulsive disorder, and perinatal post-traumatic stress disorder (PTSD). CHBRP identified three systematic reviews that examined the effectiveness of behavioral and pharmacologic treatments for these anxiety disorders in pregnant and postpartum women.

Behavioral Interventions

Behavioral interventions are the preferred treatment modalities for anxiety in the perinatal period and include CBT, IPT, and mindfulness.

CBT. Two systematic reviews examined the effectiveness of CBT in pregnant and postpartum women. Loughnan et al. (2018) identified three uncontrolled studies (n=68) that looked at CBT interventions for among perinatal women with screen-detected anxiety disorders using a pre-post study design. Two uncontrolled trials evaluated short-term (i.e., 4 to 6 weeks) group-based CBT for perinatal anxiety disorders, which included behavioral examination and individual homework assignments. Participants in both studies reported significant improvements in birth-related phobias and anxiety symptoms on clinically-validated anxiety questionnaires as compared with baseline scores; additionally, participants with generalized and social anxiety disorders reported high satisfaction with group-delivered CBT. One study evaluated an internet-based CBT intervention among pregnant women with a phobic fear of childbirth - as determined by the Wijima Delivery Expectancy Questionnaire (W-DEQ) - and clinical anxiety on the Hospital Anxiety Depression Scale (HADS). Women completed eight internet modules on birth mechanics and coping techniques over an 8-week period and received individual feedback from a therapist. At the 8-week follow-up all participants demonstrated significant reductions in anxiety and phobia symptoms as compared with baseline scores (Loughnan et al., 2018).

In addition, a 2016 review consisting of studies with low-quality study designs (case studies, case series, and uncontrolled trials) found five studies that supported the use of CBT for pregnant and postpartum women experiencing OCD, panic disorders, and phobias (Marchesi et al., 2016).

IPT. CHBRP identified one systematic review that looked at IPT interventions for anxiety among perinatal women. Sockol (2018) found and meta-analyzed five trials (n=267) conducted in the US that assessed the impact of individual or group IPT on clinical anxiety symptoms; the number of IPT sessions in the trials ranged from 6 to 12. Four studies reported significant within group reductions in symptoms of anxiety, with an overall effect size of 0.60 (95% CI, 0.30 to 0.90; $p \leq 0.001$). However, among the three trials that included a comparator treatment group, there were no significant differences in the change in anxiety symptoms between participants who engaged in IPT and those who did not (effect size, 0.25; 95% CI, −0.44 to 0.94).

Mindfulness. In their review of behavioral interventions for clinical anxiety during the perinatal period, Loughnan et al. identified a single pilot study that evaluated the impact of mindfulness-based therapy program in which 24 pregnant women with a clinical anxiety diagnosis attended eight group therapy sessions that included meditation and cognitive therapy to reduce anxiety symptoms, as well as group

discussions about labor and delivery facilitated by a social worker. Participants who attended six out of the eight sessions demonstrated significant reductions in anxiety severity as measured by a clinically-validated worry questionnaire; additionally, among the 16 patients who completed the study and met the criteria for generalized anxiety disorder (GAD) at baseline, fifteen (94%) experienced clinical GAD remission.

Pharmacotherapy

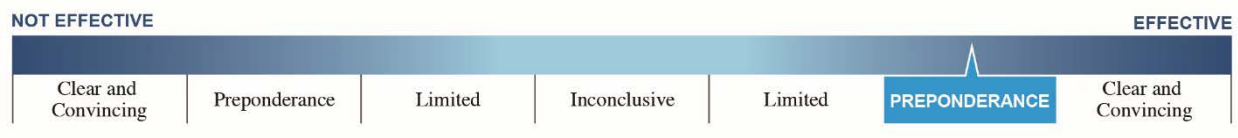
Whereas behavioral interventions are the first-line treatments for anxiety in the perinatal period, pharmacologic treatments, including antidepressants and benzodiazepines, are sometimes prescribed for women with moderate to severe anxiety. Antidepressants and benzodiazepines have been found to be effective and well-tolerated treatments for clinical anxiety in the general population (Goodman et al., 2014; Misri et al., 2015). However, due to previously-described ethical and practical reasons, trials evaluating the effectiveness of pharmacologic treatments for clinically-detected anxiety have not been conducted in this population; consequently, the only direct evidence of their effectiveness is derived from retrospective case studies/series.

Antidepressants. CHBRP found one systematic review that summarized anxiety outcomes in pregnant and postpartum women resulting from pharmacologic interventions. Whereas Marchesi et al. (2016) did not identify any studies evaluating pharmacologic treatments for perinatal women with GAD or PTSD, 13 studies (n=63) reported anxiety outcomes for women with OCD and panic disorders; the studies were comprised of case reports, case series, and uncontrolled cohorts. In general, pregnant and postpartum women taking antidepressants (such as SSRIs, SNRIs, and tricyclines) for OCD and panic disorders showed significant reductions in anxiety symptoms, ranging up to a 30% reduction, and, among some pregnant women, complete symptom remission.

Benzodiazepines. CHBRP did not identify any studies that reported on the direct use of benzodiazepines in pregnant or postpartum women.

Summary of findings on the effectiveness of behavioral interventions and pharmacotherapy, for anxiety disorders in perinatal women: CHBRP concludes that there is a preponderance of evidence that behavioral interventions and pharmacotherapy lead to improvements in relevant anxiety disorder outcomes, including anxiety remission or reduction in the burden of symptoms, among pregnant and postpartum women. Because ethical and practical limitations have precluded the performance of controlled treatment studies in pregnant and postpartum women, studies that provide direct evidence of treatment effectiveness for women experiencing anxiety disorders in the perinatal period have low-quality research designs and small sample sizes. However, the effectiveness and tolerability of behavioral and pharmacologic treatments has been well-established in the general population and it is reasonable to assume that treatments effective for broad populations produce similar outcomes perinatal women with anxiety disorders.

Figure 18. Effectiveness of Behavioral and Pharmacologic Interventions for the Treatment of Perinatal Anxiety Disorders



Bipolar disorders

As described in the *Background* section, bipolar I or II disorders (BDs) are characterized by the presentation of either depressive or manic episodes and are most commonly treated with pharmacologic interventions.

Behavioral Interventions

Behavioral interventions — such as psychoeducation, CBT, and IPT — are not recommended as primary treatments for bipolar disorder; however, a systematic review of evidence based guidelines for bipolar disorder found that these interventions are widely-recommended as adjunctive therapies to pharmacotherapy in order to prevent relapse (Connolly and Thase, 2011). A growing body of evidence from general population studies supports these recommendations: findings from a meta-analysis of 9 RCTs that evaluated the effectiveness of adjunctive behavioral interventions for bipolar disorder found that the risk of manic or depressive relapse was significantly lower among patients treated with adjunctive therapy as compared with patients who received pharmacotherapy alone (pooled odds ratio, 0.53; 95% CI, 0.39 to 0.70; p = 0.001) (Scott et al., 2007). A more recent review of adjunctive behavioral therapies presented evidence from controlled trials suggesting that IPT and psychoeducation are more effective at preventing manic relapse, whereas CBT is more effective at preventing depressive relapse in bipolar patients (Miklowitz, 2008).

CHBRP's literature did not identify any additional systematic reviews or primary studies examining behavioral interventions for the treatment of bipolar disorders in pregnant or postpartum women. However, since the medical literature indicates that perinatal women with bipolar disorders struggle with psychosocial stressors that are associated with increased risk of relapse, it is reasonable to assume that adjunctive behavioral therapies would have a positive impact on relapse outcomes (Epstein et al., 2015).

Pharmacotherapy

Pharmacotherapy is the recommended primary treatment for bipolar disorders in pregnant and postpartum women. Treatments for major depression and mania (characteristic of bipolar disorders) in pregnant and postpartum women include antidepressants, antipsychotics, anticonvulsants, and mood stabilizers (i.e., Lithium). Treatment recommendations depend largely on whether patients present with mania or depression.

Due to previously-discussed ethical considerations, few controlled studies address the treatment of bipolar disorders in perinatal women; therefore, treatment recommendations for BD in pregnant and postpartum women are largely informed by general population efficacy data in conjunction with available reproductive safety data safety for each treatment option (described in Harms of Treatment section).

Mania

A systematic review of evidence-based guidelines for bipolar disorders in the general population found that mood stabilizers (e.g., lithium) and second-generation antipsychotics (e.g., olanzapine) are the widely recommended first-line treatments for acute manic and mixed episodes (Connolly and Thase, 2011). To that end, a literature review of treatments for bipolar disorders during pregnancy presented evidence from 9 systematic reviews and meta-analyses of studies that excluded perinatal women showing that these treatments can be effective as monotherapies or in combination-therapy regimens for reducing manic symptoms (Epstein et al., 2015). Moreover, a meta-analysis of 68 RCTs (n=16,703) conducted in 2011 that showed that antipsychotic medications were more effective than mood stabilizers for reducing mania as measured by a validated mania severity scale and led to significantly fewer discontinuations (Cipriani

et al., 2011). Studies of these treatments have not demonstrated differential treatment benefits by biological sex (Epstein et al., 2015); therefore, CHBRP assumes that these findings can be extrapolated to pregnant and postpartum women.

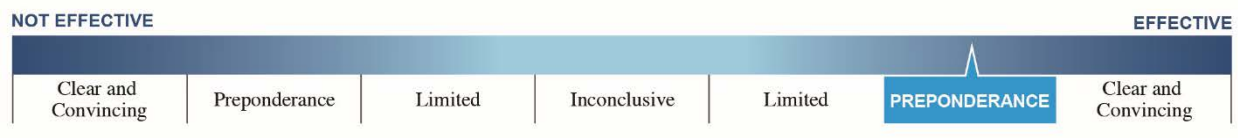
Depression

Compared with bipolar mania, there is less agreement among evidence-based guidelines with respect to first-line pharmacologic treatments for bipolar depression. In general, however, recommended treatments include the use of either an antipsychotic (i.e., quetiapine) or combination therapy with an antipsychotic (olanzapine) and an antidepressant (fluoxetine) and, in some cases, an anticonvulsant (i.e., lamotrigine). Monotherapy with antidepressants are not recommended for the treatment of bipolar depression owing to concerns that use of antidepressants could trigger a mood shift to a manic episode (Connolly and Thase, 2011). Although reviews of treatments for bipolar disorders during pregnancy and the postpartum period found no controlled studies of these treatments in perinatal women, findings from 5 meta-analyses of randomized controlled trials conducted in the general population indicate that the recommended first-line treatments are all effective in reducing depressive symptoms in bipolar patients and increase the likelihood of remission (Epstein et al., 2015; Pope et al., 2014).

Although combination therapy is commonly indicated for persons with bipolar depression in the general population, when possible, monotherapy is recommended for perinatal women to reduce fetal and infant exposures to medications (Epstein et al., 2015). To that end, a systematic review and meta-analysis of independent patient data from 5 RCTs showed that monotherapy with lamotrigine, an anticonvulsant, significantly reduced depression among bipolar persons on two clinically-validated depression scales as compared with placebo (pooled RRs, 1.27 and 1.22) and increased the likelihood of depression remission by about 20% (pooled RR, 1.21) (Geddes et al., 2009).

Summary of findings on the effectiveness of behavioral interventions and pharmacotherapy, for bipolar disorders in perinatal women: CHBRP concludes that there is a preponderance of evidence that pharmacotherapy and adjunctive behavioral interventions lead to improvements in bipolar disorder outcomes, including remission of manic or depressive bipolar episodes, reduction in the symptoms of mania or depression, and bipolar relapse among pregnant and postpartum women. Although, the effectiveness and tolerability of first-line pharmacologic treatments and adjunctive behavioral intervention has been well-established in multiple systematic reviews and meta-analyses of controlled trials conducted in the general population, studies that provide direct evidence of treatment effectiveness for women experiencing bipolar disorders in the perinatal period have not been conducted. It is however, reasonable to assume that treatments effective for broad populations would produce similar outcomes in perinatal women with bipolar disorders.

Figure 19. Effectiveness of Behavioral and Pharmacologic Treatments for Bipolar Disorders in Perinatal Women



Postpartum psychosis

Postpartum psychosis (PPP) is an acute psychiatric emergency and usually requires hospitalization for treatment. Although PPP is a distinct diagnosis, it is thought to be a more severe manifestation of an underlying mental health disorder, primarily bipolar I disorder (characterized by psychotic mania).

Accordingly, first-line treatments for PPP closely mirror those for bipolar mania: pharmacotherapy with mood stabilizers and antipsychotics with adjunctive behavioral therapies to prevent relapse (Payne, 2017).

Owing to the rarity of its occurrence and the historical exclusion of pregnant and postpartum women from clinical research, treatments specific to PPP have never been evaluated in a clinical trials. Moreover, searches from two recent literature reviews (Bergink et al., 2016; Doucet et al., 2011) have determined that there are fewer than 30 published studies on treatments for PPP, the majority of which have low-quality research designs, such as case studies, and small sample sizes (n < 10 participants). Consequently, there are no established guidelines for the treatment of PPP.

Behavioral Interventions

CHBRP found no studies that assessed the effectiveness of behavioral interventions for the treatment of postpartum psychosis. However, evidence from treatment studies of bipolar disorder (see section on behavioral therapies for bipolar disorder above) shows that, when used as an adjunct to pharmacotherapy, behavioral interventions, particularly IPT and psychoeducation, have been shown to reduce the risk of relapse for manic psychosis (Miklowitz, 2008; Scott et al., 2007).

Pharmacotherapy

As with acute bipolar mania, first-line pharmacologic treatments for PPP are second-generation antipsychotics (e.g., olanzapine) and mood stabilizers (e.g., lithium). As discussed previously in the section on pharmacologic treatments for bipolar mania, multiple systematic reviews and meta-analyses of controlled trials in the general population show that these treatments can be effective in reducing the symptoms of psychosis and improve the likelihood of psychotic remission (Epstein et al., 2015).

In addition to evidence from controlled studies in the general population, CHBRP identified a well-conducted systematic review (Doucet et al., 2011) and an uncontrolled prospective observational study (Bergink et al., 2015) that examined the effectiveness of pharmacologic interventions for postpartum psychosis (PPP) including antipsychotic medications, mood stabilizers, beta blockers, and hormone therapy used as either primary or adjunctive treatments. In their review of PPP treatment literature, Doucet et al. identified 14 studies that evaluated pharmacologic interventions among women with confirmed PPP. In general, the review found evidence suggesting that lithium (a mood stabilizer) and antipsychotics may be effective as primary and adjunctive treatments for PPP; the authors found insufficient evidence regarding beta-blockers and hormone therapy. The strongest evidence in the review came from a comparative cohort study of lithium as a primary treatment conducted among 19 women in the Netherlands in 1975, which found that women taking lithium were less likely to relapse after remission was achieved and exhibited significantly faster recovery as compared with women who were not treated with lithium (12 weeks vs. 20 weeks) (Doucet et al., 2011). It should be noted that the majority of the included studies (11) had low-quality study designs (i.e., case-studies/case series) and only two studies had sample sizes exceeding ten participants.

A more recent prospective cohort study conducted in the Netherlands among 64 women at an inpatient psychiatric treatment center observed that treatment of PPP with a sequential pharmacologic regimen was effective at inducing and maintaining remission for psychosis. Twelve participants (18.8%) achieved remission with a sedative and an antipsychotic medication, and a further 48 patients achieved remission with an additional mood stabilizer (lithium). At a 9-month follow-up evaluation, Bergink et al. (2015) observed that the majority of patients (79.7%) had achieved a sustained remission; however, patients treated with a sedative/antipsychotic were almost seven times more likely to have experienced a relapse during that time period than patients who received adjunctive lithium (odds ratio, 6.8; 95% CI, 1.7 to 28.3; p = 0.01).

Summary of findings on the effectiveness of behavioral interventions and pharmacotherapy, for postpartum psychosis: CHBRP concludes that there is a preponderance of evidence that pharmacotherapy and adjunctive behavioral interventions lead to improvements in relevant postpartum psychosis outcomes, including remission of acute psychosis, reduction in psychotic symptoms, and psychotic relapse among postpartum women. Although the effectiveness and tolerability of first-line pharmacologic treatments and adjunctive behavioral interventions has been well-established in multiple systematic reviews and meta-analyses of controlled trials conducted in the general population, studies that provide direct evidence of treatment effectiveness for women experiencing PPP have low-quality research designs and small sample sizes thereby moderating CHBRP's evaluation of the literature.

Figure 20. Effectiveness of Behavioral and Pharmacologic Treatments for Postpartum Psychosis

Harms of Maternal Mental Health Treatments

Behavioral interventions

CHBRP's literature review found no studies that addressed the harms of behavioral interventions (i.e., CBT, IPT, psychoeducation, mindfulness) for the treatment of maternal mental health conditions. This is likely due to the prevailing notion that behavioral therapies are minimal risk with respect to biophysical side-effects.

Pharmacotherapy

Pharmacologic treatment decisions for maternal mental health conditions involve the balancing of risks of untreated mental illness with the potential maternal and fetal or neonatal risks conferred by the prescribed medications. Untreated or inadequately-controlled mental illness may result in adverse neonatal and childhood outcomes such as poor compliance with prenatal care recommendations, poor nutrition and decreased rates of breastfeeding, low birth weight, slow child language development, substance use, a lack of mother-infant bonding, disruptions in family life, and, in rare instances, maternal death (ACOG, 2007; Goodman et al., 2014; (Muzik and Hamilton, 2016).

Given the complexity of these treatment decisions, the management of maternal mental health conditions requires shared decision making between a patient and provider with careful consideration of the patient's medical history and condition severity, the fetal or neonatal safety of the medications under consideration, the strength of a patient's social and family network, and the patient's treatment preferences (Muzik and Hamilton, 2016; Thomson and Sharma, 2018).

The maternal and infant harms of common pharmacologic therapies for maternal mental health conditions are presented below by broad drug class.

Antidepressants

The 2016 USPSTF review evaluated literature on the harms of antidepressants among depressed pregnant and postpartum women. The majority of this review relied on one good-quality systematic review that included 124 observational studies published from 1996 through 2013; in addition to the

systematic review, the reviewers included 12 large observational studies published between 2013 and 2015. Study interventions evaluated maternal and infant harms associated with exposures to second-generation antidepressants (e.g., SSRIs, SNRIs, bupropion, mirtazapine, and trazodone), which are the most commonly prescribed antidepressants. All of the studies presented evidence on medication-related harms in pregnant women; however, due to ethical considerations, the majority of the included studies compare women with depression who were treated to women who never had depression, which may confound the ability to distinguish between medication effects and the effects of underlying disease. (O'Connor et al., 2016b).

Maternal Outcomes

The USPSTF review found evidence suggesting that use of antidepressants, particularly SSRIs, during pregnancy is associated with risk of preeclampsia (RR, 1.57), vaginal bleeding and postpartum hemorrhage (RR range, 1.27 to 2.24), miscarriage and spontaneous abortion (RR range,1.10 to 3.12).. For example, one large US cohort study found that the rate of preeclampsia among women taking an antidepressant (venlafaxine) was 8.9% as compared with 5.4% of women with no prenatal exposure to the antidepressants (O'Connor et al., 2016a).

No studies included in the review examined serotonin syndrome, maternal cardiac effects, seizures, suicidality, or increased risk of gestational diabetes or other metabolic effects resulting from exposure to antidepressants.

Infant Outcomes

Results of the 2016 USPSTF review suggested that antidepressant use during pregnancy (or underlying maternal illness) was associated with increased risk of neonatal death, preterm birth, low birth weight, seizures, serotonin withdrawal syndrome, neonatal respiratory distress, pulmonary hypertension, major malformations, and cardiac malformations. In general the evidence regarding strength of association antidepressant exposure and infant outcomes was less conclusive than for maternal outcomes. Moreover, absolute risks of these outcomes are very small and were more likely to occur among infants of women who were exposed to polypharmacy. For example, O'Connor et al. (2016a) reviewed a large retrospective cohort study that reported a two-fold increase in relative risk for infant seizures among women who reported three or more antidepressant fills; however, the increase in absolute risk remained at less than 1% overall (0.66% vs. 0.28%). Comparatively, no increased risk of infant seizures was observed among mothers who used one or two antidepressants, which more closely aligns with recommended clinical practice for depression management during pregnancy.

Since the 2016 USPSTF review did not identify any studies that assessed the risks of adverse infant outcomes among breastfeeding mothers taking antidepressants, CHBRP specifically searched for studies of this nature and identified a recent Cochrane Systematic review that looked at the harms of antidepressants among postpartum women and their infants. Among the four trials that reported on harms, no serious adverse effects were observed among infants of breastfeeding mothers (Molyneaux et al., 2015, 2017). CHBRP also identified a pooled analysis showing that, whereas most antidepressants were expressed in breastmilk, the relative amount detected in breastfeeding infants was negligible. Adverse effects in infants potentially associated with antidepressant exposure were rare and drawn from individual case reports. Adverse infant effects included decreased sleep, irritability, poor feeding, and, in one case, seizures (Weissman et al., 2004).

Findings on harms associated with perinatal antidepressant exposure: CHBRP found a preponderance of evidence from a well-conducted systematic review that exposure to antidepressants during pregnancy is associated with a range of adverse maternal and infant outcomes such as preeclampsia, preterm birth, and infant seizures; however, the absolute risks of these conditions are small and most studies were not able to distinguish between medication effects and the effects of underlying maternal disease .

CHBRP found a preponderance of evidence from two systematic reviews that exposure to antidepressants through breastmilk was not associated with serious infant adverse effects.

Antipsychotics

CHBRP identified two systematic reviews that examined maternal and infant outcomes associated with antipsychotic medication exposure during pregnancy.

Maternal Outcomes

Results of a meta-analysis of four comparative studies of antipsychotic use during pregnancy (n=3,788) indicate antipsychotic use during pregnancy is not significantly associated with maternal risks, such as miscarriage (OR, 1.05; 95% CI, 0.61 to 1.81; p = 0.86). CHBRP's literature review did not find studies evaluating other maternal outcomes, such as preeclampsia and vaginal bleeding/postpartum hemorrhage.

Infant Outcomes

Neonatal and infant outcomes associated with exposure to antipsychotics, as described in two meta-analyses, are increased risk for congenital malformations, cardiac defects, preterm birth, and low birth weight. Overall, a meta-analysis of 13 comparative cohort studies showed that the absolute differences in adverse effects observed between exposed and unexposed infants, while significant were small, ranging from 0.01 to 0.09. For example, exposure to any antipsychotic medications was associated with a two-fold increase in risk of major congenital malformations (OR, 2.12; 95% CI, 1.25 to 3.57; p = 0.005) as compared with unexposed infants; however, the absolute risk difference was only 0.03 (Coughlin et al., 2015). Whereas typical (first-generation) and atypical (second-generation) antipsychotics were both associated with increased odds of congenital malformations, a systematic review of specific second-generation antipsychotics found that the absolute risk of congenital malformations ranged from 3.5% with olanzapine and quetiapine to 5.1% with risperidone, as compared with a general population incidence of 3.5% (Ennis and Damkier, 2015). Rates of congenital malformation among women who receive no pharmacologic treatment for their psychotic symptoms during pregnancy are unknown.

CHBRP did not identify any literature regarding the effects of antipsychotic exposure during breastfeeding.

Findings on harms associated with perinatal antipsychotic exposure: CHBRP found a preponderance of evidence from systematic reviews of cohort and case-control studies that exposure to antipsychotics during pregnancy is associated with a range of adverse maternal outcomes (miscarriage) and infant outcomes (congenital malformations, cardiac defects, preterm birth, and low birth weight); however, the absolute difference risks of these conditions are small as compared with unexposed women and infants.

CHBRP found insufficient evidence regarding potential harms of exposure to antipsychotics during breastfeeding.

Benzodiazepines

CHBRP identified one high-quality systematic review conducted for the 2014 update of the NICE treatment guidelines on prenatal and postpartum mental health and a recent prospective comparative cohort study that evaluated the potential harms of benzodiazepine use for the treatment of mental health conditions during pregnancy. In addition, CHBRP found one systematic review and one prospective cohort study that assessed infant outcomes associated with benzodiazepine exposure during breastfeeding.

Maternal Outcomes

Results from two meta-analyses conducted for the 2014 NICE systematic review indicate that first-trimester benzodiazepine use is associated with increased incidence of miscarriage and caesarean section deliveries. A meta-analysis of three prospective comparative cohort studies (n=1,204) found that women with benzodiazepine exposure during early pregnancy were significantly more likely to experience a miscarriage as compared with unexposed women (OR, 1.83; 95% CI, 1.19–2.82), accounting for 42 more miscarriages per 1000 pregnancies overall (absolute risk, 101 (exposed) vs. 59 (unexposed) per 1000) (NICE, 2014).

Similarly, a meta-analysis of two comparative cohort studies (n=876,920) suggested that women with first-trimester benzodiazepine use were statistically more likely to have a cesarean section delivery compared to unexposed women (OR, 1.52; 95% CI, 1.27 to 1.81). In terms of absolute risk, exposed women were found to have to have 33 more cesarean deliveries per 1000 births compared with unexposed women (NICE, 2014). This finding is supported by a more recent prospective cohort study (n = 2,634), in which women receiving treatment for prenatal anxiety with benzodiazepines were over twice as likely to have a cesarean-assisted delivery as compared with unexposed women after controlling for demographic differences (OR, 2.45; 95% CI, 1.36 to 4.40) (Yonkers et al., 2017).

Neonatal/Infant Outcomes

CHBRP found evidence suggesting that benzodiazepine use during pregnancy is associated with infant respiratory disorders. In the 2014 NICE review, a meta-analysis of two cohort studies (n = 875,904) found that infants with in-utero exposure to benzodiazepines were more likely to have respiratory disorders compared with unexposed infants (OR, 1.26; 95% CI, 1.04 to 1.52; absolute risk difference, 11 more per 1000) (NICE, 2014). In addition, a results of a previously-described comparative cohort study showed that infants exposed to benzodiazepines during gestation were almost three times more likely to require respiratory support upon birth as compared with unexposed infants (adjusted OR, 2.85; 95% CI, 1.17 to 6.94) (Yonkers et al., 2017).

CHBRP found mixed evidence regarding the association of benzodiazepine use during pregnancy with respect to fetal malformations and low birth weight. An early meta-analysis of seven cohort studies and four case-control studies of benzodiazepine use during pregnancy suggested that first-trimester exposure was associated with fetal malformations, particularly cleft palate (Dolovich et al., 1998). However, a series of meta-analyses conducted for the 2014 NICE review did not find an increased risk of congenital or cardiac malformations with fetal benzodiazepine exposure. Moreover, when meta-analyzed, data from two prospective cohort studies (n = 896,995) and two case-control studies (n = 4,568) that were included in the NICE review did not support any association between benzodiazepine use in pregnancy and cleft palate. Similarly, whereas a meta-analysis of three cohort studies (n = 1,037) did not find any association between first-trimester benzodiazepine use and low birth weight (NICE, 2014), Yonkers et al. (2017) found that infants of women with benzodiazepine-treated prenatal anxiety were over three times more likely to present with low birth weight as compared with unexposed infants (adjusted OR, 3.41; 95% CI, 1.61 to 7.26).

CHBRP also found mixed evidence regarding the effect of infant exposures to benzodiazepines through breastmilk. Results of a 2009 systematic review that included 13 studies of adverse infant effects associated with benzodiazepine exposure via breastmilk suggested that, although the amount of exposure is low, infant metabolism of benzodiazepines is slower than adults and may be associated with infant sedation, nausea, and poor feeding (Fortinguerra et al., 2009). In contrast, a more recent prospective cohort study of breastfeeding women with benzodiazepine-treated anxiety and insomnia (n = 124) found that only 1.6% of exposed infants exhibited sedation, which was determined to be unrelated to benzodiazepine exposure, duration of breastfeeding, or other demographic traits (Kelly et al., 2012).

Findings on harms associated with perinatal benzodiazepine exposure: CHBRP found clear and convincing evidence from multiple systematic reviews and meta-analyses of cohort and case-control studies that exposure to benzodiazepines during pregnancy is associated with miscarriage and caesarean section deliveries in pregnant women and increased incidence of infant respiratory disorders; however, the absolute difference in risks of these conditions are small as compared with unexposed women and infants.

CHBRP found inconclusive evidence to determine whether benzodiazepine use during pregnancy is associated with fetal malformations and low birth weight.

CHBRP found inconclusive evidence from two studies to determine whether exposure to benzodiazepines during breastfeeding is associated with infant sedation.

Mood Stabilizers

There are two classes of medications that are prescribed for use as mood stabilizers: lithium and anticonvulsants.

Lithium

CHBRP identified two reviews review and two well-conducted observational studies that evaluated maternal and infant outcomes associated with lithium use during pregnancy and breastfeeding.

Maternal Outcomes

Results of CHBRPs literature review suggest that first-trimester lithium exposure is associated with increased risk of miscarriages. In a prospective observational study of lithium-exposed pregnancies Diav-Citrin et al. (2014) found that the rate of maternal miscarriage was almost two times greater among women with first trimester lithium use as compared with women who did not use a mood stabilizing drug (OR, 1.94; 95% CI, 1.08 to 3.48).

Neonatal/Infant Outcomes

Among infants, existing literature suggests that neonatal lithium exposure is associated with congenital abnormalities and preterm birth. In particular, first trimester use of lithium has been implicated in infant cardiac defects as was shown in a prospective observational study of lithium-exposed pregnancies (n = 183), in which 4.1% of infants with first trimester lithium exposure presented with cardiac abnormalities as compared with 0.6% of age-matched infants who were not exposed (Diav-Citrin et al., 2014). This is supported by a larger and more recent retrospective study of cardiac defects among infants of lithium users that reviewed administrative claims data from 1.3 million pregnancies. Patorno et al. (2017) found that the rate of any heart defects among infants with first trimester lithium exposure (2.41%) was about twice that of nonexposed infants (1.15%; adjusted risk ratio, 1.65; 95% CI, 1.02 to 2.68).

A systematic review of 32 studies of adverse infant effects associated with lithium exposure during breast feeding found that infants exposed to lithium exhibited symptoms of a CNS-related syndrome known as "floppy baby syndrome," which is characterized by low muscle tone and lethargy (Fortinguerra et al., 2009).

Findings on harms associated with perinatal lithium exposure: CHBRP found limited evidence from two prospective cohort studies that exposure to lithium during pregnancy is associated with increased incidence of infant cardiac defects; however, the absolute difference in risks of cardiac malformations are small as compared with rates for unexposed infants.

CHBRP found insufficient evidence to determine whether lithium use during pregnancy is associated with increased risk of miscarriage.

CHBRP found a preponderance of evidence from a systematic review that exposure to lithium during breastfeeding is associated with infant sedation and poor muscle tone.

Anticonvulsants

CHBRP identified two systematic reviews that evaluated maternal and infant outcomes associated with anticonvulsant use during pregnancy and breastfeeding. Although there are many drugs in the anticonvulsant class, only lamotrigine, carbamazepine, and valproic acid are commonly prescribed for pregnant and breastfeeding women.

Maternal Outcomes

The 2014 NICE review found limited evidence regarding the effects of anticonvulsant use during pregnancy and results of the related meta-analyses suggest that prenatal use of anticonvulsants is not associated with significant adverse obstetrical outcomes, such as stillbirth or perinatal death, preterm birth, and low birth weight. Although the finding was not statistically significant, a meta-analysis of two cohort studies (n = 3,975) indicated that valproic acid was associated with a clinically-significant 1% increase in preterm birth, accounting for an additional 10 preterm births per 1000 births as compared with unexposed infants overall (NICE, 2014).

Neonatal/Infant Outcomes

Results of meta-analyses performed for the 2014 NICE review suggest that prenatal exposure to anticonvulsants is associated with congenital malformations, including neural tube defects and cleft palate. Whereas lamotrigine was not significantly associated with congenital malformations of any type, both carbamazepine and valproic acid were found to be associated with statistically- and clinically-significant increases in both major and general clinical malformations. Although carbamazepine and valproic acid were significantly associated with an increase in major congenital malformations, with an absolute risk difference of 15 and 22 more major malformations per 1000 as compared with unexposed infants respectively, the event rates (3.5% and 7.7%) were still within the range for major malformations of 2.6% to 9.7% observed in general registry data (NICE, 2014). With respect to specific congenital malformations, evidence from meta-analysis showed significant increases in risk for cleft lip/cleft palate with valproic acid (absolute risk difference, 11 more per 1000) and, to a lesser extent, with carbamazepine (4 more per 1000). Additionally, prenatal exposure to valproic acid was significantly associated with an increase in neural tube defects, with an absolute risk of 12 per 1000 as compared with 1 per 1000 for unexposed infants (NICE, 2014).

A systematic review of 43 studies of adverse infant effects associated with anticonvulsant exposure during breast feeding found limited evidence that the three first-line anticonvulsants for treatment of

mental health disorders during the perinatal period (i.e., carbamazepine, lamotrigine, and valproic acid) were associated with poor feeding, irritability, and sedation; however no meta-analyses were conducted so the effect size is unknown (Fortinguerra et al., 2009).

Findings on harms associated with perinatal anticonvulsant exposure: CHBRP found a preponderance of evidence from a systematic review with pooled analyses that exposure to anticonvulsants during pregnancy is associated with increased incidence of congenital malformations, particularly with exposure to valproic acid; however, the absolute difference in risks of these malformations are small as compared with rates for unexposed infants.

CHBRP found limited evidence that anticonvulsant use during pregnancy is not associated with stillbirth or perinatal death, preterm birth, and low birth weight.

CHBRP found limited evidence from a systematic review of case studies that exposure to anticonvulsants during breastfeeding is associated with poor feeding, irritability, and sedation among infants.

Summary of Findings

Table 6 summarizes evidence of the benefits and harms of screening for maternal mental health conditions, the accuracy of screening instruments, and the benefits and harms of treatment for maternal mental health conditions, including case management, on health outcomes. Findings are presented separately for each maternal mental health condition reviewed in this section — depression, anxiety disorders, bipolar disorder, and postpartum psychosis — because the strength of the evidence for screening and treatments differ across conditions. Evidence is also reported separately for each intervention component included in AB 2193 — screening, case management and treatment — because the findings and the strength of evidence differ across interventions. For all maternal mental health conditions, CHBRP found insufficient evidence to determine whether the act of screening alone contributes to beneficial health outcomes or linkage to care. For depression, there is evidence that screening performed as part of a larger depression prevention/treatment intervention does contribute to reduction in depression risk, symptom remission and treatment response; evidence is stronger for postpartum women than pregnant women.

The body of literature and strength of evidence for screening tools varies widely across tools and conditions. The strongest evidence indicates that the EPDS is accurate for screening for depression, and there is limited evidence indicating that the GAD-7 can accurately identify anxiety disorders. There is inconclusive evidence demonstrating the accuracy screening with the PHQ for depression, the EPDS/EPDS-3A for anxiety disorders, and the MDQ for bipolar disorder. As mentioned elsewhere in this report, there is no established screening tool for postpartum psychosis and CHBRP did not identify any studies assessing the use of any tool for this condition.

With respect to treatment, CHBRP found a preponderance of evidence that enrollment in comprehensive case management programs leads to more timely and frequent engagement with mental health services among perinatal women with depression; however, there is inconclusive evidence to determine whether case management results in meaningful improvements in depression outcomes. CHBRP found insufficient evidence regarding the effects of case management for perinatal women experiencing anxiety disorders, bipolar disorders, or postpartum psychosis. Due to ethical and practical limitations, there is a paucity of direct evidence of behavioral and pharmacologic treatments for maternal mental health conditions in pregnant and postpartum women. However, a substantial body of evidence from the general population, with strength ranging from a preponderance to clear and convincing, indicates that these treatments are effective in reducing the symptoms of mental illness and increase the likelihood of remission.

It is important to note that these interventions are not without harm. Screening for maternal mental health conditions may result in false-positive and false-negative results, either subjecting women to unnecessary psychiatric evaluations or failing to identify women with a maternal mental health condition. However, false-positive and false-negative rates varied widely depending on the screening tool used and the targeted condition. In addition, pharmacologic treatment of maternal mental health conditions during pregnancy and breast feeding are associated with a range of maternal and infant adverse outcomes including miscarriage, preeclampsia, low birth weight, respiratory disorders, congenital malformations, and infant lethargy. It should be noted that these harms are not clearly caused by medication use and may be associated with underlying maternal disease; while serious, most of these adverse outcomes are relatively rare and the absolute differences associated with perinatal exposures to pharmacologic treatments are small. Despite these harms, failing to screen pregnant or breastfeeding for maternal mental health conditions and, in some cases, advising against pharmacologic treatment exposes women to the substantial risks of untreated mental illness, which is associated with poor neonatal care, depressed childhood development, disruptions in family life, and, in rare instances, maternal death. Therefore, decisions regarding the management of mental health conditions detected during the perinatal period should be made jointly between a patient and provider.

Table 6. Summary of Evidence of Medical Effectiveness of Screening, Case Management and Treatment for Maternal Mental Health Conditions

	Screening Alone	Screening/Intervention Program Participation*	Sharing Screening Results	Screening Tool Accuracy	Case Management	Treatment
Perinatal depression	Insufficient evidence	Clear and convincing evidence, effective – postpartum women Limited evidence, effective — pregnant women	Insufficient evidence	Preponderance of evidence, effective — EPDS accuracy Inconclusive evidence — PHQ accuracy	Preponderance of evidence, effective — treatment engagement Limited evidence, not effective — depression outcomes	Clear and convincing evidence, effective — behavioral interventions Preponderance of evidence, effective –pharmacotherapy
Anxiety disorders	Insufficient evidence	Insufficient evidence	Insufficient evidence	Limited evidence, effective — GAD-7 accuracy Inconclusive evidence — EPDS/EPDS-3A accuracy	Insufficient evidence	Preponderance of evidence, effective — behavioral interventions and pharmacotherapy
Bipolar disorder	Insufficient evidence	Insufficient evidence	Insufficient evidence	Limited evidence, effective — MDQ accuracy	Insufficient evidence	Preponderance of evidence, effective –pharmacotherapy and adjunctive behavioral interventions
Postpartum psychosis	Insufficient evidence	Insufficient evidence	Insufficient evidence	Insufficient evidence	Insufficient evidence	Preponderance of evidence, effective –pharmacotherapy and adjunctive behavioral interventions

Source: California Health Benefits Review Program, 2018.

* No trials examined the impacts of screening alone versus usual care. All of the screening/intervention program trials included elements beyond prenatal or postpartum depression screening — referral to non-directive counseling or cognitive behavioral therapy, provider education, care management plan development, etc.

Abbreviations: EPDS, Edinburgh Postnatal Depression Scale; EPDS-3A, Edinburg Postnatal Depression Scale-Anxiety Subscales; GAD-7, Generalized Anxiety Disorder-7; MDQ, Mood Disorder Questionnaire; PHQ, Patient Health Questionnaire.

BENEFIT COVERAGE, UTILIZATION, AND COST IMPACTS

As discussed in the Policy Context section, AB 2193 would require DMHC-regulated health plans and CDI-regulated policies to cover screening mothers for maternal mental health conditions at least once during pregnancy and once postpartum. It would also require that DMHC-regulated plans and CDI-regulated policies develop a comprehensive case management program for enrollees who screen positive for a maternal mental health condition and who are subsequently diagnosed, including direct access to a case manager, a therapist, and a psychiatrist familiar with research related to pregnant and lactating women. When a treatment plan is available, clinical case managers must document the enrollee's status to the enrollee's provider at least once every 8 months.

This section reports the potential incremental impacts of AB 2193 on estimated baseline benefit coverage, utilization, and overall cost. AB 2193 includes many different components, and utilization of each service specified in the bill was measured at baseline and projected postmandate using a combination of MarketScan data and applied service rates from the research literature. CHBRP eliminated from the analysis population women with a pre-existing mental health condition *who are currently under psychiatric care* because AB 2193 exempts women under the treatment of a psychiatrist from the requirement of maternal mental health screenings. CHBRP is aware that pregnancy may affect psychiatrists' treatment decisions, but cannot quantify this effect. Women with a preexisting but undiagnosed or untreated mental health condition were not excluded from the analysis. Additionally, 3.8% of pregnant women have a severe mental illness which would qualify them for coverage not subject to AB 2193 (Ko et al., 2012), and therefore have been excluded from this analysis. Finally, CHBRP excluded pregnant women in Medi-Cal who had coverage only through their pregnancy and 60-days postpartum, as this program is administered under fee-for-service Medi-Cal and is therefore not subject to mandate under AB 2193.

CHBRP used this method to estimate baseline and postmandate:

1. number of women receiving a mental health screening during the prenatal and postpartum periods;
2. of the number of women who are screened, the number of pregnant or postpartum women who screen positive for a mental health condition;
3. of the number of women who screen positive, the number of pregnant or postpartum women who receive mental health case management; and
4. of the number of women who receive case management, the number of pregnant or postpartum women who receive treatment.

According to the research literature, utilization rates of these services and treatments vary by insurance type, with enrollees in DMHC-regulated Medi-Cal managed care plans having different rates of initial screening and symptoms than enrollees in commercial or CalPERS DMHC-plans or CDI-policies. The existence of access to care barriers mitigates each step of the screening, diagnosis and treatment pathway, and these barriers are taken into account with evidence-based prevalence rates. CHBRP therefore applied these different rates to estimate the baseline and postmandate utilization for these populations separately. The same literature-based rates for diagnosis and treatment were applied to all insurance groups. These effects were then combined into the total enrollee population impacts reported in Table 1. While CHBRP's assumptions are based on the best available empirical research literature, as well as content expert input, it should be noted that CHBRP is estimating population averages and not projecting the care pathway of any particular pregnant woman.

For further details on the underlying data sources and methods, please see Appendix D.

Baseline and Postmandate Benefit Coverage

Currently, 100% of enrollees with health insurance that would be subject to AB 2193 have coverage for mental health screenings during the perinatal period. However, no enrollees in DMHC-regulated plans and CDI-regulated policies currently have coverage for follow-up case management that would be fully compliant with AB 2193 (Table 1).

Current coverage of mental health screening among pregnant or postpartum women, and follow-up case management and care, was determined by a survey of the largest (by enrollment) providers of health insurance in California. Responses to this survey represent 87% of enrollees with health insurance that can be subject to state mandates.

Postmandate, CHBRP estimates that coverage for all parts of AB 2193 would increase to 100%, with plans mainly modifying their case management requirements to meet the specifications of care in AB 2193.

Baseline and Postmandate Utilization

Baseline Utilization

CHBRP estimates that there are currently 407,000 pregnant women enrolled in DMHC-regulated plans or CDI-regulated policies annually who would have health insurance coverage subject to AB 2193, excluding those with pre-existing diagnosed and treated mental health conditions (Table 1; Figures 21 and 22). See Figures 21 and 22 for flow charts of the assumptions built into the CHBRP Cost and Coverage Model for AB 2193 for current utilization, with privately funded plans and policies separate from Medi-Cal managed care plans due to differences in screening and occurrence of depressive symptoms during pregnancy in these populations.

Figure 21. Baseline Maternal Mental Health (MMH) Screening and Care Pathway, Enrollees With Commercial or CalPERS Coverage

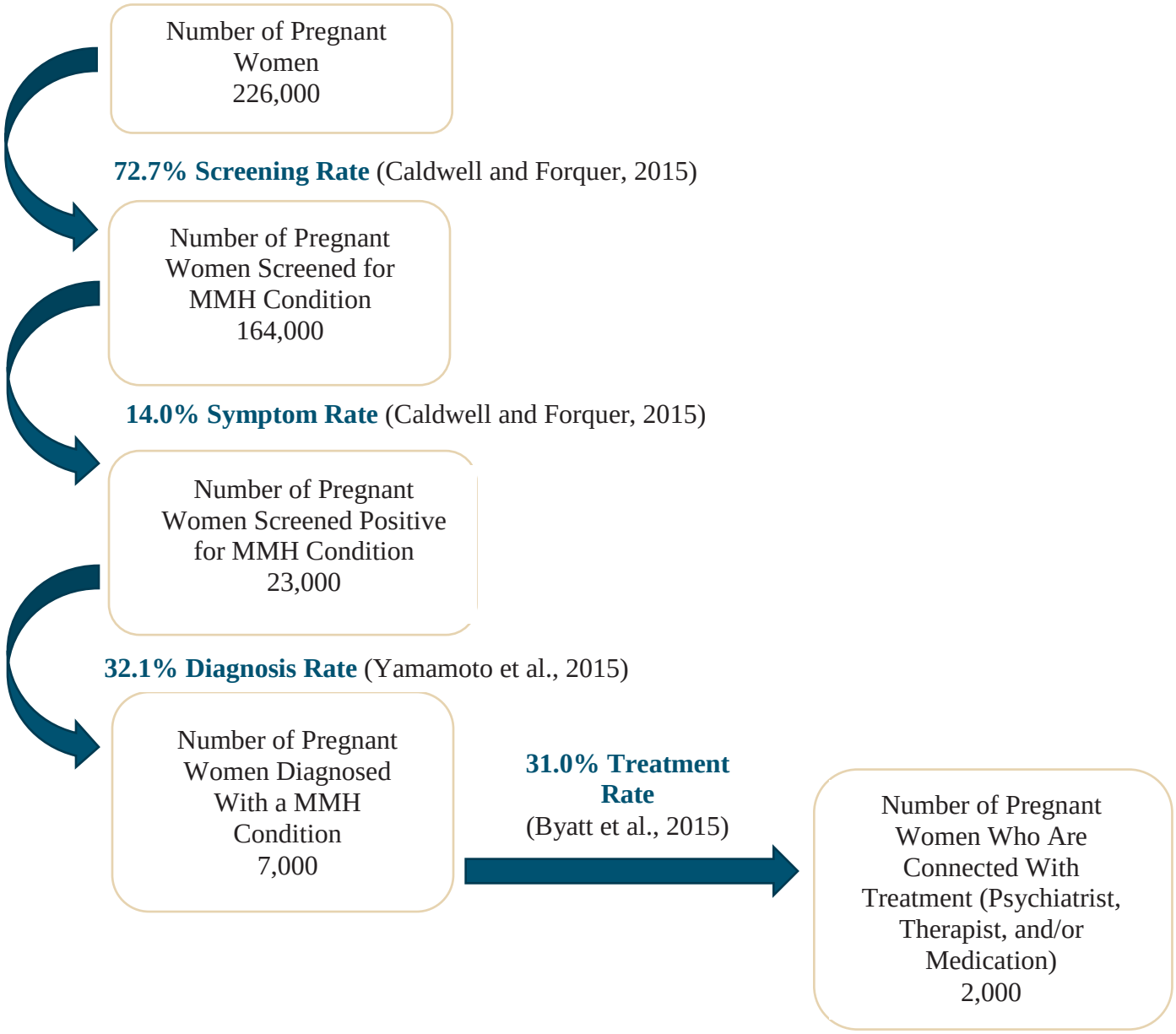
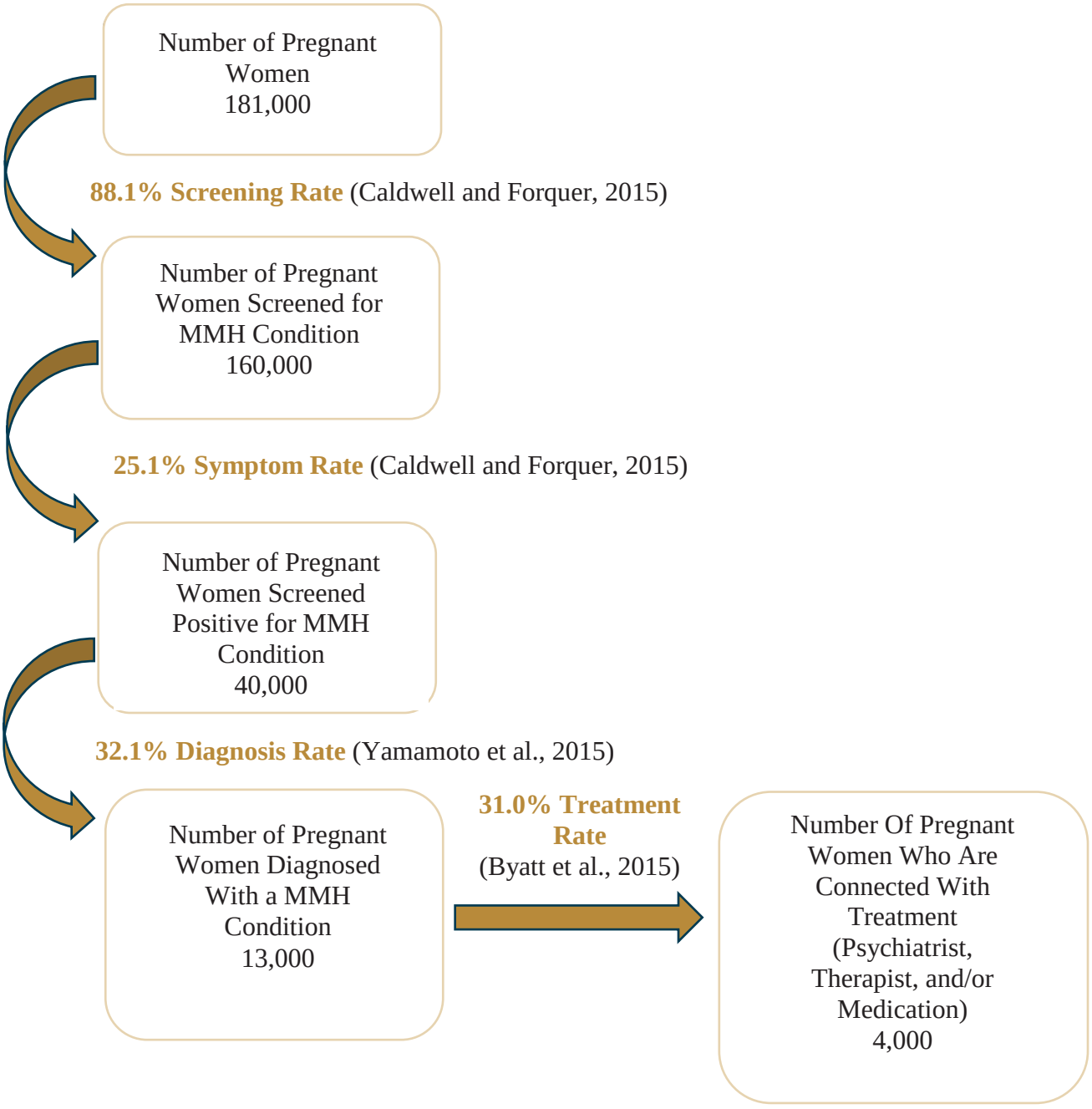


Figure 22. Baseline Maternal Mental Health (MMH) Screening and Care Pathway, Enrollees With Medi-Cal Managed Care Coverage



Baseline utilization among women with commercial or CalPERS coverage

As described in Figure 21, of those 407,000 women, over half (226,000) are insured through DMHC-regulated plans or CDI-regulated policies that are sold commercially or through CalPERS. Within this group, there is as 72.7% screening rate (164,000) for maternal mental health conditions during pregnancy, informed by analysis of the 2013 to 2014 Maternal Infant Health Assessment (MIHA) survey (Caldwell and Forquer, 2015). In the absence of other evidence, CHBRP assumes that the screening rate remains the same in the postpartum period. Of the women insured with commercial or CalPERS plans or policies who are screened, we estimate that 14.0% will express depressive symptoms based on analysis of the 2013 to 2014 MIHA survey (Caldwell and Forquer, 2015). As summarized in the Medical Effectiveness section, there is a preponderance of evidence that a screening tool (the Edinburgh Postnatal Depression Scale) can accurately identify depression among perinatal women. Therefore, CHBRP assumes that depressive symptoms can be a proxy for a positive screen for maternal mental health conditions; we assume that 14.0% (23,000) of privately insured women screened for maternal mental health conditions will screen positive.

Of the women that screen positive for a mental health condition, CHBRP assumes a 32.1% diagnosis rate for a maternal mental health condition (Yamamoto et al., 2015), for a total of 7,000 women diagnosed. This lower diagnosis rate takes the potential of false positives results of the screening tool into account, as well as women who do not to follow-up with a psychiatrist. This rate could be depressed by barriers including cost, transportation, inability to obtain a timely appointment, or fear of stigma that could lead to their children being removed from their custody (CA Task Force, 2017). With existing case management practices, CHBRP assumes a 31.0% treatment rate based on Byatt et al., 2015. Treatment can include enrollees receiving psychiatric consultation, seeing a therapist, and/or taking medication. This amounts to 2,000 women with commercial or CalPERS coverage (see Figure 21).

Baseline utilization among women with Medi-Cal managed care coverage

As described in Figure 22, of those 407,000 women, just under half (181,000) are enrolled in Medi-Cal managed care. Within this group, there is an 88.1% screening rate (160,000) for maternal mental health conditions during pregnancy, informed by analysis of the 2013–2014 Maternal Infant Health Assessment (MIHA) survey (Caldwell and Forquer, 2015). In the absence of other evidence, we assume that the screening rate remains the same in the postpartum period. Of the women with Medi-Cal managed care who are screened during pregnancy, CHBRP estimates that 25.1% will express depressive symptoms based on analysis of the 2013–2014 MIHA survey (Caldwell and Forquer, 2015). As summarized in the *Medical Effectiveness* section, there is a preponderance of evidence that a screening tool (the Edinburgh Postnatal Depression Scale) can accurate identify depression among pregnant and postpartum women. Therefore, we assume that depressive symptoms can be a proxy for a positive screen; we assume that 25.1% (40,000) of Medi-Cal enrolled women screened for maternal mental health conditions will screen positive.

Of the women that screen positive for a mental health condition, we assume a 32.1% diagnosis rate for a maternal mental health condition (Yamamoto et al., 2015). For women enrolled in Medi-Cal managed care plans, this amounts to 13,000 women diagnosed with a maternal mental health condition. This lower diagnosis rate takes the potential of false positives to the screening tool into account, as well as women who do not able to follow-up with a psychiatrist. This rate could be depressed by barriers including cost, transportation, inability to obtain a timely appointment, or fear of stigma that could lead to their children being removed from their custody (CA Task Force, 2017). With existing case management practices, CHBRP assumes a 31.0% treatment rate based on Byatt et al., 2015. Treatment can include enrollees

receiving psychiatric consultation, seeing a therapist, and/or taking medication. This amounts to 4,000 women enrolled in Medi-Cal managed care plans receiving treatment for a maternal mental health condition (see Figure 22).

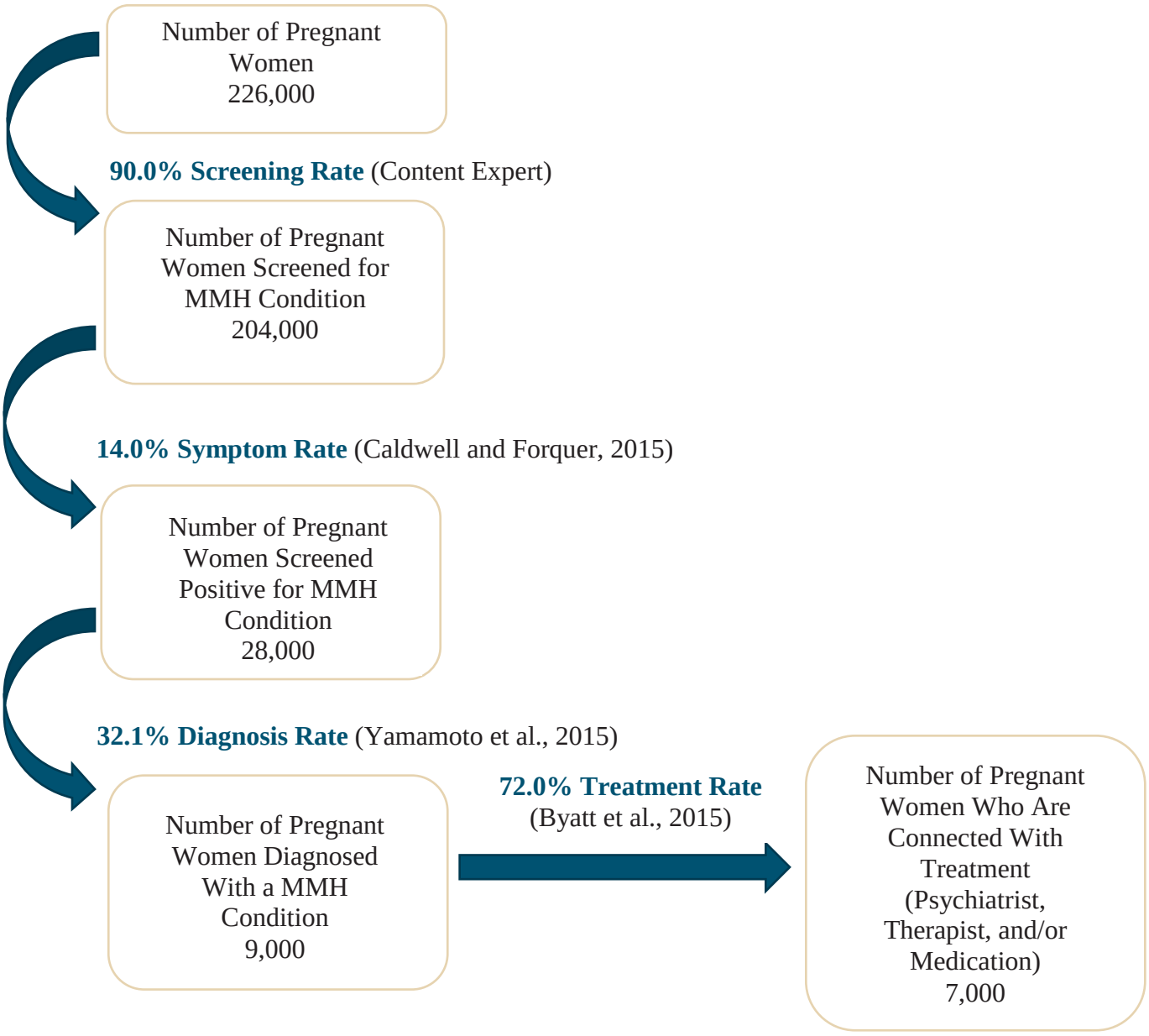
Postmandate Utilization

Postmandate, CHBRP estimates that the overall number of pregnant women enrolled in DMHC-plans or CDI-policies would remain the same at 407,000. The mental health screening rate would increase to 90% regardless of type of coverage; this rate is based on content expert input.[31] A screening rate of 90% would increase the number of women screened to 367,000 (Table 1). A study in Kaiser Permanente of Northern California found that a universal perinatal depression screening program reached a screening rate of 98% at the final stage of program implementation (Avalos et al., 2016). This demonstrates that it is difficult for a screening rate to reach 100% as even a fully integrated health system with a universal screening approach has a screening rate of 98%. Also, it is likely that screening rates in health care settings that are not part of a fully integrated system with an established universal screening program would be lower than the KPNC rate. Based on this empirical evidence from the research literature and on input from the content expert, CHBRP assumes a 90% screening rate postmandate.

While the symptom and diagnosis rates would remain the same postmandate, CHBRP estimates that the treatment rate would increase to 72% with the newly intensive case management required by AB 2193 (Byatt et al., 2015). This increase would result in an additional 10,000 women receiving needed mental health treatment after screening positive for a mental health condition. See Figures 23 and 24 for flow charts of the assumptions built into the CHBRP Cost and Coverage Model for AB 2193 for postmandate utilization, with privately-funded plans and policies separate from Medi-Cal managed care plans due to differences in screening and occurrence of depressive symptoms during pregnancy in these populations.

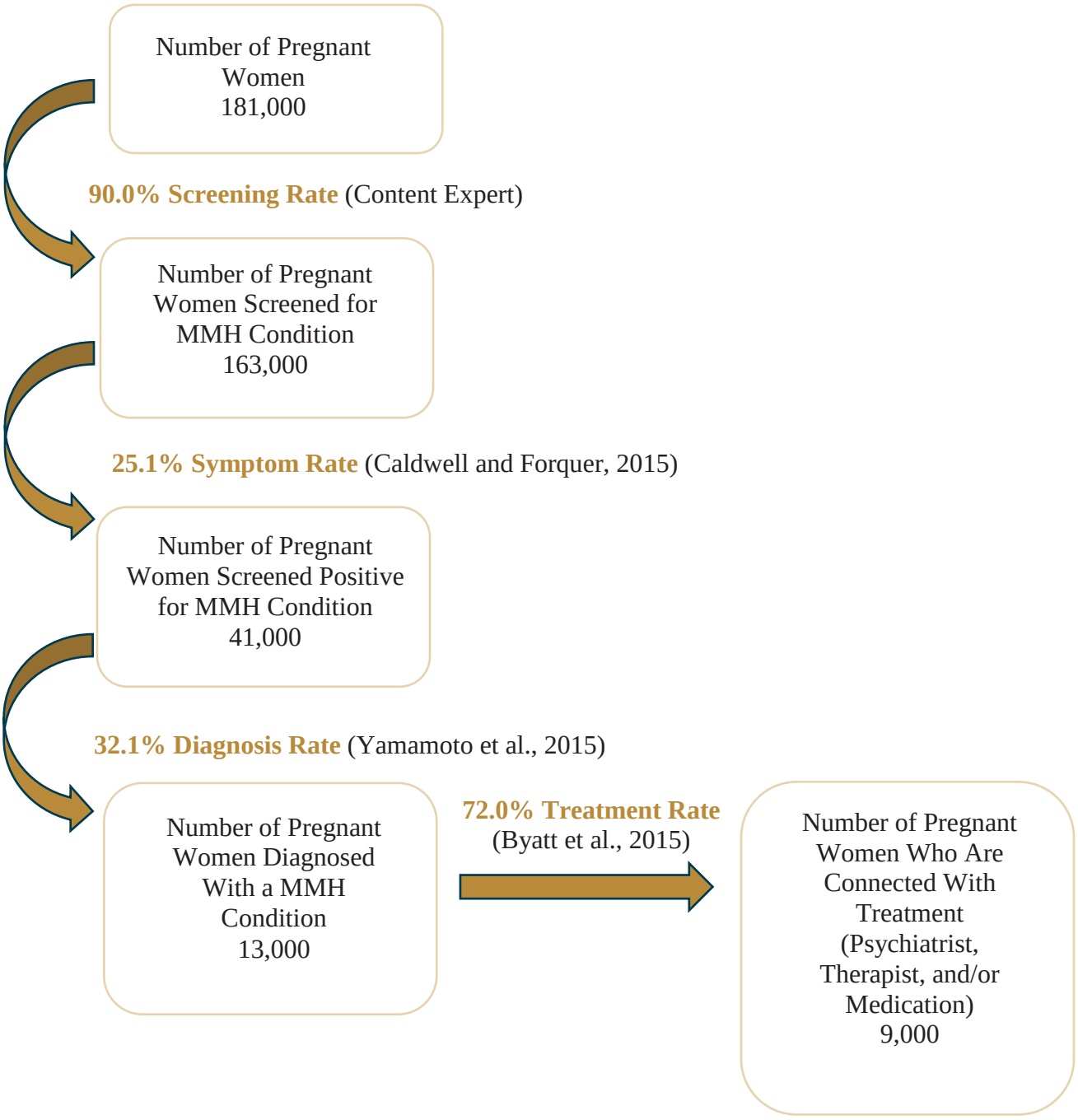
[31] Personal communication, content expert Melanie Thomas, MD, MS, UC San Francisco, April 9, 2018.

Figure 23. Postmandate Maternal Mental Health (MMH) Screening and Care Pathway, Enrollees With Commercial or CalPERS Coverage[32]



[32] Personal communication, content expert Melanie Thomas, MD, MS, UC San Francisco, March 26, 2018.

Figure 24. Postmandate Maternal Mental Health (MMH) Screening and Care Pathway, Enrollees With Medi-Cal Managed Care Coverage[33]



[33] Personal communication, content expert Melanie Thomas, MD, MS, UC San Francisco, March 26, 2018.

Baseline and Postmandate Per-Unit Cost

Currently, the average cost of a maternal mental health screening is usually bundled in with another service, such as a prenatal or postpartum doctor office visit. In the rare situation when it is coded separately, CHBRP finds that the average cost of a maternal mental health screening is less than $10 per enrollee. CHBRP estimates that the average annual cost of follow-up mental health treatment for pregnant or postpartum women who screen positive for a mental health condition for enrollees in DMHC-regulated plans or CDI-regulated policies that are commercial or CalPERS is $580, according to the Truven data analyzed by CHBRP. Average costs for DMHC-regulated Medi-Cal managed care plans are 40% lower, and total $263 per user. See Appendix D for complete description of the services included in the average cost. CHBRP finds that the increase in utilization postmandate from AB 2193 will not be enough to change the average cost per service, and so assumes that these will remain the same in the postmandate period.

Baseline and Postmandate Expenditures

Table 7 and Table 8 present baseline and postmandate expenditures by market segment for DMHC-regulated plans and CDI-regulated policies. The tables present per member per month (PMPM) premiums, enrollee expenses for both covered and noncovered benefits, and total expenditures (premiums as well as enrollee expenses).

AB 2193 would increase total net annual expenditures by $4,519,000 or 0.0029% for enrollees with DMHC-regulated plans and CDI-regulated policies. This is due to a $3,952,000 in total health insurance premiums paid by employers and enrollees for covered benefits, plus an increase of $567,000 in enrollee expenses for covered benefits.

Premiums

Changes in premiums as a result of AB 2193 would vary by market segment. Note that such changes are related to the number of enrollees (see Table 7 and Table 8), with health insurance that would be subject to AB 2193.

Premium increases among privately funded plans and policies range from a low of $0.0119 PMPM for DMHC-regulated large group plans and CDI-regulated large group policies, to a high of $0.0127 PMPM for CDI-regulated small group policies.

Among publicly funded DMHC-regulated health plans, premiums are expected to increase for CalPERS HMO plans by $0.0119 PMPM, and for Medi-Cal managed care plans for people under age 65 by $0.0200 PMPM. CHBRP expects no impact on premiums for Medi-Cal managed care plans for people over age 65.

Enrollee Expenses

AB 2193-related changes in enrollee expenses for covered benefits (deductibles, copays, etc.) and enrollee expenses for noncovered benefits would vary by market segment. Note that such changes are related to the number of enrollees (see Table 7 and Table 8) with health insurance that would be subject to AB 2913 expected to use the relevant services during the year after enactment.

CHBRP projects no change to copayments or coinsurance rates but does project an increase in utilization of maternal mental health screening, and the follow-up case management and mental health services, and therefore an increase in enrollee cost sharing.

It is possible that some enrollees incurred expenses related to maternal mental health services for which coverage was denied, but CHBRP cannot estimate the frequency with which such situations occur and so cannot offer a calculation of impact.

For DMHC-regulated publicly funded plans, CHBRP estimates no impact on cost-sharing among Medi-Cal managed care enrollees. An increase of $0.0148 PMPM is expected for CalPERS HMO enrollees. Among privately-funded DMHC-plans and CDI-regulated policies, CHBRP expects increases ranging from $0.0149 PMPM for enrollees in the large group markets, to $0.0156 PMPM for the small group markets.

Out-of-Pocket Spending for Covered and Noncovered Expenses

When possible, CHBRP estimates the marginal impact of the bill on out-of-pocket spending for covered and noncovered expenses, defined as uncovered medical expenses paid by the enrollee as well as out-of-pocket expenses (e.g., deductibles, copayments, and coinsurance). CHBRP is unable to estimate whether the additional 43,000 enrollees with uncovered expenses at baseline would receive a reduction in their out-of-pocket spending for covered and noncovered expenses associated with maternal mental health screening, treatment, and case management (Table 1). Due to new coverage requirements for case management and increased use of screening, CHBRP also estimates that total out-of-pocket expenses for enrollees for covered benefits would increase by $567,000 under the new mandate. This is equivalent to an increase of $1.54 on average per pregnant woman with coverage subject to AB 2193 who receives perinatal screening. CHBRP estimates are based on claims data and may underestimate the cost savings for enrollees due to carriers' ability to negotiate discounted rates that are unavailable to patients and their families.

Potential Cost Offsets or Savings in the First 12 Months After Enactment

CHBRP is unable to project any cost offsets or savings in health care that would result because of the enactment of provisions in AB 2913, in the first 12 months postmandate. While some research literature exists that indicates increased mental health screening and treatment prevents future health problems, it is unclear whether or how much of those prevented health problems would occur within the first year postmandate, or how much those prevented problems would have cost. Therefore, the cost offsets are unknown. These issues will be discussed more fully in the *Long-Term Impacts* section.

Postmandate Administrative Expenses and Other Expenses

CHBRP estimates that the increase in administrative costs of DMHC-regulated plans and/or CDI-regulated policies will remain proportional to the increase in premiums. CHBRP assumes that if health care costs increase as a result of increased utilization or changes in unit costs, there is a corresponding proportional increase in administrative costs. CHBRP assumes that the administrative cost portion of premiums is unchanged. All health plans and insurers include a component for administration and profit in their premiums.

Other Considerations for Policymakers

In addition to the impacts a bill may have on benefit coverage, utilization, and cost, related considerations for policymakers are discussed below.

Essential Health Benefits

As explained in the *Policy Context* section, treatments and services required by mandate are likely included in California's EHB package under outpatient or inpatient mental health services. The requirements of AB 2193 appear not to exceed the EHBs.

Postmandate Changes in the Number of Uninsured Persons[34]

Because the change in average premiums does not exceed 1% for any market segment (see Table 8), CHBRP would expect no measurable change in the number of uninsured persons due to the enactment of AB 2193.

Changes in Public Program Enrollment

CHBRP estimates that the mandate would produce no measurable impact on enrollment in publicly funded insurance programs due to the enactment of AB 2193

How Lack of Benefit Coverage Results in Cost Shifts to Other Payers

Untreated maternal mental health conditions may lead enrollees to access mental health care through county-funded services, or they may pay out-of-pocket for their own mental health providers. CHBRP cannot quantify the extent to which this is occurring, and therefore does not include these potential out-of-pocket costs in the Cost Model.

[34] See also CHBRP's *Criteria and Methods for Estimating the Impact of Mandates on the Number of Uninsured*, available at www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

Table 7. Baseline Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2019

	DMHC-Regulated						CDI-Regulated			
	Privately Funded Plans (by Market) (a)			Publicly Funded Plans			Privately Funded Plans (by Market) (a)			
	Large Group	*Small Group*	*Individual*	*CalPERS HMOs (b)*	*MCMC (Under 65) (c)*	*MCMC (65+) (c)*	*Large Group*	*Small Group*	*Individual*	**Total**
Enrollee counts										
Total enrollees in plans/policies subject to state mandates (d)	9,371,000	3,117,000	2,081,000	887,000	6,832,000	678,000	214,000	133,000	120,000	23,433,000
Total enrollees in plans/policies subject to AB 2193	9,371,000	3,117,000	2,081,000	887,000	6,832,000	678,000	214,000	133,000	120,000	23,433,000
Premiums										
Average portion of premium paid by employer	$482.65	$343.93	$0.00	$505.74	$276.66	$808.46	$557.12	$459.26	$0.00	$103,945,637,000
Average portion of premium paid by employee	$122.24	$158.45	$588.53	$82.33	$0.00	$0.00	$175.81	$167.30	$459.20	$36,625,181,000
Total premium	$604.88	$502.38	$588.53	$588.07	$276.66	$808.46	$732.93	$626.56	$459.20	$140,570,818,000
Enrollee expenses										
For covered benefits (deductibles, copays, etc.)	$48.13	$111.60	$159.72	$50.14	$0.00	$0.00	$133.93	$176.39	$112.74	$14,896,952,000
For noncovered benefits (e)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0
Total expenditures	$653.02	$613.98	$748.25	$638.21	$276.66	$808.46	$866.86	$802.95	$571.95	$155,467,770,000

Source: California Health Benefits Review Program, 2018.

Notes: (a) Includes enrollees with grandfathered and nongrandfathered health insurance acquired outside or through Covered California (the state's health insurance marketplace).

(b) *Approximately 56.17% of CalPERS enrollees in DMHC-regulated plans are state retirees, state employees, or their dependents.*

(c) Medi-Cal Managed Care Plan expenditures for members over 65 include those who are also Medicare beneficiaries. This population does not include enrollees in COHS.

(d) This population includes both persons who obtain health insurance using private funds (group and individual) and through public funds (e.g., CalPERS HMOs, Medi-Cal Managed Care Plans). Only those enrolled in health plans or policies regulated by the DMHC or CDI are included. Population includes all enrollees in state-regulated plans or policies aged 0 to 64 years, and enrollees 65 years or older covered by employer-sponsored health insurance.

(e) Includes only those expenses that are paid directly by enrollees or other sources to providers for services related to the mandated benefit that are not currently covered by insurance. This only includes those expenses that will be newly covered, postmandate. Other components of expenditures in this table include all health care services covered by insurance.

Key: CalPERS HMOs = California Public Employees' Retirement System Health Maintenance Organizations; CDI = California Department of Insurance; COHS = County Organized Health Systems; DMHC = Department of Managed Health Care; MCMC = Medi-Cal Managed Care.

Table 8. Postmandate Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2019

	DMHC-Regulated						CDI-Regulated			
	Commercial Plans (by Market) (a)			Publicly Funded Plans			Commercial Plans (by Market) (a)			
	Large Group	*Small Group*	*Individual*	*CalPERS HMOs (b)*	*MCMC (Under 65) (c)*	*MCMC (65+) (c)*	*Large Group*	*Small Group*	*Individual*	**Total**
Enrollee counts										
Total enrollees in plans/policies subject to state mandates (d)	9,371,000	3,117,000	2,081,000	887,000	6,832,000	678,000	214,000	133,000	120,000	23,433,000
Total enrollees in plans/policies subject to AB 2193	9,371,000	3,117,000	2,081,000	887,000	6,832,000	678,000	214,000	133,000	120,000	23,433,000
Premium costs										
Average portion of premium paid by employer	$0.0095	$0.0086	$0.0000	$0.0102	$0.0200	$0.0000	$0.0090	$0.0093	$0.0000	$3,173,000
Average portion of premium paid by employee	$0.0024	$0.0040	$0.0125	$0.0017	$0.0000	$0.0000	$0.0029	$0.0034	$0.0123	$779,000
Total premium	$0.0119	$0.0126	$0.0125	$0.0119	$0.0200	$0.0000	$0.0119	$0.0127	$0.0123	**$3,952,000**
Enrollee expenses										
Enrollee expenses for covered benefits (deductibles, copays, etc.)	$0.0030	$0.0030	$0.0029	$0.0030	$0.0000	$0.0000	$0.0030	$0.0030	$0.0029	$566,000
Enrollee expenses for noncovered benefits (e)	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0.0000	$0
Total expenditures	$0.0149	$0.0156	$0.0154	$0.0148	$0.0200	$0.0000	$0.0149	$0.0156	$0.0152	**$4,519,000**
Postmandate percent change										
Percent change insured premiums	0.0020%	0.0025%	0.0021%	0.0020%	0.0072%	0.0000%	0.0016%	0.0020%	0.0027%	0.0029%

Percent change total expenditures	0.0023%	0.0025%	0.0021%	0.0023%	0.0072%	0.0000%	0.0017%	0.0019%	0.0027%	0.0029%

Source: California Health Benefits Review Program, 2018.

Note: (a) Includes enrollees with grandfathered and nongrandfathered health insurance, both on Covered California and outside the exchange.

(b) Approximately 56.17% of CalPERS enrollees in DMHC-regulated plans are state retirees, state employees, or their dependents

(c) Medi-Cal Managed Care Plan expenditures for members over 65 include those who also have Medicare coverage. This population does not include enrollees in COHS.

(d) This population includes both persons who obtain health insurance using private funds (group and individual) and through public funds (e.g., CalPERS HMOs, Medi-Cal Managed Care Plans). Only those enrolled in health plans or policies regulated by the DMHC or CDI are included. Population includes all enrollees in state-regulated plans or policies aged 0 to 64 years, and enrollees 65 years or older covered by employer-sponsored health insurance.

(e) Includes only those expenses that are paid directly by enrollees or other sources to providers for services related to the mandated benefit that are not currently covered by insurance. This only includes those expenses that will be newly covered, postmandate. Other components of expenditures in this table include all health care services covered by insurance.

Key: CalPERS HMOs = California Public Employees' Retirement System Health Maintenance Organizations; CDI = California Department of Insurance; COHS = County Operated Health Systems; DMHC = Department of Managed Health Care; MCMC = Managed Care Medi-Cal.

PUBLIC HEALTH IMPACTS

As discussed in the *Policy Context* section, AB 2193 would require OB-GYNs to screen women for MMH disorders at least once during pregnancy and once during the postpartum period. AB 2193 would also require that health insurers develop an MMH case management program for enrolled women who screen positive for MMH disorders and who are subsequently diagnosed, which must meet specific requirements in terms of access to a mental health clinician, a mental health provider trained in psychotherapy, psychiatric consultations specific to pregnant and lactating women, and if available, periodic communication between the provider and the case manager to monitor the enrollee's treatment.

The public health impact analysis includes estimated impacts in the short term (within 12 months of implementation) and in the long term (beyond the first 12 months postmandate). This section estimates the short-term impact[35] of AB 2193 on MMH screening, treatment, mental health outcomes, disparities, and financial burden. See *Long-Term Impacts* for discussion of premature death, economic loss, and social determinants of health.

Estimated Public Health Outcomes

Measurable health outcomes relevant to AB 2193 include accurate screening and identification of women with MMH disorders, access and adherence to treatment, and symptom reduction and/or remission.

As presented in *Medical Effectiveness*, there was a preponderance of evidence that there are screening tools (e.g., EPDS) that are effective in identifying women with postpartum depression and limited evidence of effectiveness for identifying depression among pregnant women. Despite insufficient evidence for screening and communication across providers, and limited evidence against case management in terms of their direct impact on perinatal depression outcomes, a preponderance of evidence indicated that these elements, as part of a larger intervention, were effective in identifying women with perinatal depression and linking them to treatments. In terms of treatment, there are several effective options for which there is a preponderance of evidence, but these options require careful evaluation on a case-by-case basis with pregnant or postpartum women.

As presented in *Benefit Coverage, Utilization, and Cost Impacts*:

Privately Insured Enrollees: Of an estimated total of 226,000 pregnant privately insured enrollees with insurance subject to AB 2193, an additional 40,000 women with private insurance will receive some MMH screening, which equals a 24% increase in overall screening rate, and a 65% reduction in the number of women who currently receive no screening. As a result of screening, an additional 5,000 women will be identified as having symptoms (22% increase), and an additional 2,000 women will be diagnosed with a MMH disorder (29% increase), bringing the total number of women who may be enrolled in case management as a result of AB 2193 to 9,000 women; of these, an additional 5,000 women will receive mental health services (250% increase).

Medi-Cal Enrollees: Of an estimated total of 181,000 pregnant Medi-Cal enrollees with insurance subject to AB 2193, an additional 3,000 women will receive some MMH screening, which equals a 2% increase in the overall screening rate and a 14% reduction in the number of women who currently receive no

[35] CHBRP defines short-term impacts as changes occurring within 12 months of bill implementation.

screening. As a result of screening, an additional 1,000 will be identified as having symptoms (2% increase), and although there will be no significant increase in the number of women diagnosed due to already high screening rates for Medi-Cal, a total of 13,000 diagnosed women may be enrolled in case management as a result of AB 2193. Of these, 5,000 additional women will receive mental health services (125% increase).

Enrollees' out of pocket costs for covered benefits are estimated to increase by 0.0038% as women access MMH screening and treatment.

Required Prenatal and Postpartum MMH Screenings for Maternal Depression: An estimated 43,000 additional women across all types of affected insurance plans will receive MMH screenings due to AB 2193, and of these, an additional 6,000 women will be detected with symptoms. As part of the screening and case management program described by AB 2193, many of these women will have an increased likelihood of symptom relief and/or remission. Various screening tools were shown to be effective at successfully identifying women who actually have prenatal or postpartum depressive symptoms, and women who are screened and screen positive are more likely to be referred to and access treatment than if they are not screened (Byatt et al., 2015; Goodman, 2015). A limitation to this finding is that AB 2193 does not specify a standard tool for screening; although the EPDS was recommended by the CA Task Force, individual practitioners may use other measures that are less effective in identifying women with postpartum depression and other MMH disorders. Also, because AB 2193 does not define the specific timeframe of the postpartum period in which screening should occur, women screened as a result may not receive a screening in a timely fashion, as the definition of the postpartum period can extend for up to a year after delivery; symptomatic women who are screened later, after MMH symptoms may have appeared, may experience a delay in treatment and symptom relief. This effect may be more pronounced for women on Medi-Cal, who are less likely to receive timely postpartum care (Thiel de Bocanegra et al., 2017).

MMH Case Management Program for Maternal Depression: Including those women who would have been diagnosed pre-mandate and those diagnosed due to increased screening due to AB 2193, a total of 22,000 women will be eligible for case management. Of these, CHBRP estimates that approximately 10,000 women will be linked to treatment for maternal mental health conditions. Despite insufficient evidence to suggest that case management programs directly improve outcomes for MMH disorders, there was a preponderance of evidence to suggest that case management programs improve access to treatment, and the majority of behavioral and pharmacologic treatments for MMH disorders were shown to be effective in treating depression. A meta-analysis of MMH access to care intervention studies, which included case management programs among other interventions designed to reduce patient, provider, and practice-level barriers to maternal depression care showed that women were incrementally more likely to access care after screening positive for maternal depression based on the intensity of the access to care intervention (i.e., the number of barrier levels targeted) (Byatt et al., 2015). It stands to reason that women enrolled in these programs will be more likely to access the care and treatments to which they are referred, which may in turn lead to improved health outcomes, but the extent to which this will occur is unknown as the structure and intensity of MMH case management programs developed as a result of AB 2193 are likely to vary across health plans.

Required Prenatal and Postpartum MMH Screenings and Case Management for Other MMH Disorders: Despite increased utilization of screening and case management, there is insufficient or inconclusive evidence to show screening during pregnancy and postpartum or case management would improve symptoms or lead to remission for other MMH disorders besides maternal depression. However, this may be due to the relative rarity of studies on these conditions and lower prevalence of the conditions themselves compared to maternal depression. It stands to reason that if appropriate screening tools are

used, more women with these disorders will be detected and receive some form of treatment, the majority of which were shown to be effective.

Required Prenatal and Postpartum MMH Screenings for Maternal Depression: In the first year postmandate, CHBRP estimates that due to AB 2193, 43,000 more women will be screened for MMH disorders, which will result in increased linkages to treatment and symptom reduction. This estimate is supported by a preponderance of evidence that maternal depression screening tools are effective, clear and convincing evidence that postpartum depression screening and limited evidence that prenatal depression screening are medically effective in the context of a larger intervention, and estimated increases in screening rates (24% for privately insured enrollees, 2% for Medi-Cal enrollees). However, it is important to note the following caveats: the majority of evidence is for maternal depression only and not other MMH disorders, and the lack of a defined timeframe for the postpartum period may lead to issues with timely screening.

MMH Case Management Program for Maternal Depression: In the first year postmandate, CHBRP estimates that as a result of increased screening due to AB 2193, a total of 22,000 women will be eligible for case management, and of these, 10,000 additional women will receive maternal mental health treatment. It stands to reason that women enrolled in case management will be more likely to access the care and treatments to which they are referred, which may in turn lead to improved health outcomes, but the extent to which this will occur is unknown as the structure and intensity of MMH case management programs developed as a result of AB 2193 are likely to vary across health plans. This estimate is supported by a preponderance of evidence that case management increases access to effective behavioral and pharmacological treatment for maternal depression in the context of a larger care intervention, and an estimated increase in the number of women who will be eligible to access new case management plans and treatment utilization of 125% for Medi-Cal and 250% for privately insured pregnant women.

Required Prenatal and Postpartum MMH Screenings and Case Management for Other MMH Disorders: In the first year postmandate, despite increased utilization, the public health impact of prenatal and postpartum screenings and case management due to AB 2193 for other MMH disorders besides maternal depression is unknown due to insufficient or inconclusive evidence regarding screening/case management programs. However, this may be due to the relative rarity of studies on these conditions and lower prevalence of the conditions themselves compared to maternal depression. It stands to reason that if appropriate screening tools are used, more women with these disorders will be detected and receive some form of treatment, the majority of which were shown to be effective. Please note that the absence of evidence is not “evidence of no effect.” It is possible that an impact — desirable or undesirable — could result, but current evidence is insufficient to inform an estimate.

Potential Harms From AB 2193

When data are available, CHBRP estimates the marginal change in relevant harms associated with interventions affected by the proposed mandate. As presented in the *Medical Effectiveness* and *Background* sections, in the case of AB 2193 there is evidence to suggest that screening for MMH health

conditions may result in false-positive and false-negative results, either subjecting women to unnecessary psychiatric evaluations or not identifying women with a MMH condition. However, false-positive and false-negative rates varied widely depending on the screening tool used and the targeted condition. Another potential harm could come from the use or discontinuation of pharmacotherapy used in mental health treatments among perinatal women without sufficient evaluation of the risk to benefit ratio to the patient and her fetus/infant. Potential harms associated with the use of psychiatric medications include pre-term birth, and developmental/physical health issues among children born as a result of the pregnancy during which the medications were taken, whereas inappropriate discontinuation of psychiatric medications during the perinatal period may also harm the mother or fetus/infant through a resurgence of mental health symptoms due to a lack of treatment and resulting stress to the mother (Yonkers et al., 2009). Despite the possible harms, the benefits of continuing to take psychiatric medications during pregnancy to control symptoms may outweigh the potential harms if evaluated and approved by a qualified psychiatrist who is familiar with appropriate medications for pregnant women.

Impact on Disparities[36]

Insurance benefit mandates that bring more parity to state-regulated plans and policies may reduce existing disparities. As described in the *Background* section, disparities in perinatal depressive symptoms exist by race/ethnicity, gender, and age disparities. Within the first 12 months postmandate, CHBRP estimates AB 2193 could improve public health outcomes related to access to treatment for MMH disorders across the entire impacted enrollee population. However, AB 2193 may not improve or may widen racial/ethnic disparities in the prevalence of MMH conditions and access to MMH treatment. (For discussion of potential impacts beyond the first 12 months of implementation including SDoH, see *Long-Term Impacts*.)

Impact on Racial/Ethnic Disparities

As described in the *Background* section, despite having a greater likelihood of screening for prenatal depression, African American and Hispanic/Latina women, who are overrepresented in the Medi-Cal population, and have higher rates of maternal depressive symptoms compared to white and Asian women, have lower rates of accessing MMH treatment. As more women with private insurance will be screened and diagnosed with MMH conditions, the prevalence in this group may rise, leading to a narrowing of the disparity in prevalence of MMH with Medi-Cal enrollees, and subsequently between racial/ethnic groups, without actually decreasing the prevalence rate among Medi-Cal enrollees, and therefore among African American and Hispanic/Latina women.

In addition, because the treatment utilization change estimated for AB 2193 is proportionally larger for private insurance enrollees than Medi-Cal enrollees, AB 2193 may widen disparities in maternal depression treatment rates among African American and Hispanic/Latina women as the treatment rates for privately insured women will increase more. Finally, women on Medi-Cal are less likely to receive postpartum care than privately enrolled women and if they do attend a postpartum visit, it may not be timely (CDPH, 2016; DiBari et al., 2014; Thiel de Bocanegra, 2017). Therefore, they may be less likely to receive a timely postpartum MMH screening even if AB 2193 is implemented because a lower proportion complete the first step which triggers screening, identification, and case management: a postpartum visit to an OB-GYN.

[36]. For details about CHBRP's methodological approach to analyzing disparities, see www.chbrp.org/analysis_methodology/docs/Estimating Impacts on Racial and Ethnic Disparities FINAL.pdf.

Racial or ethnic disparities in the prevalence of maternal depressive symptoms and access to MMH treatment exist in California. To the extent that AB 2193 increases utilization of MMH screening and subsequently treatment in Medi-Cal enrollees, but to a lesser extent than the increase estimated for privately insured enrollees, CHBRP estimates: (1) a decrease in the racial/ethnic disparities in perinatal depressive symptoms prevalence due to an increase in detection and prevalence among privately insured women, but no change in depressive symptom rates among Medi-Cal/minority women, and (2) no change or a widening of the racial/ethnic disparities in access to MMH care in the first year postmandate due to proportionally greater increased access among privately insured women; however, the magnitude is unknown.

LONG-TERM IMPACTS

In this section, CHBRP estimates the long-term impact[37] of AB 2193 which CHBRP defines as impacts occurring beyond the first 12 months after implementation. These estimates are qualitative and based on the existing evidence available in the literature. CHBRP does not provide quantitative estimates of long-term impacts because of unknown improvements in clinical care, changes in prices, implementation of other complementary or conflicting policies, and other unexpected factors.

Long-Term Utilization and Cost Impacts

Utilization Impacts

Following the 1-year period modeled in the CHBRP Cost and Coverage Model, CHBRP expects that the rates of annual utilization of MMH screening, diagnosis, case management, and treatment would remain consistent with the model's findings.

According to the research literature, the increase in identification of MMH conditions and their subsequent treatment will lead to reductions in the use of other types of health care during the postpartum period (Barilla et al., 2010; Grajkowski et al., 2017; Kimmel et al., 2017). Kimmel et al. (2017) found that intensive case management for MMH conditions led to increased well-child visits and better adherence to immunization guidelines for children. Barilla et al.'s study (2010) found that increasing MMH treatment was associated with reduced "normal newborn readmissions," that is, a reduction in the more intensive hospital care for a newborn child. Finally, Grajkowski et al.'s work (2017) focused on maternal health outcomes, and found that increased untreated maternal postpartum depression was associated with higher utilization of intensive health care by the mother.

Growth in utilization of mental health services will be tempered by a projected shortage of mental health providers, most notably psychiatrists. According to Coffman et al. (2018), within 10 years, current trends point to a shortage in California of 41% fewer psychiatrists and 11% fewer therapists than will be needed (data is for all types of mental health needs). These projections were based on current rates of diagnosis and access to treatment; if AB 2193 increases treatment rates as intended, it would exacerbate these trends.

Cost Impacts

Long-term, the cost impacts of AB 2193 will most likely occur in the reduction of high-cost health care associated with emergency situations or hospitalization, although there will be some increase in costs due to increases in appropriate preventive care, in proportion to the utilization changes discussed above.

Long-Term Public Health Impacts

Some interventions in proposed mandates provide immediate measurable impacts (e.g., maternity service coverage or acute care treatments) while other interventions may take years to make a measurable impact (e.g., coverage for tobacco cessation or vaccinations). When possible, CHBRP estimates the long-

[37] See also CHBRP's *Criteria and Guidelines for the Analysis of Long-Term Impacts on Healthcare Costs and Public Health*, available at www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

term effects (beyond 12 months postmandate) to the public's health that would be attributable to the mandate, including impacts on social determinants of health, premature death, and economic loss.

In the case of AB 2193, CHBRP estimates the change in utilization would set a new level for coming years that is expected to remain constant; therefore, the long-term public health impacts include a consistent improvement in access to MMH treatment and linked reduction in symptoms among those who are identified and screened. More accurate and potentially higher prevalence estimates for MMH disorders may become apparent as more women are identified through increased screening. It is unlikely that the prevalence of MMH disorders will decrease due to increased screening; rather, MMH disorder cases may be identified and referred for case management to support access to treatment sooner, leading to better health outcomes.

Impacts on Disparities and the Social Determinants of Health[38]

In the case of AB 2193, disparities in the prevalence of perinatal depression between men and women may be lessened in the long term. As presented in the *Background* section, women are at greater risk for depression compared to men both in general and during the perinatal period. As AB 2193 targets women specifically, increased screening, identification, and access to treatment through case management may help narrow this disparity in symptoms in the long term, as it would likely take more than 12 months for women to be screened, receive treatment, and report a change in outcomes. It is important to note that AB 2193 does not address perinatal depression and subsequent health outcomes among fathers, which is a separate issue. Regarding racial/ethnic disparities in MMH prevalence and access to care discussed in the short-term Public Health impacts that are linked to the overrepresentation of women of color among Medi-Cal enrollees, the lack of impact or widening of these disparities is expected to persist in the long term, given sustained increase in screening and utilization of treatment estimated after the first 12 months postmandate.

Periodically, health insurance mandates can influence SDoH, which can mediate health inequities. Evidence presented in the *Background* indicates that socioeconomic status, health literacy, and stigma are correlated with maternal depression and access to MMH treatment. In the case of AB 2193, evidence shows that the effect of health literacy and stigma on the prevalence of untreated MMH disorders and access to MMH treatment may be ameliorated to an extent. Disparities related to the SDoH of geography are not expected to change given that AB 2193 does not address the shortage of maternal mental health providers in California, which is a challenge for mothers with limited transportation options or living in rural areas or areas that have limited healthcare services.

Socioeconomic status, health literacy, and stigma

As described in the *Background* section, socioeconomic status (SES) is correlated with maternal depression and barriers to accessing MMH care in multiple ways, such as stressors due to financial distress, domestic violence, a lack of stable housing, or lacking transportation to attend perinatal health or mental health appointments. Women with low SES and low educational attainment may face greater issues in awareness of and access to treatment for MMH disorders due to health literacy and stigma issues. By increasing MMH screening and offering case management, AB 2193 may take some of the burden of actively seeking MMH care away from enrollees; cases of MMH symptoms may be more easily detected among enrollees with limited health literacy who do not have awareness of depression

[38] For more information about SDoH, see CHBRP's publication *Incorporating Relevant Social Determinants of Health into CHBRP Benefit Mandate Analyses* at www.chbrp.org/analysis_methodology/docs/Incorporating Relevant Social Determinants of Health in CHBRP Analyses Final to WEBSITE 033016.pdf.

symptoms or available services and enrollees who, due to stigma, would not have brought any concerns about mental health to their providers' attention. Furthermore, increased screening by healthcare professionals may help normalize discussions around MMH and increase awareness of these issues among providers and patients. Case management may be particularly helpful to low income women with MMH issues as case managers may be able to help keep them connected with MMH care.

CHBRP estimates that AB 2193 could alter the way in which socioeconomic status, health literacy, and stigma interact to impact the prevalence of untreated MMH disorders and access to MMH treatment by lessening the burden of seeking care through increasing screening rates and providing case management to facilitate identification of symptomatic women; providers discussing mental health with pregnant and postpartum women may also help reduce stigma. This change would improve health status/outcomes by increasing access to treatment, and may work to reduce racial/ethnic disparities, which are also influenced by these SDoH.

Impacts on Economic Loss

Economic loss associated with disease is generally presented in the literature as an estimation of the value of the YPLL in dollar amounts (i.e., valuation of a population's lost years of work over a lifetime). In addition, morbidity associated with the disease or condition of interest can also result in lost productivity by causing a worker to miss days of work due to illness or acting as a caregiver for someone else who is ill.

As mentioned in the *Background* section on "Societal Impact," the CA Task Force used findings from 2010 to estimate that California's annual indirect costs of untreated maternal depression was approximately $2.25 billion dollars, based on $7,200 in productivity loss for the mother and $15,300 in costs incurred due to poor child developmental and behavioral outcomes and subsequent impacts on the child's education and productivity, totaling (CA Task Force, 2017; Diaz and Chase, 2010). Adjusting for inflation, this would be $8,358.74[39] for the mother and $17,762.33[40] for the child in 2019 dollars, for a total of $26,121.07 per mother-child pair per year. CHBRP estimates that the increase in utilization of MMH treatment would be sustained in the longer term, and treatment may take longer than the first year postmandate to have an impact on symptoms and quality of life. Therefore, in the coming years, AB 2193 may lead to an amelioration of these annual costs as more screening may lead to earlier identification of maternal depression and with case management, facilitate access to treatment and subsequently, symptom reduction. For the additional 10,000 women who would obtain MMH treatment as a result of AB 2193, this reduction in annual indirect costs of untreated maternal depression is estimated at $216,210,710.00 ($216.2 million) in 2019 dollars.

[39] "2019 Inflation Prediction | Future Inflation Calculator." FinanceRef Inflation Calculator, Alioth Finance, 24 Mar. 2018, www.in2013dollars.com/2010-dollars-in-2019?amount=7200&future_pct=0.0167.
[40] "2019 Inflation Prediction | Future Inflation Calculator." FinanceRef Inflation Calculator, Alioth Finance, 24 Mar. 2018, www.in2013dollars.com/2010-dollars-in-2019?amount=15300&future_pct=0.0167.

APPENDIX A TEXT OF BILL ANALYZED

On February 16, 2018, the California Assembly Committee on Health requested that CHBRP analyze AB 2193. At the request of the California Assembly Committee on Health, CHBRP's analysis of AB 2193 incorporates one amendment in draft form and not yet published that would limit the scope of the bill to OB-GYNs instead of any provider treating a mother or a child.

ASSEMBLY BILL No. 2193

Introduced by Assembly Member Maienschein

February 12, 2018

An act to add Section 685 to the Business and Professions Code, to add Section 1367.625 to the Health and Safety Code, and to add Section 10123.867 to the Insurance Code, relating to health care.

LEGISLATIVE COUNSEL'S DIGEST

AB 2193, as introduced, Maienschein. Maternal mental health.

Existing law provides for the licensure and regulation of various healing arts professions, including, but not limited to, physicians and surgeons, by various boards within the Department of Consumer Affairs. Existing law imposes certain fines and other penalties for, and authorizes these boards to take disciplinary action against licensees for, violations of the provisions governing those professions.

This bill would make it the duty of licensed health care practitioners who treat or attend the mother or child, or both, to screen the mother for maternal mental health conditions, as defined, at least once during pregnancy and once during the postpartum period and to report the findings of the screening to the mother's primary care physician if the health care practitioner is not the mother's primary care physician. The bill would also make it the duty of any facility where those practitioners treat or attend the mother or child, or both, in the first postdelivery appointment to ensure that those practitioners perform the required screening and report the findings. The bill would make a violation of its requirements grounds for disciplinary action by the licensee's licensing entity and would make the facility subject to punishment by its licensing entity, except that a violation of this requirement would not constitute a crime.

Existing law, the Knox-Keene Health Care Service Plan Act of 1975, provides for licensure and regulation of health care service plans by the Department of Managed Health Care and makes a willful violation of that act a crime. Existing law also provides for the regulation of health insurers by the Department of Insurance. Existing law requires health care service plan contracts and health insurance policies that provide hospital, medical, or surgical coverage to provide coverage for the diagnosis and medically necessary treatment of severe mental illnesses, as defined, of a person of any age.

This bill would require health care service plans and health insurers to develop, by July 1, 2019, a case management program that is available for enrollees and insureds and their treating providers when the provider determines that an enrollee or insured may have a maternal mental health condition, as specified. The bill would require that case management program to meet specified standards and would require plans and insurers to notify providers of the availability of the program and to develop a quality management program in order to understand the effectiveness of the case management program. The bill would require health care service plan contracts and health insurance policies issued, amended, or renewed on or after January 1, 2019, to provide coverage for maternal mental health conditions and the above-described case management program. Because a willful violation of the bill's requirement by a health care service plan would be a crime, the bill would impose a state-mandated local program.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

Digest Key

Vote: MAJORITY Appropriation: NO Fiscal Committee: YES Local Program: YES

Bill Text

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1.

Section 685 is added to the Business and Professions Code, to read:

685.

(a) It shall be the duty of any health care practitioner who treats or attends a mother or child, or both, to screen the mother for maternal mental health conditions at least once during pregnancy and once during the postpartum period, unless the health care practitioner has received confirmation from a treating psychiatrist that she will remain under the treating psychiatrist's care during pregnancy and the postpartum period, as applicable. The health care practitioner shall, in a manner consistent with applicable federal privacy law, report the findings of that screening to the mother's primary care physician if the health care practitioner is not the mother's primary care physician.

(b) It shall be the duty of any facility where a health care practitioner treats or attends the mother or child, or both, in the first postdelivery appointment to ensure that the health care practitioner conducts the screening and reports the findings of the screening as described in subdivision (a).

(c) This section shall not be construed to limit when and how often a mother postdelivery is screened for maternal mental health conditions.

(d) A violation of subdivision (a) constitutes unprofessional conduct and grounds for disciplinary action by the health care practitioner's licensing entity. A violation of subdivision (a) shall not constitute a crime.

(e) A facility subject to subdivision (b) that violates subdivision (b) shall be subject to punishment by the facility's licensing entity, except that a violation of subdivision (b) shall not constitute a crime.

(f) Nothing in this section shall prohibit another provider type from screening for maternal mental health conditions.

(g) For purposes of this section, the following definitions apply:

(1) "Maternal mental health condition" means a mental health condition that occurs during pregnancy or during the postpartum period and includes, but is not limited to, postpartum depression.

(2) "Health care practitioner" means an individual who is certified or licensed pursuant to this division or an initiative act referred to in this division and is acting within his or her scope of practice.

SEC. 2.

Section 1367.625 is added to the Health and Safety Code, to read:

1367.625.

(a) By July 1, 2019, a health care service plan shall develop a case management program that is available for an enrollee and his or her treating provider when the provider, acting within his or her scope of practice, determines that the enrollee may have a maternal mental health condition.

(b) The case management program required by subdivision (a) shall do all of the following:

(1) Provide the provider and enrollee direct support in accessing treatment and, if available, managing care in accordance with the provider's treatment plan.

(2) Provide direct access to a clinician assigned to both the provider and the patient.

(3) Support the provider and enrollee in accessing care in a timely manner, consistent with appointment time standards developed pursuant to Section 1367.03, to provide both of the following services:

(A) Direct access for the enrollee to a therapist trained in maternal mental health.

(B) Direct access for both the provider and enrollee to a provider-to-provider psychiatric consultation with a psychiatrist familiar with the latest research surrounding treatment of pregnant and lactating women.

(4) When a treatment plan is available, require clinical case managers in the program to extend the capacity of the enrollee's provider by following the enrollee's treatment access, symptoms, and symptom severity, and recommending potential changes to the treatment plan when

clinically indicated. A clinical case manager shall also provide written reports on an enrollee's status to the enrollee's provider on a periodic basis of no less than once every eight months.

(c) Commencing July 1, 2019, and annually thereafter, a health care service plan shall notify providers in writing of the availability of the case management program described in this section and the process by which a provider can access that program.

(d) (1) In order to understand the effectiveness of the case management program developed by a plan under this section and to make changes as needed to improve utilization, a health care service plan shall develop a maternal mental health quality management program that tracks all of the following information:

(A) The number, ratio, and geographical distance of behavioral providers trained to treat maternal mental health conditions, including therapists and psychiatrists.

(B) Case management utilization, including utilization by individual providers.

(C) The effectiveness of the program in reducing symptoms.

(D) Enrollee and provider satisfaction with the program, if available.

(2) The information in paragraph (1) shall be reported to a quality assurance committee of the health care service plan on an annual basis, and the plan shall institute corrective actions when warranted.

(e) Nothing in this section shall be construed to prohibit either of the following:

(1) A health care service plan from accepting a referral from another treating provider or case management program with respect to a maternal mental health condition.

(2) A health care service plan from transferring a case to another case management program designed to treat mental health issues after the postpartum period expires.

(f) A health care service plan contract issued, amended, or renewed on or after January 1, 2019, shall provide coverage for maternal mental health conditions and for the case management program developed by the plan under this section. This section shall not apply to a specialized health care service plan contract that does not deliver mental or behavioral health services to enrollees.

(g) For the purposes of this section, the following terms have the following meanings:

(1) "Case management program" means a collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an individual's and family's comprehensive health needs through communication and available resources to promote quality, cost-effective outcomes. Case management programs include care management or disease management programs.

(2) "Maternal mental health condition" means a mental health condition that occurs during pregnancy or during the postpartum period and includes, but is not limited to, postpartum depression.

(3) "Provider" means an individual who is certified or licensed pursuant to Division 2 (commencing with Section 500) of the Business and Professions Code, or an initiative act referred to in that division.

SEC. 3.

Section 10123.867 is added to the Insurance Code, to read:

10123.867.

(a) By July 1, 2019, a health insurer shall develop a case management program that is available for an insured and his or her treating provider when the provider, acting within his or her scope of practice, determines that the insured may have a maternal mental health condition.

(b) The case management program required by subdivision (a) shall do all of the following:

(1) Provide the provider and insured direct support in accessing treatment and, if available, managing care in accordance with the provider's treatment plan.

(2) Provide direct access to a clinician assigned to both the provider and the insured.

(3) Support the provider and insured in accessing care in a timely manner, consistent with the timely access regulations dopted under Section 10133.5, to provide both of the following services:

(A) Direct access for the insured to a therapist trained in maternal mental health.

(B) Direct access for both the provider and insured to a provider-to-provider psychiatric consultation with a psychiatrist familiar with the latest research surrounding treatment of pregnant and lactating women.

(4) When a treatment plan is available, require clinical case managers in the program to extend the capacity of the insured's provider by following the insured's treatment access, symptoms, and symptom severity, and recommending potential changes to the treatment plan when clinically indicated. A clinical case manager shall also provide written reports on the insured's status to the insured's provider on a periodic basis of no less than once every 8 months.

(c) Commencing July 1, 2019, and annually thereafter, a health insurer shall notify providers in writing of the availability of the case management program described in this section and the process by which a provider can access that program.

(d) (1) In order to understand the effectiveness of the case management program developed by a health insurer under this section and to make changes as needed to improve utilization, a health insurer shall develop a maternal mental health quality management program that tracks all of the following information:

(A) The number, ratio, and geo-distance of behavioral providers trained to treat maternal mental health conditions, including therapists and psychiatrists.

(B) Case management utilization, including utilization by individual providers.

(C) The effectiveness of the program in reducing symptoms.

(D) Insured and provider satisfaction with the program, if available.

(2) The information in paragraph (1) shall be reported to a quality assurance committee of the health insurer on an annual basis, and the health insurer shall institute corrective actions when warranted.

(e) Nothing in this section shall be construed to prohibit either of the following:

(1) A health insurer from accepting a referral from another treating provider or case management program.

(2) A health insurer from transferring a case to another case management program designed to treat mental health issues after the postpartum period expires.

(f) A health insurance policy issued, amended, or renewed on or after January 1, 2019, shall provide coverage for maternal mental health conditions and for the case management program developed by the insurer under this section. This section shall not apply to a specialized health insurance policy that does not deliver mental or behavioral health services to insureds.

(g) For the purposes of this section, the following terms have the following meanings:

(1) “Case management program” means a collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an individual’s and family’s comprehensive health needs through communication and available resources to promote quality, cost-effective outcomes. Case management programs include care management or disease management programs.

(2) “Maternal mental health condition” means a mental health condition that occurs during pregnancy or during the postpartum period and includes, but is not limited to, postpartum depression.

(3) “Provider” means an individual who is certified or licensed pursuant to Division 2 (commencing with Section 500) of the Business and Professions Code, or an initiative act referred to in that division.

SEC. 4.

No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

APPENDIX B LITERATURE REVIEW METHODS

This appendix describes methods used in the medical effectiveness literature review conducted for this report. A discussion of CHBRP's system for grading evidence, as well as lists of MeSH Terms, publication types, and keywords, follows.

Studies of screening for maternal mental health conditions and subsequent case management and treatments were identified through searches of PubMed, the Cochrane Library, Web of Science, EconLit, and Business Source Complete, the Cumulative Index of Nursing and Allied Health Literature, and PsycINFO. Websites maintained by the following organizations that produce and/or index meta-analyses and systematic reviews were also searched: the Agency for Healthcare Research and Quality (AHRQ), the International Network of Agencies for Health Technology Assessment (INAHTA), the National Health Service (NHS) Centre for Reviews and Dissemination, the National Institute for Health and Clinical Excellence (NICE), and the Scottish Intercollegiate Guideline Network.

For screening and treatment (including case management) of prenatal and postpartum depression, the search was limited to studies published from 2015 to present. CHBRP relied on a systematic review from the United States Preventive Services Task Force (USPSTF) published in 2016 for findings from studies published prior to 2015. As this bill also encompasses other maternal mental health conditions, we conducted a targeted search to identify relevant screening and treatment studies for anxiety disorders, bipolar disorder, and postpartum psychosis, which is consistent with the most common and severe maternal mental health conditions outlined by the California Task Force on Maternal Mental Health. In order to identify relevant screening and treatment studies for maternal mental health conditions beyond perinatal depression, CHBRP performed a targeted literature search, including (1) reviewing the excluded studies list from the 2016 USPSTF report to identify studies excluded due to a mental health condition other than postpartum depression, (2) reviewing references provided by our content experts, and (3) reviewing reference lists of recent studies to identify relevant older studies.

Of the 1,136 articles found in the literature review, 180 were reviewed for potential inclusion in this report on AB 2193, and a total of 42 studies were included in the medical effectiveness review for this report. The other articles were eliminated because they did not include a pregnant or postpartum population, performed screening in a non-routine clinical care setting (e.g., neonatal intensive care unit), investigated a less common screening tool or treatment, or did not report any relevant outcomes. A more thorough description of the methods used to conduct the medical effectiveness review and the process used to grade the evidence for each outcome measure is presented in Appendix B: Literature Review Methods.

Evidence Grading System

In making a "call" for each outcome measure, the medical effectiveness lead and the content expert consider the number of studies as well the strength of the evidence. Further information about the criteria CHBRP uses to evaluate evidence of medical effectiveness can be found in CHBRP's Medical Effectiveness Analysis Research Approach.[41] To grade the evidence for each outcome measured, the team uses a grading system that has the following categories:

- Research design;
- Statistical significance;
- Direction of effect;

[41] Available at: www.chbrp.org/analysis_methodology/docs/medeffect_methods_detail.pdf.

- Size of effect; and
- Generalizability of findings.

The grading system also contains an overall conclusion that encompasses findings in these five domains. The conclusion is a statement that captures the strength and consistency of the evidence of an intervention's effect on an outcome. The following terms are used to characterize the body of evidence regarding an outcome:

- *Clear and convincing evidence;*
- *Preponderance of evidence;*
- *Limited evidence*
- *Inconclusive evidence; and*
- *Insufficient evidence.*

A grade of *clear and convincing evidence* indicates that there are multiple studies of a treatment and that the large majority of studies are of high quality and consistently find that the treatment is either effective or not effective.

A grade of *preponderance of evidence* indicates that the majority of the studies reviewed are consistent in their findings that treatment is either effective or not effective.

A grade of *limited evidence* indicates that the studies had limited generalizability to the population of interest and/or the studies had a fatal flaw in research design or implementation.

A grade of *inconclusive evidence* indicates that although some studies included in the medical effectiveness review find that a treatment is effective, a similar number of studies of equal quality suggest the treatment is not effective.

A grade of *insufficient* evidence indicates that there is not enough evidence available to know whether or not a treatment is effective, either because there are too few studies of the treatment or because the available studies are not of high quality. It does not indicate that a treatment is not effective.

Search Terms (* indicates truncation of word stem)

- Depression, Suicide
- Postpartum depression, Baby Blues
- Anxiety
- Risk assessment
- Screening test, Edinburgh postnatal depression scale, EPDS
- Symptom burden
- Remission
- Suicide
- Mortality
- Quality of life
- Test performance
- Accuracy
- Clinical validity
- Sensitivity
- Specificity
- Positive predictive value
- Negative predictive value
- Positive likelihood ratio
- Negative likelihood ratio
- False-positive results
- False-negative results
- Cognitive behavioral therapy
- Care coordination
- Satisfaction
- Adverse effects
- Harms
- All above* treatments
- All above* outcomes

APPENDIX C DETAILED MEDICAL EFFECTIVENESS RESULTS: ACCURACY OF SCREENING INSTRUMENTS

Depression

Edinburgh Postnatal Depression Scale (EPDS). The 2016 USPSTF review identified 8 studies examining the accuracy of the English-language EPDS in identifying perinatal depression compared to a diagnostic interview (the EPDS has also been studied in other languages, such as Chinese, Japanese, French and Spanish). Six of the EPDS studies assessed the accuracy in postpartum women, while one study each assessed pregnant women and women at any point during pregnancy up to 26 weeks postpartum; two studies were conducted in the United States. Using an EPDS cutoff score of 13 (indicating probable major depressive disorder, or MDD), five of the studies reported sensitivities of the screening tool range between 0.75 and 0.82 (range of all eight studies, 0.67 [95% CI, 0.18 to 0.96] to 1.00 [95% CI, 0.67 to 1.00]). The USPSTF review estimates that the average sensitivity in the United States using a cut-off of ≥13 would be 0.80. Specificity was found to be 0.87 or greater in all eight studies. (O'Connor et al., 2016b). Using an EPDS cutoff score of 10 (indicating minor or major depression), sensitivity of the EPDS ranged from 0.63 (95% CI, 0.44 to 0.79) to 0.84 (95% CI, 0.66 to 0.94) and specificity ranged from 0.79 (95% CI, 0.64 to 0.90) to 0.90 (95% CI, 0.86 to 0.93). (O'Connor et al., 2016b).

Summary of findings regarding EPDS screening for depression: Based on one well-conducted systematic review including eight studies, CHBRP concludes that there is a preponderance of evidence that, compared to a diagnostic interview, the Edinburgh Postnatal Depression Scale (EPDS) can accurately identify depression among pregnant and postpartum women.

Figure 25. Accuracy of the EPDS for Detecting Perinatal Depression

Patient Health Questionnaire (PHQ). The 2016 USPSTF review identified three studies reporting the accuracy of the English-language Patient Health Questionnaire (PHQ) in pregnant and postpartum women, compared to a diagnostic interview. These studies looked at three different versions of the PHQ — PHQ2, PHQ-8, and PHQ-9 — and used three different scoring approaches for the PHQ2. Two studies looked at the accuracy of the PHQ for major depressive disorder in pregnant and postpartum women. The range of sensitivity and specificity was wide, with sensitivity ranging from 0.62 (95% CI, 0.35 to 0.84) to 1.00 (95% CI, 0.88 to 1.00) and specificity ranging from 0.59 (95% CI, 0.52 to 0.66) to 0.91 (95% CI, 0.88 to 0.93) (O'Connor et al., 2016b)

Only one study looked at the accuracy of the PHQ for major or minor depression. This study used the PHQ-2 in pregnant women, and reported a sensitivity of 1.00 (95% CI, 0.86 to 1.00) and specificity of 0.68 (95% CI, 0.59 to 0.76) (O'Connor et al., 2016b)

Summary of findings regarding the accuracy of PHQ screening for depression: Based on evidence from three studies, CHBRP concludes that there is inconclusive evidence that, compared to a diagnostic interview, the PHQ can accurately identify depression among pregnant and postpartum women. The limited number of identified studies used different PHQ versions and scoring approaches which impedes CHBRP's ability to reach a conclusion regarding the strength of the evidence.

Figure 26. Accuracy of the PHQ for Detecting Perinatal Depression

Anxiety disorders

Edinburgh Postnatal Depression Scale (EPDS). CHBRP identified three studies assessing the accuracy of the EPDS in screening for anxiety disorders compared to a diagnostic interview. Simpson et al. enrolled 240 pregnant Canadian women referred for psychiatric consultation who completed the EPDS during the initial assessment. After a clinical interview, 14.6% of women were diagnosed with generalized anxiety disorder (GAD). Using a cuff-off score of 10, the tool had a sensitivity of 0.77, specificity of 0.27, PPV of 0.36 and NPV of 0.79. Using a cut-off score of 13 yielded better results, with a sensitivity of 0.89, specificity 0.40, PPV of 0.37 and NPV of 0.84. This study also investigated the accuracy of the EPDS anxiety items (items 3, 4, 5; EPDS-3A) in screening for GAD. They found that the tool yielded high NPV (0.81) but lower sensitivity (0.68), specificity (0.64) and PPV (0.46) (Simpson et al., 2014).

Matthey (2008) recruited 238 Australian women who completed the anxiety subscales alone, the EPDS-3A, and a diagnostic interview at 6-weeks postpartum. After the diagnostic interview, 7.6% of the women were diagnosed with GAD (n=12) or panic disorder (n=9). Using an optimal cut-off score of 6, the EPDS-3A had a sensitivity of 0.67, specificity of 0.88, PPV of 0.32 and NPV of 0.97 (Matthey, 2008).

Grigoriadis et al. enrolled 91 Canadian women (62 pregnant, 29 postpartum) referred to an outpatient psychiatric clinic who completed the EPDS and a diagnostic interview. After the interview, 49.5% of women were diagnosed with GAD. Using a cut-off score of 13, the EPDS had a sensitivity of 0.70, specificity of 0.82, PPV of 0.79, and NPV of 0.74. This study also investigated the accuracy of the anxiety subscales alone, or the EPDS-3A. The EPDS-3A had a sensitivity of 0.88, specificity of 0.49, PPV of 0.62 and NPV of 0.81 (Grigoriadis et al., 2011).

Summary of findings regarding EPDS/EPDS-3A screening for anxiety disorders: Based on evidence from three studies, CHBRP concludes that there is inconclusive evidence that, compared to a diagnostic interview, the EPDS-3A can accurately identify symptoms of anxiety in pregnant or postpartum women. The limited number of identified studies used different cut-off scores which impedes CHBRP's ability to reach a conclusion regarding the strength of the evidence.

Figure 27. Accuracy of the EPDS/EPDS-3A for Detecting Perinatal Anxiety Disorders

Generalized Anxiety Disorder-7 (GAD-7). **Generalized Anxiety Disorder.** While the GAD-7 has been validated in the general population (Christensen et al., 2011; Spitzer et al., 2006), CHBRP identified a single study assessing its accuracy in a perinatal population. Simpson et al. enrolled 240 Canadian women (155 pregnant, 85 postpartum) referred for psychiatric consultation and clinical interview who completed the GAD-7 during the initial assessment. After a clinical interview, 14.6% of women were diagnosed with generalized anxiety disorder. Using a cut-off score of 10, the tool had a sensitivity of 0.76, specificity of 0.52, PPV of 0.42 and NPV of 0.83. Using a cut-off score of 13 yielded better results, with a sensitivity of 0.61, specificity 0.73, PPV of 0.51 and NPV of 0.81. The performance of the GAD-7 at this

higher cut-off score resulted in accuracy similar to that in a general population. The study also looked at how these results compared with the EPDS and EPDS-3A in detecting GAD; they conclude that the properties of the GAD-7 resulted in better identification of GAD than either the EPDS or EPDS-3A (Simpson et al., 2014).

Summary of findings regarding GAD-7 screening for anxiety disorders: Based on evidence from a single study, CHBRP concludes that there is limited evidence that the GAD-7 can accurately identify anxiety disorders in pregnant and postpartum women.

Figure 28. Accuracy of the GAD-7 for Detecting Perinatal Anxiety Disorders

Bipolar disorder

Mood Disorder Questionnaire (MDQ). CHBRP identified two studies that assessed the accuracy of the MDQ in detecting bipolar disorder in the perinatal period. Sharma and Xie conducted a cohort study of 125 postpartum Canadian women who were referred for psychiatric consultation and diagnosed with either bipolar disorder (n=57) or major depressive disorder (n=68), and who completed the MDQ 2 to 4 weeks after delivery. This study compared the accuracy of the MDQ using traditional scoring (presence of 7 symptoms plus supplementary questions on symptoms/functional impairment) and alternative scoring approaches. Using traditional scoring criteria, the MDQ had a sensitivity of 0.75 (95% CI, 0.62 to 0.86) and specificity of 0.87 (95% CI, 0.76 to 0.94). In comparing alternative scoring thresholds, the study found that the optimal cut-point is the presence of 8 symptoms resulted in higher sensitivity (0.88; 95% CI, 0.76 to 0.95) and similar specificity (0.85; 95% CI, 0.75 to 0.93). The authors also note that decreasing the cut-off would result in significant losses to specificity without gains in sensitivity, and that increasing the cut-off to 9 would result in the opposite (loss of sensitivity without much gain in specificity) (Sharma and Xie, 2011).

Frey et al. also compared the impact of differing MDQ scoring criteria on test accuracy. They enrolled 150 pregnant and postpartum Canadian women referred for psychiatric consultation who completed the MDQ before meeting with a psychiatrist for a clinical interview. After a clinical interview, 18 women were diagnosed with bipolar disorder. Under traditional scoring, the study found that the MDQ had poor sensitivity (0.39; 95% CI, 0.17 to 0.64) but high specificity (0.91; 95% CI, 0.85 to 0.95), PPV (0.37; 95% CI, 0.16 to 0.62) and NPV (0.92; 95% CI, 0.85 to 0.96). Under an alternative scoring approach (presence of 7 symptoms but without the supplementary questions), the accuracy improved (sensitivity, 0.89 [95% CI, 0.65 to 0.99]; specificity, 0.84 [95% CI, 0.77 to 0.89]; PPV, 0.43 [95% CI, 0.27 to 0.60]; NPV, 0.98 [95% CI, 0.94 to 0.99) (Frey et al., 2012).

Summary of findings regarding MDQ screening for bipolar disorder: Based on evidence from two studies, CHBRP concludes that there is limited evidence that the MDQ can accurately identify bipolar symptoms in pregnant or postpartum women when used without the supplementary questions on symptoms and functional impairment.

Figure 29. Accuracy of the MDQ for Detecting Perinatal Bipolar Disorder

APPENDIX D COST IMPACT ANALYSIS: DATA SOURCES, CAVEATS, AND ASSUMPTIONS

The cost analysis in this report was prepared by the members of the cost team, which consists of CHBRP task force members and contributors from the University of California, Los Angeles, and the University of California, Davis, as well as the contracted actuarial firm, PricewaterhouseCoopers (PwC).[42]

Information on the generally used data sources and estimation methods, as well as caveats and assumptions generally applicable to CHBRP's cost impacts analyses are available at CHBRP's website.[43]

This appendix describes analysis-specific data sources, estimation methods, caveats and assumptions used in preparing this cost impact analysis.

Analysis-Specific Caveats and Assumptions

Number of pregnancies

We begin the analysis by estimating the number of pregnancies in one year in California. For this we start with the projected number of births in 2019 and assume that 20% of pregnancies result in miscarriage. We do not make an assumption for abortion. Base on the projected number of births and the 20% miscarriage rate we derive the total number of pregnancies for which women seek prenatal care in the state. Next we assume (based on the MIHA Report, 2013–2014) that of all pregnancies, 44.5% are covered by private insurance, and 49.7% are covered by Medi-Cal. Next, for Medi-Cal pregnancies, we exclude those that are covered under Fee-For-Service (FFS). The MIHA Report shows that 24.7% of the Medi-Cal pregnant women were uninsured postpartum. We use this number to approximate the number of pregnancies that are covered under Fee-For-Service and exclude it. Next, for Medi-Cal pregnancies, we also exclude those covered under County Operated Health Services (COHS). For this we use the population projection of 2019 and assume that the number of pregnancies is proportional to the covered members. With this we exclude an additional 22.1% of the remaining pregnancies (after the FFS exclusion) in Medi-Cal. Then we allocate the births to each sub-cohort in the model in proportion to their respective share of the under 65 population. This gives the projected pregnancies in each sub-cohort of the cost model.

Number of Pregnancies without Preexisting Mental Health Treatment

In Ko et al., 2012 it was estimated that 7.7% of pregnant women in the current year had past-year major depressive episode and of those, 49.6% had mental health treatment in the past year. We use these numbers to estimate the number of pregnancies without preexisting mental health treatment.

Truven data

Using Truven data we estimate the timing, type, and unit cost of maternity related mental health services.

[42] CHBRP's authorizing statute, available at www.chbrp.org/docs/authorizing_statute.pdf, requires that CHBRP use a certified actuary or "other person with relevant knowledge and expertise" to determine financial impact.
[43] See *2017 Cost Impact Analyses: Data Sources, Caveats, and Assumptions*, available at www.chbrp.org/analysis_methodology/cost_impact_analysis.php.

Type of mental health services

We identify professional mental health services by the following CPT/HCPCS codes.

CPT/HCPCS	Description
H0001-H2037	Behavioral health services
96150-96153	Behavioral health assessments
90791-90792	Psychiatric diagnostic evaluation
90832-90853	Psychotherapy

We identify mental health medications by the following American Hospital Formulary Service (AHFS) Pharmacologic-Therapeutic Classification.

AHFS Pharmacologic-Therapeutic Classification	Description
28.16	Psychotherapeutic agents

Timing of mental health services

The mental health services are grouped into two main categories, i.e. prenatal and postpartum, demarcated by the day that is the end of a pregnancy, e.g. delivery, abortion, miscarriage, etc. To sidestep the complexity arisen from the variety of coding practices in the claims data, we rely on the following algorithm to identify the end of a pregnancy.

First, claims are rolled up at the day level. Then days satisfying the following conditions are retained.

- Contains CPT=59xxx (Maternity care and delivery) plus one of the diagnosis codes listed below.
- Contains any of the following revenue codes: 072x (Labor Room/Delivery), 017x (Nursery), 0112 (Obstetrics), 0122 (Obstetrics), 0132 (Obstetrics), 0142 (Obstetrics), 0152 (Obstetrics), plus one of the diagnosis codes listed below.

Diagnosis codes used in combination with the conditions listed above.

ICD Version	Code (First 3 Characters)	Description
10	O00-O9A,Z33,Z34,Z36,Z37,Z39,Z3A	Pregnancy, childbirth and the puerperium
9	630-679,V22,V23,V24,V27,V28	

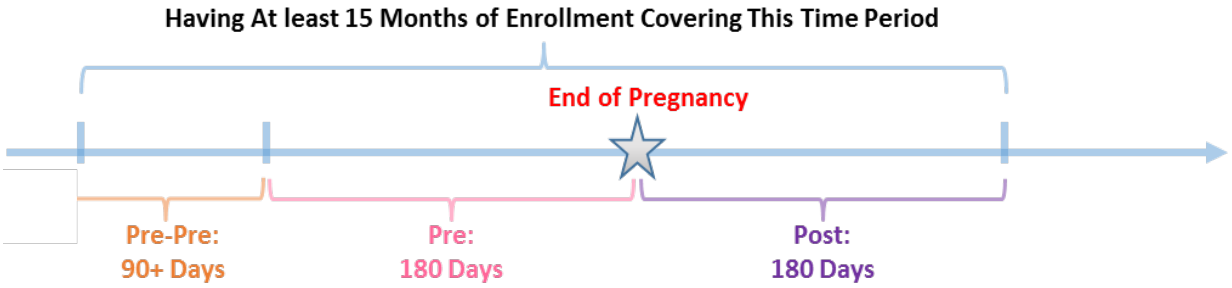
We define the days retained after applying the conditions listed above as a “maternity day”. If a “maternity day” has the highest pay amount among all surrounding “maternity days” in a symmetric 360-day window (180 days before and 180 days after the day in question), then that day is considered to be the end of a pregnancy.

Having identified the end of a pregnancy, we filter out enrollees with insufficient enrollment surrounding the event. We retain enrollees with at least 15 months of enrollment covering the end of the pregnancy (see Figure 23).

Pre-existing mental health conditions

After the end of pregnancy is identified (see Figure 30), the window of 180 days before is defined to be the "Pre" period, and the 180 days after is defined to be the "Post" period (see Figure 30). Additionally, a 90 day window before the "Pre" period, defined as the "Pre-Pre" period, is used to identify enrollees with preexisting mental health conditions. That is, if an enrollee had any mental health services (as defined in previous section) in the "Pre-Pre" period, that enrollee is considered as having a preexisting mental health condition and is excluded from the unit cost averages.

Figure 30. Time Period for Maternal Mental Health Condition



Determining Public Demand for the Proposed Mandate

This subsection discusses public demand for the benefits AB 2193 would mandate. Considering the criteria specified by CHBRP's authorizing statute, CHBRP reviews public demand for benefits relevant to a proposed mandate in two ways. CHBRP:

- Considers the bargaining history of organized labor; and
- Compares the benefits provided by self-insured health plans or policies (which are not regulated by the DMHC or CDI and therefore not subject to state-level mandates) with the benefits that are provided by plans or policies that would be subject to the mandate.

On the basis of conversations with the largest collective bargaining agents in California, CHBRP concluded that unions currently do not include cost-sharing arrangements for maternal mental health screening and case management. In general, unions negotiate for broader contract provisions such as coverage for dependents, premiums, deductibles, and broad coinsurance levels.

Among publicly funded self-insured health insurance policies, the preferred provider organization (PPO) plans offered by CalPERS currently have the largest number of enrollees. The CalPERS PPOs currently provide benefit coverage similar to what is available through group health insurance plans and policies that would be subject to the mandate.

To further investigate public demand, CHBRP used the bill-specific coverage survey to ask carriers who act as third-party administrators for (non-CalPERS) self-insured group health insurance programs whether the relevant benefit coverage differed from what is offered in group market plans or policies that would be subject to the mandate. The responses indicated that there were no substantive differences.

Overall, the main assumptions for this bill can be summarized as follows:

Assumption	Source	Value
Share of Births in California - Private Insurance	CDPH. MIHA Report, 2013–2014.	44.5%
Share of Births in California - Medi-Cal	CDPH. MIHA Report, 2013–2014.	49.7%
Miscarriage Rate	https://www.nichd.nih.gov/health/topics/pregnanyloss/conditioninfo/risk	20.0%
Postpartum Uninsured - Medi-Cal	CDPH. MIHA Report, 2013–2014.	24.7%

Mandate Assumption	Source of Assumptions	Baseline	Postmandate
Percentage of Pregnancies Without Preexisting Mental Health Treatments	Ko et al., 2012 (7.7% had past-year MDE and of those, 49.6% had mental health treatment)	**96.2%**	**96.2%**
Screening Rate (Private Insurance)	Baseline: Caldwell & Forquer, 2015 Postmandate: Content Expert	**72.7%**	**90.0%**
Screening Rate (Medi-Cal)	Baseline: Caldwell & Forquer, 2015 Postmandate: Content Expert	**88.1%**	**90.0%**
Symptom Rate (Private Insurance)	MIHA Survey, 2013	**14.0%**	**14.0%**
Symptom Rate (Medi-Cal)	MIHA Survey, 2013	**25.1%**	**25.1%**
Likelihood of Positive Diagnosis Given Symptom	Yamamoto et al., 2015	**32.1%**	**32.1%**
Likelihood to Obtain Mental Health Treatment Given Positive Diagnosis (Private Insurance)	Byatt et al., 2015	**31.0%**	**72.0%**
Likelihood to Obtain Mental Health Treatment Given Positive Diagnosis (Medi-Cal)	Byatt et al., 2015	**31.0%**	**72.0%**

APPENDIX E SUBMITTED BY OUTSIDE PARTIES

In accordance with the California Health Benefits Review Program (CHBRP) policy to analyze information submitted by outside parties during the first 2 weeks of the CHBRP review, the following parties chose to submit information.

The following information was submitted by 2020 Mom in March 2018.

Affordable Health California. Essential Benefits in California. 2018. Available at: http://affordablehealthca.com/essential-benefits-obamacare/. Accessed March 26, 2018.

American Medical Association. House of Delegates (I-17) Report of Reference Committee K. 2017. Available at: https://www.ama-assn.org/sites/default/files/media-browser/public/hod/i17-refcommk-annotated.pdf. Accessed March 26, 2018.

Covered California. Essential Health Benefits. 2018. Available at: https://www.coveredca.com/individuals-and-families/getting-covered/coverage-basics/essential-health-benefits/. Accessed March 26, 2018.

Submitted information is available upon request. For information on the processes for submitting information to CHBRP for review and consideration please visit: www.chbrp.org/requests.html.

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CALIFORNIA HEALTH BENEFITS REVIEW PROGRAM COMMITTEES AND STAFF

A group of faculty, researchers, and staff complete the analysis that informs California Health Benefits Review Program (CHBRP) reports. The CHBRP **Faculty Task Force** comprises rotating senior faculty from University of California (UC) campuses. In addition to these representatives, there are other ongoing researchers and analysts who are **Task Force Contributors** to CHBRP from UC that conduct much of the analysis. The **CHBRP staff** coordinates the efforts of the Faculty Task Force, works with Task Force members in preparing parts of the analysis, and manages all external communications, including those with the California Legislature. As required by CHBRP's authorizing legislation, UC contracts with a certified actuary, **PricewaterhouseCoopers**, to assist in assessing the financial impact of each legislative proposal mandating or repealing a health insurance benefit.

The **National Advisory Council** provides expert reviews of draft analyses and offers general guidance on the program to CHBRP staff and the Faculty Task Force. CHBRP is grateful for the valuable assistance of its National Advisory Council. CHBRP assumes full responsibility for the report and the accuracy of its contents.

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