

# UC Office of the President

## Report to California Legislature

### **Title**

Analysis of California Senate Bill 1322: Medi-Cal Comprehensive Medication Management

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California Health Benefits Review Program

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# California Health Benefits Review Program

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## Analysis of California Senate Bill 1322 Comprehensive Medication Management

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A Report to the 2017-2018 California State Legislature

April 19, 2018

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# Key Findings:

## Analysis of California Senate Bill 1322 Comprehensive Medication Management

Summary to the 2017–2018 California State Legislature, April 19, 2018



## CONTEXT

Comprehensive medication management (CMM) is a healthcare practice that assesses all of a patient's medications individually for appropriateness, effectiveness for the medical condition, safety, and ability to be taken as intended by the patient.<sup>1</sup> CMM, which generally focuses on persons with one or more chronic conditions for which multiple medications may be prescribed, is delivered by qualified clinical pharmacists in a collaborative manner with treating physicians or other qualified medical providers.

## BILL SUMMARY

SB 1322 would require Medi-Cal to cover CMM for beneficiaries identified as high risk for medication-related problems or as having one or more chronic diseases.

SB 1322 would also define CMM as a service that includes:

- Assessment of health status, personal preferences, use patterns (for prescription drugs/biologics, over-the-counter medications, and nutritional supplements);
- Documentation of current clinical status and the clinical goals for each chronic condition for which medication therapy is indicated;
- Assessment of each medication and identification of all medication therapy problems;
- Development and implementation of a written medication treatment plan with follow-up evaluation and needed alteration; and
- Verbal training, information, and support services for the beneficiary to enhance adherence/use.

SB 1322 specifies that CMM is a service delivered by a pharmacist that involves:

- Continual monitoring of medication therapy progress and problems; and
- An average of eight visits per year per enrollee engaged in CMM.

In addition, SB 1322 would require the California Department of Health Care Services (DHCS) to evaluate the effectiveness of CMM.

### AT A GLANCE

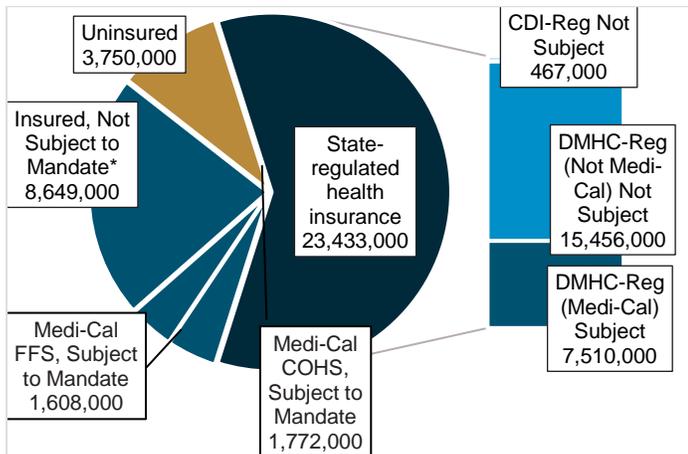
The version of California Senate Bill (SB) 1322 analyzed by CHBRP would require coverage of comprehensive medication management (CMM) for Medi-Cal beneficiaries.

1. CHBRP estimates that in 2019, 10.6 million Medi-Cal beneficiaries enrolled in DMHC-regulated managed care, as well as 3.8 million enrolled in County Operated Health System (COHS) managed care or associated with Medi-Cal fee-for-service (FFS) will have health insurance subject to SB 1322.
2. **Benefit coverage.** Among Medi-Cal beneficiaries enrolled in DMHC-regulated managed care, coverage for CMM would rise from 21% to 100%.
3. **Utilization.** Among Medi-Cal beneficiaries enrolled in DMHC-regulated managed care, utilization of CMM would rise from 0.38% to 1.82%.
4. **Expenditures.** For Medi-Cal beneficiaries enrolled in DMHC-regulated managed care, expenditures, adjusted by offsets, would increase by \$2.9 million. Assuming a similar impact for Medi-Cal beneficiaries enrolled in COHS, an increase of \$0.67 million would be expected. A similar per enrollee increase could occur for Medi-Cal beneficiaries associated with FFS, but the impact is unknown as the group may be dissimilar in terms of the presence of chronic conditions.
5. **Medical effectiveness.** There is limited evidence indicating that CMM is associated with better adherence, improved health outcomes, or decreases in emergency department or visits. There is limited evidence that CMM is associated with reduced hospital admissions.
6. **Public health.** In 2019, 109,000 Medi-Cal beneficiaries newly using CMM, would see improvements in medication adherence and disease-specific outcomes.

<sup>1</sup> Refer to CHBRP's full report for full citations and references.

Figure 1 notes how many Californians have health insurance that would be subject to SB 1322.

**Figure 1.** Health Insurance in CA and SB 1322



Source: CHBRP 2018.

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

## IMPACTS

### Medical Effectiveness

CHBRP found *limited* evidence that CMM improves health outcomes and reduces hospitalization relative to usual care. CHBRP found *limited* evidence that receipt of CMM improves medication adherence. There is *limited* evidence that CMM reduces hemoglobin A1c and a *preponderance* of evidence that it reduces blood pressure. There is *insufficient* evidence to assess the impact of CMM on mortality and on outpatient visits. Evidence regarding effects on emergency department visit rates is *inconclusive*. There is *limited* evidence that CMM reduces hospital admissions and *inconclusive* evidence regarding the effects of CMM on readmissions.

### Benefit Coverage, Utilization, and Cost

Immediately below is a description of the impact SB 1322 would have on Medi-Cal beneficiaries enrolled in DMHC-regulated managed care. A further discussion of the bill's impacts on Medi-Cal beneficiaries enrolled in County Operated Health System (COHS) managed care or associated with the fee-for-service (FFS) program follows.

### Benefit Coverage

SB 1322 would raise from 21% to 100% the portion of Medi-Cal beneficiaries enrolled in DMHC-regulated managed care with coverage for CMM.

### Utilization

SB 1322 would raise from 0.38% to 1.82% the portion of Medi-Cal beneficiaries enrolled in DMHC-regulated managed care engaged in CMM.

### Expenditures

Factoring in expected cost offsets, SB 1322 would increase annual expenditures for enrollment of Medi-Cal beneficiaries in DMHC-regulated managed care by \$2,856,000 (0.00098%).

### COHS Managed Care

CHBRP believes Medi-Cal beneficiaries enrolled in COHS managed care do not currently have coverage for an SB 1322-compliant CMM program. CHBRP assumes that the cost of providing CMM would be similar on a per enrollee basis to that of Medi-Cal beneficiaries in DMHC-regulated plans, as would related offsets. Consequently, annual expenditures for enrolling Medi-Cal beneficiaries in COHS managed care is expected to increase by \$674,000.

### Medi-Cal FFS

The per beneficiary impact noted above is based on CHBRP's analysis of impacts on Medi-Cal beneficiaries enrolled in DMHC-regulated plans. The similarity of the FFS population to this group is unknown, in particular the relative presence of one or multiple chronic conditions, which could alter use of CMM. For this reason, CHBRP can suggest that compliance for FFS beneficiaries would involve additional expenditure, and could result in similar offsets, but cannot offer an estimate.

### Number of Uninsured in California

No measureable impact on the number of uninsured is projected.

## Public Health

In the first year postmandate, of the 109,000 Medi-Cal beneficiaries newly using CMM (those with greatest disease burden), CHBRP estimates, based on limited evidence, that those engaged with CMM would see improvements in medication adherence, reductions in hemoglobin A1c levels among diabetics, reductions in mortality, and reductions in hospital admissions. In addition, based on a preponderance of evidence, CHBRP estimates that there would be a reduction in blood pressure among people with uncontrolled hypertension.

## Long-Term Impacts

Limited evidence exists on the long-term outcomes of CMM on one or more chronic conditions. To the extent

that CMM leads to optimized adherence and treatment regimens, there may be some continued improvement in health outcomes and some further decline in use of acute care services. Additionally, there may be postponement of long-term chronic disease outcomes such as heart attacks or kidney failure.

## Essential Health Benefits and the Affordable Care Act

As SB 1322 is relevant only to the benefit coverage of Medi-Cal beneficiaries, it seems unlikely that SB 1322, which would require coordination through a CMM program of services already covered for most enrollees, would exceed the definition of essential health benefits (EHBs) in California.

A Report to the California State Legislature

Analysis of California SB 1322 Comprehensive Medication  
Management

April 19, 2018

**California Health Benefits Review Program**  
MC 3116; Berkeley, CA 94720-3116  
[www.chbrp.org](http://www.chbrp.org)



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](http://www.chbrp.org).

## TABLE OF CONTENTS

List of Tables and Figures.....	v
Policy Context .....	1
Interaction with Existing Requirements .....	2
Background on Chronic Disease and Comprehensive Medication Management .....	4
Prevalence of Chronic Conditions in California .....	4
Disparities and Social Determinants of Health in Chronic Diseases.....	7
Medical Effectiveness .....	10
Research Approach and Methods.....	10
Outcomes Assessed.....	12
Study Findings.....	0
Benefit Coverage, Utilization, and Cost Impacts.....	8
Baseline and Postmandate Benefit Coverage .....	8
Baseline and Postmandate Utilization.....	8
Baseline and Postmandate Per-Unit Cost.....	9
Baseline and Postmandate Expenditures .....	9
Other Considerations for Policymakers.....	10
Public Health Impacts .....	0
Estimated Public Health Outcomes.....	0
Impact on Disparities .....	1
Long-Term Impacts.....	2
Appendix A Text of Bill Analyzed.....	A-1
Appendix B Literature review specifications .....	B-1
Appendix C Cost Impact Analysis: Data Sources, Caveats, and Assumptions.....	C-1
Analysis-Specific Caveats and Assumptions .....	C-1
Determining Public Demand for the Proposed Mandate.....	C-4
Appendix D Information Submitted by Outside Parties.....	D-1
References	
California Health Benefits Review Program Committees and Staff	
Acknowledgements	

## LIST OF TABLES AND FIGURES

<b>Table 1.</b> SB 1322 Impacts on Benefit Coverage, Utilization, and Cost Among Enrollees in Health Insurance Regulated by DMHC or CDI, 2019.....	vi
<b>Table 2.</b> Prevalence of One or More Chronic Conditions Among Medi-Cal Beneficiaries as Compared with Commercially Insured, 2016 .....	5
<b>Table 3.</b> Association Between Number of Chronic Conditions and Healthcare Utilization Among Medi-Cal Beneficiaries, 2016.....	6
<b>Table 4.</b> Characteristics of Studies Included in the Medical Effectiveness Review .....	0
<b>Table 5.</b> Baseline Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2019 .....	12
<b>Table 6.</b> Postmandate Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2019 .....	0
<b>Figure 1.</b> Comprehensive Medication Management on Medication Adherence .....	0
<b>Figure 2.</b> Comprehensive Medication Management on Diabetes Mellitus Outcomes .....	1
<b>Figure 3.</b> Comprehensive Medication Management on Hypertension Outcomes .....	2
<b>Figure 4.</b> Comprehensive Medication Management on Cholesterol Outcomes .....	3
<b>Figure 5.</b> Comprehensive Medication Management on Mortality.....	3
<b>Figure 6.</b> Comprehensive Medication Management on Outpatient Visits .....	4
<b>Figure 7.</b> Comprehensive Medication Management on Emergency Department Visits .....	4
<b>Figure 8.</b> Comprehensive Medication Management on Hospital Admissions.....	5
<b>Figure 9.</b> Comprehensive Medication Management on Hospital Readmissions .....	5
<b>Figure 10.</b> Population that Benefits Most from Comprehensive Medication Management.....	6
<b>Figure 11.</b> More vs. Fewer Comprehensive Medication Management Visits.....	7

**Table 1.** SB 1322 Impacts on Benefit Coverage, Utilization, and Cost Among Enrollees in Health Insurance Regulated by DMHC or CDI, 2019

	Baseline	Postmandate	Increase/ Decrease	Percentage Change
<b>Benefit coverage</b>				
Total enrollees with health insurance subject to state benefit mandates <sup>(a)</sup>	23,433,000	23,433,000	0	0%
Total enrollees with health insurance subject to SB 1322	7,510,000	7,510,000	0	0%
Percentage of enrollees with fully compliant benefit coverage	21%	100%	79%	384%
Number of enrollees with coverage for mandated benefit	1,552,000	7,510,000	5,958,000	384%
<b>Utilization and unit cost</b>				
Number of enrollees using CMM	28,000	137,000	109,000	389%
Inpatient admissions	733,074	731,153	-1,921	-0.3%
Average per unit cost	\$214	\$214	\$0	0%
<b>Expenditures</b>				
<u>Premiums by payer</u>				
Private employers for group insurance	\$69,302,946,000	\$69,302,946,000	\$0	0.0000%
CalPERS HMO employer expenditures <sup>(c)(b)</sup>	\$5,383,103,000	\$5,383,103,000	\$0	0.0000%
Medi-Cal managed care plan (DMHC-regulated only) expenditures <sup>(e)</sup>	\$29,259,588,000	\$29,262,444,000	\$2,856,000	0.0098%
Enrollees with individually purchased insurance	\$15,358,027,000	\$15,358,027,000	\$0	0.0000%
Enrollees with group insurance, CalPERS HMOs, Covered California, and Medi-Cal managed care <sup>(c)</sup>	\$6,539,649,000	\$6,539,649,000	\$0	0.0000%
<u>Enrollee expenses</u>				
For covered benefits (deductibles, copayments, etc.)	\$14,896,952,000	\$14,896,952,000	\$0	0.0000%
For noncovered benefits <sup>(d)</sup>	\$0	\$0	\$0	0.00%
<b>Total expenditures</b>	<b>\$155,467,770,000</b>	<b>\$155,470,626,000</b>	<b>\$2,856,000</b>	<b>0.0018%</b>

Source: California Health Benefits Review Program, 2018.

Notes: (a) This population includes persons with privately funded (including Covered California) 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 employer-sponsored health insurance.

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

(c) Enrollee premium expenditures include contributions by employees to employer-sponsored health insurance, health insurance purchased through Covered California, and contributions to Medi-Cal Managed Care.

(d) Includes only expenses 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 would be newly covered postmandate. Other components of expenditures in this table include all health care services covered by insurance.

(e) In addition to the possible increase in premiums CHBRP is estimating for the 7,510,000 Medi-Cal beneficiaries enrolled in DMHC-regulated plans subject to SB 1322, CHBRP assumes that a proportional increase of \$674,000 would occur for the 1,772,000 beneficiaries enrolled in COHS managed care. It seems likely that there would also be an additional increase for the 1,308,000 beneficiaries with health insurance through the FFS program (though the exact amount is unknown).

Key: CalPERS HMOs = California Public Employees' Retirement System Health Maintenance Organizations; CDI = California Department of Insurance; CMM = comprehensive medication management; COHS = County Operated Health System; DMHC = Department of Managed Health Care; FFS = fee-for-service; OPD = outpatient prescription drug.

## POLICY CONTEXT

The California Senate Committee on Health has requested that the California Health Benefits Review Program (CHBRP)<sup>2</sup> conduct an evidence-based assessment of the medical, financial, and public health impacts of Senate Bill (SB) 1322, Comprehensive Medication Management.

### Bill Language and Analytic Approach

SB 1322 would require Medi-Cal to cover comprehensive medication management (CMM) for beneficiaries identified as high risk for medication-related problems or as having one or more chronic diseases.

SB 1322 would also define CMM as:

- A service that includes:
  - Assessment of health status, personal preferences, use patterns (for prescription drugs/biologics, over-the-counter medications, and nutritional supplements).
  - Documentation of current clinical status and the clinical goals for each chronic condition for which medication therapy is indicated.
  - Assessment of each medication and identification of all medication therapy problems.
  - Development and implementation of a written medication treatment plan with follow-up evaluation and needed alteration.
  - Verbal training, information, and support services for enhancement of adherence/use.
- A service delivered by a pharmacist that involves:
  - Continual monitoring of medication therapy progress and problems.
  - An average of eight visits per year per enrollee engaged in CMM.

In addition, SB 1322 would require the California Department of Health Care Services (DHCS) to evaluate the effectiveness of CMM.

Additional information about CMM is included in the *Background* section of this report.

The full text of SB 1322 can be found in Appendix A.

In terms of compliance with SB 1322, a number of options would seem possible. For this analysis CHBRP has assumed that the DHCS would contractually require plans regulated by the California Department of Managed Health Care (DMHC) and County Operated Health System (COHS) managed care programs to establish CMM programs for enrolled Medi-Cal beneficiaries. Additionally, CHBRP has assumed DHCS would establish a CMM program for Medi-Cal beneficiaries primarily associated with the fee-for-service (FFS) program.

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<sup>2</sup> CHBRP's authorizing statute is available at <http://chbrp.org/faqs.php>.

## Relevant Populations

If enacted, SB 1322 would affect the health insurance of approximately 10.6 million Californians (27% of all Californians), all of them Medi-Cal beneficiaries. This represents 32% percent of the 23.4 million Californians who will have health insurance regulated by DMHC or CDI. In addition, the bill would affect the health insurance of 1.8 million Medi-Cal beneficiaries enrolled in COHS managed care and the health insurance of 1.3 million Medi-Cal beneficiaries associated with Medi-Cal FFS.

## 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*

In 2016, the California Legislature considered another bill related to CMM, Assembly Bill (AB) 2085 (Wood) that did not become law.

Current California law requires Medi-Cal<sup>3</sup> to cover select pharmacist services (at 85% of the fee schedule for physician services) including:

- Furnishing travel medications;
- Furnishing naloxone hydrochloride;
- Furnishing self-administered hormonal contraception;
- Initiating and administering immunizations; and
- Providing tobacco cessation counseling and furnishing nicotine replacement therapy.

Like CMM, these are services delivered by pharmacists. Unlike CMM, these are mainly discrete services provided by pharmacists within pharmacies and not necessarily in collaboration with other healthcare providers.

#### *Similar requirements in other states*

CHBRP is aware of 18 states that cover medication therapy management (MTM) for at least some of their Medicaid beneficiaries<sup>4</sup> and one state, Washington,<sup>5</sup> that has covers CMM for Medicaid beneficiaries. More on differences between MTM, which is typically the more targeted of the two, and CMM is provided in the *Background* section of this report.

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<sup>3</sup> Welfare & Institutions Code Section 14132.968

<sup>4</sup> <http://www.ncsl.org/research/health/medication-therapy-management.aspx>

<sup>5</sup> See Washington State Legislature. SB 5213 - 2013-14.

<http://apps.leg.wa.gov/billinfo/summary.aspx?bill=5213&year=2013>.

## Federal Policy Landscape

Medicare Part D reimburses pharmacists for MTM programs services when provided under contract with the sponsor of a prescription drug plan. MTM services under Medicare Part D, however, are defined narrowly to include medication review but not services such as chronic disease management, care coordination, or other follow-up care (Isasi, 2015). MTM is also typically more targeted than CMM, focusing on more limited issues for the highest risk patients. CHBRP is unaware of Medicare covering CMM.

### *Affordable Care Act*

A number of Affordable Care Act (ACA) provisions have the potential to or do interact with state benefit mandates. However, as SB 1322 is relevant only to the benefit coverage of Medi-Cal beneficiaries, it seems unlikely that SB 1322, which would require coordination through a CMM program of services already covered for most enrollees, would interact with requirements of the ACA as presently exists in federal law.<sup>6</sup> Therefore, it seems that SB 1322 would not exceed the definition of essential health benefits (EHBs) in California.

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<sup>6</sup> 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: [http://www.chbrp.org/other\\_publications/index.php](http://www.chbrp.org/other_publications/index.php).

## **BACKGROUND ON CHRONIC DISEASE AND COMPREHENSIVE MEDICATION MANAGEMENT**

This section provides context for the potential impacts of SB 1322 by identifying the burden of chronic disease in the United States and California, with a focus on people with one or more chronic conditions, describing the issues related to medications used to treat these chronic conditions, and the use of comprehensive medication management (CMM) to manage pharmaceutical use for people with one or more chronic conditions. SB 1322 specifies coverage of CMM services for Medi-Cal beneficiaries; therefore, where possible, data specific to Medi-Cal beneficiaries is presented.

CMM is a healthcare practice that assesses all of a patient's medications individually for appropriateness, effectiveness for the medical condition, safety, and ability to be taken as intended by the patient (PCPCC, 2012). Patients who experience multiple medical conditions (MMC) or who take greater numbers of medications are the most likely candidates for this service (American College of Clinical Pharmacy Board of Regents and Maddux, 2013; PCPCC, 2012). CMM is delivered by qualified clinical pharmacists (i.e., American Association of Colleges of Pharmacy [AACP] board certified and residency trained) in a collaborative manner with treating physicians or other qualified medical providers (American College of Clinical Pharmacy Board of Regents and Maddux, 2013). CMM services aim to improve health outcomes through regular medication and patient assessment. Persons engaged with CMM may be those who have difficulty following their treatment regimen or who are often readmitted to the hospital (American College of Clinical Pharmacy Board of Regents and Maddux, 2013). CMM is typically used for conditions treated with multiple medications or conditions with potentially avoidable high health-care related costs such as diabetes, cardiovascular disease, chronic obstructive pulmonary disease (COPD), asthma (in children), cancer chemotherapy, depression, and pain (American College of Clinical Pharmacy Board of Regents and Maddux, 2013).

### **Prevalence of Chronic Conditions in California**

Chronic conditions are defined as those that require ongoing medical attention, last more than one year, and can limit activities of daily living (HHS, 2010). Seven of the top 10 causes of death in the United States are due to chronic conditions (National Center for Health Statistics, 2017). SB 1322 only impacts benefit coverage for the Medi-Cal population; therefore, the data presented in this section on the prevalence of chronic conditions are specific to chronic conditions in the Medi-Cal population. As this population is non-elderly and includes children, the rates of chronic conditions reported are lower than rates reported across the entire population of California since prevalence of chronic conditions increases with age. The most prevalent chronic conditions among non-dual Medi-Cal enrollees in 2016 were hypertension (27%), mental health disorders (13%), diabetes (10%), cancer (6%), and heart disease (5%) (CHIS, 2016).

In California, it is estimated that among Medi-Cal enrollees 46.6% have one or more chronic conditions (see Table 2). This is significantly higher than the rate among the commercially insured population (35.7%). It is estimated that of those with a chronic condition, 70% have multiple chronic conditions (Buttorff et al., 2017). This proportion of people with multiple chronic conditions breaks out into 29% with five or more chronic conditions, 17% with four chronic conditions, 22% with three chronic conditions, and 32% with two chronic conditions (Buttorff et al., 2017).

**Table 2.** Prevalence of One or More Chronic Conditions Among Medi-Cal Beneficiaries as Compared with Commercially Insured, 2016

One or More Chronic Conditions	Covered by Medi-Cal	Commercially Insured
<b>Overall</b>	<b>46.6%</b>	<b>35.7%</b>
<b>Gender</b>		
Male	50.7%	37.8%
Female	43.3%	33.3%
<b>Age groups</b>		
0-11 years	15.5%	14.2%*
12-17 years	25.9%	14.9%*
18-29 years	26.0%	23.6%
30-39 years	34.1%	24.6%
40-49 years	40.4%	33.7%
50-59 years	58.7%	43.2%
60-64 years	74.6%	52.4%
<b>Race/ethnicity</b>		
White, NH	51.6%	37.5%
Black, NH	54.6%	42.1%
Latino/Hispanic	44.6%	35.4%
American Indian/Alaska Native, NH	53.6%	19.6%
Asian, non-Hispanic	34.4%	28.3%
Two or more races, NH	61.8%	46.6%

Source: 2016 California Health Interview Survey (CHIS) Public Use Data Files.

Notes: One or more chronic diseases includes asthma (age 0-64), diabetes (age 18-64), heart disease (age 18-64), and hypertension (age 18-64).

\* Indicates statistically unstable.

## Prescription Drug Utilization

Patients with chronic disease often visit an array of healthcare providers and take multiple medications (Duerden et al., 2013; Gallacher et al., 2011; Smith et al., 2016). As shown in Table 3, there is an increase in emergency department visits, hospital stays, outpatient visits, and number of prescriptions filled per year as the number of chronic conditions increases (Buttorff et al., 2017). With increasingly complex treatment regimens, people living with long-term conditions may have medication-related problems such as low adherence, side effects, adverse interactions, and increased physician visits. This trend of increasing medication translates into higher spending per patient, with average annual prescription drug spending per capita for two to five chronic conditions ranging from \$1,197 to \$4,145 annually (AHRQ, 2014). Owing to the complex polypharmacy often associated with chronic conditions,

CMM aims to reduce these medication-related problems and costs through consultation with a pharmacist regarding patients’ prescriptions.

**Table 3.** Association Between Number of Chronic Conditions and Healthcare Utilization Among Medi-Cal Beneficiaries, 2016

	Number of Chronic Conditions			
	0	1-2	3-4	5+
Emergency Department Visit in Past Year (% with 1 or more)	7%	14%	20%	32%
Inpatient Stays in Past Year (% with 1 or more)	3%	6%	10%	24%
Outpatient Visits (% with 1 or more)	2%	6%	12%	20%
# Prescriptions Filled Per Year	1	9	24	51

Source: Buttorff et al., 2017.

### Comprehensive Medication Management

Most people living with one or more chronic conditions take multiple medications to manage their conditions and related comorbidities, but commonly receive uncoordinated and fragmented care with little follow-up (U.S. Department of Health and Human Services, 2016). CMM is defined by the Patient-Centered Primary Care Collaborative (PCPCC) as a service that evaluates patients’ medications, whether prescription or over-the-counter, for safety and effectiveness in the treatment of disease(s) (PCPCC, 2012). The goals of CMM are to improve outcomes for the patient and reduce healthcare costs (Brummel and Carlson, 2016; Butler, 2017). CMM is a specific type of healthcare service delivered by a healthcare provider and pharmacist, collaboratively, and may be either plan-based or provider-based.

It is important to note that this is different from medication therapy management (MTM), a targeted program original to Medicare that provides a group of services delivered to improve therapeutic outcomes for a patient (U.S. Centers for Medicare & Medicaid Services, 2018). While there are similarities between the two services, the key difference is that CMM requires formal collaboration between the prescriber and the pharmacist through collaborative practice agreements and medication management protocols. Since MTM does not share this requirement, it may be less integrated with medical care and lack clinical information that is required for CMM. A wide range of activities may be used to achieve therapeutic goals through MTM, though at minimum it requires a medication reconciliation component (Butler, 2017). Medication reconciliation is the comprehensive evaluation of medication therapy with the goal of avoiding medication errors and assessing patient compliance (American Pharmacists Association et al., 2012). CMM, in addition to comprehensive review of patient medications, includes a patient education component to improve understanding of the disease and treatment, a written treatment plan, regular follow-up visits with the pharmacist to review the treatment plan, and assessment of all medication therapy problems. CMM services are accessed when patients are identified as being high risk for poor health outcomes associated with medications, or as high risk for medication-related problems, and have one or more chronic diseases.

## Disparities<sup>7</sup> and Social Determinants of Health<sup>8</sup> in Chronic Diseases

Per statute, CHBRP includes discussion of disparities and social determinants of health (SDoH) as it relates to the management of one or more chronic conditions. Disparities are differences between groups that are modifiable. CHBRP found literature identifying disparities by race/ethnicity, age, gender, and gender identity/sexual orientation.

### Disparities

#### *Race or ethnicity*

The estimated prevalence of MCC varies by specific subpopulations of U.S. adults. The prevalence of MCC was higher among non-Hispanic white adults, non-Hispanic black adults, and non-Hispanic adults of other races than among non-Hispanic Asian adults and Hispanic adults (Buttorff et al., 2017; Ward et al., 2014). The 2014 RAND report on Multiple Chronic Conditions in the U.S. found a 14-point gap between racial/ethnic groups for those with one or more chronic conditions (63% for non-Hispanic white adults to 49% for Hispanic adults). Additionally, Hispanic adults have been reported to have lower initial levels of MCC and slower accumulation of comorbidity compared to non-Hispanic white and non-Hispanic black patients (LeRoy et al., 2013; Quiñones et al., 2011). Though MCC prevalence is lower among Asian adults, Asian and Pacific Islander MCC patients have among the highest mortality rate and cost per case compared to other racial/ethnic groups (LeRoy et al., 2013; Steiner and Friedman, 2013).

It should be noted that one possible reason for higher prevalence rates of MCC in non-Hispanic white adults than in other racial or ethnic groups could be that non-white racial/ethnic groups have historically had less access to insurance and health care services, thus making it less likely that their conditions would be diagnosed or treated (Buttorff et al., 2017).

#### *Gender*

Women have higher rates of multiple chronic health conditions than men (AHRQ, 2014; Buttorff et al., 2017). Studies have also found that certain chronic condition clusters occur predominately in women, such as combinations of depression, osteoporosis, asthma, and COPD (LeRoy et al., 2013; Steiner and Friedman, 2013). However, there are some gender-specific factors that should be considered. Women are more likely to utilize health care services and visit their providers and thus may be more likely to be diagnosed than men (Buttorff et al., 2017; KFF, 2015). Additionally, since the accumulation of chronic conditions is time-dependent and women live on average 5 years longer than men, MCC gender prevalence is also influenced by age rather than gender alone (CDC, 2011; LeRoy et al., 2013).

#### *Age*

As the risk for chronic conditions increases with age, it is not surprising that the risk for multiple chronic conditions increases with age as well (AHRQ, 2014; Buttorff et al., 2017). In 2014, it is estimated that the

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<sup>7</sup> 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.

<sup>8</sup> 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, 2015; CDC, 2014). See CHBRP’s SDoH white paper for further information:

[http://www.chbrp.org/analysis\\_methodology/docs/Incorporating\\_Relevant\\_Social\\_Determinants\\_of\\_Health\\_in\\_CHBRP\\_Analyses\\_Final\\_to\\_WEBSITE\\_033016.pdf](http://www.chbrp.org/analysis_methodology/docs/Incorporating_Relevant_Social_Determinants_of_Health_in_CHBRP_Analyses_Final_to_WEBSITE_033016.pdf).

prevalence of multiple chronic conditions was 18% among Americans aged 18 to 44, 40% among those aged 45 to 64 years, and 81% among those aged 65 years and older (Buttorff et al., 2017).

### *Gender identity or sexual orientation*

CHBRP found evidence that some subgroups of the LGBT community experience higher rates of chronic health conditions and MCC (Conron et al., 2010; Lick et al., 2013; Ranji et al., 2014). It is reported that compared to heterosexuals, this population has a higher prevalence of asthma, allergies, osteoarthritis, and gastro-intestinal problems (Lick et al., 2013). Additionally, for both men and women in the LGBT community there is greater risk for cardiovascular disease and disability.

## **Social Determinants of Health (SDoH)**

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 identifying how socioeconomic status, health literacy, and level of education attainment may impact disparities in managing MCC.

### *Socioeconomic status*

In a review of the theories of social determinants of chronic diseases, Cockerham and colleagues discuss that a person's socioeconomic status (SES) plays a significant role in chronic health status and across multiple theories leads to disproportionately poorer health outcomes (Cockerham et al., 2017). Additionally, socioeconomic disadvantage such as living in lower-income neighborhoods is associated with a lack of access to care and obtaining necessary preventive services, leading to a greater likelihood of having unmet medical needs (Kirby and Kaneda, 2005). This may also lead to underreporting of chronic diseases among lower SES populations.

Compounding the disproportionate burden of chronic disease for low SES individuals are the greater associated risks of living in negative environmental conditions (e.g., areas with poor housing and increased crime) and having greater occupational hazards (e.g., exposure to toxic hazards or ambient air pollutants). Jackson and colleagues report that living in a chronically stressful environment is associated with engaging in unhealthy coping behaviors such as smoking, overeating, and alcohol use that may contribute long-term to greater chronic disease morbidity and mortality (Jackson et al., 2010). Environmental inequalities and cumulative health effects also tend to disproportionately impact minority populations. A review of the effects of cumulative exposure to toxic hazards of racial and ethnic minority populations demonstrated poorer health outcomes due to occupations such as farm work. Farm workers are exposed to organophosphate pesticides, which have been linked to cancer, cardiovascular, and respiratory diseases (Morello-Frosch et al., 2011). The multiple and interactive risk factors associated with lower SES result in pervasive chronic health conditions in disadvantaged populations.

### *Health literacy*

A low degree of health literacy may further already disproportionate disease burden for disadvantaged populations. CHBRP found evidence that for certain conditions, inadequate health literacy was associated with poor chronic disease outcomes. A 2002 study by Schillinger and colleagues found that low health literacy was independently associated with poorer glycemic control in type 2 diabetes patients: 30% of patients with inadequate health literacy had poor glycemic control, compared with 20% of patients with adequate health literacy (Schillinger et al., 2002). In a study of patients with MCC, Hopman and colleagues reported that these patients more frequently had low health literacy as compared to patients with one chronic condition (Hopman et al., 2016).

### *Education*

Although limited, the existing data on the relationship of educational attainment and MCC prevalence shows that there may be a decrease in MCC for more educated individuals. In a 2013 study by Ford and colleagues, 2009 results from the National Health Interview Survey suggested that higher education attainment was associated with decreased MCC prevalence. Specifically, among respondents with less than a high school education, 18.9% had MCC compared to 16.1% of those with a high school degree and 12.9% of those with more than a high school degree (Ford et al., 2013).

## MEDICAL EFFECTIVENESS

As discussed in the *Policy Context* section, SB 1322 would mandate that Medi-Cal (managed care and fee-for-service) provide coverage for comprehensive medication management (CMM). The bill defines CMM as “the process of care that ensures each beneficiary’s medications — whether they are prescription drugs and biologics, over-the-counter medications, or nutritional supplements — are individually assessed to determine that each medication is appropriate for the beneficiary, effective for the medical condition, and safe given the comorbidities and other medications being taken, and all medications are able to be taken by the patient as intended.” Furthermore, the bill specifies that beneficiaries must be identified as high risk for prescription-related problems and must have one or more chronic diseases. Additional information on CMM is included in the *Background on Chronic Disease and Comprehensive Medication Management* section.

The medical effectiveness review summarizes findings from evidence<sup>9</sup> on the effectiveness of CMM. It updates a literature search completed for CHBRP’s analysis of AB 2084, which was completed in 2016.

CHBRP’s research approach for SB 1322 differs from its research approach for AB 2084. When CHBRP conducted its literature review for AB 2084 in 2016, CHBRP only identified three studies of CMM. Due to the limited amount of evidence regarding CMM, CHBRP decided to expand its analysis for AB 2084 to include studies of medication therapy management (MTM) and other medication management interventions provided by pharmacists. Although CMM and MTM have similar goals, there are important differences between them. First, as noted in the *Background on Chronic Disease and Comprehensive Medication Management* section, unlike CMM, MTM does not require formal collaboration between the prescriber and the pharmacist through collaborative practice agreements and medication management protocols. Second, many of the interventions included in CHBRP’s literature review for AB 2084 only address medications for a single disease or condition (e.g., diabetes, hypertension) and did not encompass a comprehensive review of all medications a patient takes. Findings from interventions provided by pharmacists that are not comprehensive and do not require collaborative practice agreements may not generalize to CMM. CHBRP identified eight additional articles on CMM in its literature search for SB 1322. In light of this increase in the amount of evidence available, CHBRP decided to focus the literature review for SB 1322 on studies of CMM interventions and to not address literature on other medication management interventions.

### Research Approach and Methods

Studies of CMM were identified through searches of PubMed, the Cochrane Library, Web of Science, EMBASE, and Scopus. CHBRP also searched the website maintained by the Agency for Healthcare Research and Quality (AHRQ), which produces and/or indexes meta-analyses and systematic reviews.

The search was limited to abstracts of studies published in English from 2016 to present because CHBRP had previously conducted thorough literature searches on these topics in 2016 for AB 2084.

Of the 226 articles found in the literature review, 19 were reviewed for potential inclusion in this report on SB 1322. The medical effectiveness team also reviewed 13 additional articles that were not included in the search results. A total of eight new studies were included in the medical effectiveness review for this

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<sup>9</sup> Much of the discussion below is focused on reviews of available literature. However, as noted in the Medical Effectiveness approach document (available at: [http://chbrp.com/analysis\\_methodology/medical\\_effectiveness\\_analysis.php](http://chbrp.com/analysis_methodology/medical_effectiveness_analysis.php); see p.8), 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.

report. The other articles were eliminated because they did not focus on CMM, were of poor quality, or did not report findings from clinical research studies. 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.

In addition to the articles identified through the literature search, three articles cited in CHBRP's report on AB 2084 were included in the literature review (Brummel and Carlson, 2016; Isetts et al., 2012; Westberg et al., 2014). A total of 11 studies were included in the literature review.

CMM has been defined in multiple ways. To increase the usefulness of this report, the medical effectiveness team focused on identifying studies of CMM interventions that are similar to those specified in SB 1322. Specifically, the team focused on identifying studies of CMM interventions that included:

- Assessment of all medications a person takes, including prescription drugs and biologics, over-the-counter medications, and nutritional supplements, with regard to appropriateness, effectiveness, safety, and adherence.
- Documentation of current clinical status, clinical goals, and medication problems.
- Development of a written medication treatment plan.
- Patient education.
- Multiple visits with CMM provider (in-person and/or telephone visits).

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

In studies of CMM interventions similar to those proposed in SB 1322, key questions include:

1. What is the impact of CMM on health outcomes, utilization (e.g., emergency department visits), improved understanding (patient education), and adherence?
2. Are there adverse effects of receiving CMM?
3. Do CMM services have a more profound impact (positive or negative) on certain populations (e.g., Medicaid beneficiaries, people with multiple chronic conditions, people whose providers consider them at high risk for medication-related problems)?
4. Does the effectiveness of CMM services vary depending on the number of visits a person has with a CMM provider per year?

## Methodological Considerations

Eleven controlled studies were determined to be relevant to SB 1322, including three that were previously included in CHBRP's report on AB 2084. Table 4 summarizes key attributes of these studies, including the study population, the study design, and the intervention administered and analyzed. Four studies were randomized controlled trials (RCT); the other seven studies were observational studies with comparison groups. Two of the RCT studies, Andereeg et al. (2018) and Smith et al. (2016), assess outcomes for sub-populations of the Carter et al. (2015) RCT. The types of contacts between pharmacists and participants varied and included office visits, home visits, and telephone calls. Seven studies examined CMM interventions that were provided to people with one or more specific diseases or conditions. Four studies did not restrict participation to people with specific diseases or conditions. Two studies analyzed findings only for persons aged 65 years or older. Seven other studies that reported the age of participants included adults of all ages but the mean age of participants ranged from 62 years to 67 years. Findings from these studies may not be generalizable to Medi-Cal beneficiaries whose coverage would be affected by SB 1322 because most of them are under age 65 years.

In conducting the literature search, several articles that first appeared relevant to SB 1322 were later excluded from this analysis. For example, several studies had weak designs (e.g., lack of comparison groups, small sample sizes, narrow/specific participant populations, and confounding interventions introduced with CMM). Additionally, several articles failed to describe the intervention, meaning that any conclusions drawn from these studies could not be used to analyze potential impact of CMM as defined by SB 1322. The articles outlined below are most generalizable to the beneficiaries whose health plans or health insurance policies would be required to cover CMM, as defined in SB 1322.

When studies of an intervention are funded by an entity that has a vested interest in a particular outcome there is a risk that the analysis and interpretation of findings will be biased. Three of the studies included in CHBRP's review were funded by entities in the pharmacy sector. One study was funded by a pharmaceutical manufacturer (Jacobs et al., 2012). One study was funded by a pharmaceutical benefits management company (Polinski et al., 2016). One study was funded by the American Society of Hospital Pharmacists Research and Education Foundation (Romanelli et al. 2015). One RCT and two subsequent studies of sub-groups of study participants was funded by the National Institutes of Health (Andereeg et al. 2018; Carter et al., 2015; Smith et al., 2016). One study was funded by the Centers for Medicare and Medicaid Services (Pellegrin et al., 2017) and two were funded by the health systems in which the studies took place (Brummel and Carlson, 2016; Wassell et al., 2018). Two studies did not report the source of funding (Isetts et al., 2012; Westberg et al., 2014).

## Outcomes Assessed

Across all studies, the following outcomes were assessed: (1) medication adherence; (2) clinical outcomes; (3) mortality; (4) outpatient visits; (5) emergency department (ED) visits; (6) hospital admissions; and (7) hospital readmissions. Researchers have hypothesized that CMM will improve patients' medication regimens, which would in turn improve outcomes related to their diseases/conditions and reduce mortality. CMM may also improve adherence to medication regimens. Receipt of CMM is also expected to affect use of health care services. Outpatient visits are hypothesized to increase because patients will visit pharmacists as well as physicians, whereas ED visits, hospital admissions, and hospital readmissions are expected to decrease because patients' diseases/conditions will be better controlled.

**Table 4.** Characteristics of Studies Included in the Medical Effectiveness Review

Study	Study Population	Comparison Group	Eligibility Criteria	Study Design	Intervention
Isetts et al., 2012	Patients who received care in "innovation" clinics within the Fairview Health Services of Minneapolis, St. Paul Health Care System	Patients within the Fairview System who did not receive care in "innovation" clinics	No criteria mentioned aside from received care within the Fairview system	Observational, non-randomized cohort measured at 5 intervals over a 15-month period	Comprehensive face-to-face medication therapy management consultations, as well as home or telephonic visits, group visits, virtual Internet visits, and co-visits with other team providers
Jacobs et al., 2012	Age 18+ (mean age = 63 years)	Patients who received usual care	Type 2 diabetics and A1c >8%	Prospective, randomized, clinical trial	Minimum of 3 clinic visits with a clinical pharmacist (baseline, 6 months, and 12 months) for focused preventive and secondary diabetes management. Additional visits were arranged as clinically appropriate for 1 year
Westberg et al., 2014	Age 65+	Patients admitted to the hospital who received usual care	Admitted to hospital for heart failure, ischemic heart disease, dysrhythmias, genitourinary conditions, or digestive disorders	Prospective group matched-controlled	CMM services provided by pharmacists with initial appointment provided face-to-face and follow-up consisting of a phone call 4 weeks after initial visit or in-person within 1 month of initial visit if subject had 3+ drug therapy problems for up to 6 months post-discharge
Carter et al., 2015	Mean age of brief intervention group = 62 years; mean age of sustained intervention group = 58 years); patients of medical offices that provided the CMM intervention	Patients who received usual care in medical offices in which the CMM intervention was not provided	Uncontrolled blood pressure on the baseline visit, where blood pressure goals are: <140/90 mmHg for uncomplicated hypertension, <130/80 mmHg for patients with diabetes mellitus or chronic kidney disease	Prospective, cluster-randomized trial	Pharmacist reviews the medical record; medication history; assesses patient knowledge of blood pressure medications, dosages and timing, potential side effects; and other barriers to blood pressure control via mail and structured face-to-face visit
Romanelli et al., 2015	Age 18+ (mean age intervention group = 67 years; mean age comparison groups = 65 years)	Two comparison groups: (1) patients who received usual care, (2) patients who received care in a patient-centered medical home without referral to a pharmacist for CMM	At least 12 months of EHR activity and seen by the medication management program clinical pharmacist at the clinic (CMM cohort), seen within the clinic but not referred to the CMM pharmacist (PCMH cohort), or receiving usual care at two non-PCMH primary care clinics (usual care cohort)	Retrospective, propensity score 2:1 matched cohort	Clinical pharmacist provided coordination of care, disease management, and medication therapy management. Patients included in the study had at least two face-to-face ambulatory care visits; additional encounters with the clinical pharmacist may have occurred in person, by telephone, or via online messaging

Study	Study Population	Comparison Group	Eligibility Criteria	Study Design	Intervention
Brummel and Carlson, 2016	Employees of a large integrated health system in the Midwest who participated in the CMM intervention	Employees of a large integrated health system in the Midwest who did not participate in the CMM intervention	At least one prescription filled within one of four therapeutic classes: oral diabetes medications, statins, ACEIs or ARBs, and beta-blockers	Retrospective analysis with a non-intervention comparison group	Face-to-face CMM services provided by pharmacists working in collaboration with all members of a patient's care team for 365 days
Polinski et al., 2016	Participants whose insurer used CVS as their pharmacy benefits manager (PBM) –mean age intervention group = 62 years; mean age comparison group = 61 years	Persons predicted to be “high risk” for readmission who resided in states in which the insurer did not offer the CMM intervention	Resided in southeastern states or Washington D.C. and predicted to be “high risk” for readmission	Observational, non-randomized cohort	In-home or telephonic medication reconciliation consultations with personalized adherence education and coaching, personalized care plan, and knowledge around social support and health services available from participant's insurer for up to 30 days after initial consultation
Smith et al., 2016	Sub-population of Carter et al., 2015 (mean age = 63 years); patients of medical offices that provided the CMM intervention	Patients who received usual care in medical offices in which the CMM intervention was not provided	Patients diagnosed with treatment-resistant hypertension (blood pressure uncontrolled at study entry despite taking 3 or more antihypertensive medications)	Prospective, cluster-randomized trial	Same as Cater et al., 2015
Pellegrin et al., 2017	Age 65+	Inpatients at “high risk” for medication problems who were admitted to hospitals that did not participate in the CMM intervention	Inpatients who met “high risk” criteria for medication problems	Quasi-experimental interrupted time series design with quarterly measures	In-person visits with community pharmacists for medication reconciliation and drug therapy problem resolution for up to 1 year post-discharge
Anderegg et al., 2018	Sub-population of Carter et al., 2015 (mean age = 62 years); patients of medical offices that provided the CMM intervention	Patients who received usual care in medical offices in which the CMM intervention was not provided	Patients diagnosed with diabetes mellitus, chronic kidney disease, or both	Prospective, cluster-randomized trial	Same as Cater et al., 2015
Wassell et al., 2018	Adults ≥18 years of age receiving care at to Department of Veterans Affairs community-based outpatient clinics that provided CMM (mean age = 66 years)	Adults ≥18 years of age who received care in VA community-based outpatient clinics that did not provide CMM	Patients diagnosed with type II diabetes and with an HbA1c ≥ 8%	Retrospective chart review	Clinical pharmacist specialist initiated, adjusted, or discontinued medications following ADA and VA guidelines. After initial referral and 30 minute appointment, face-to-face appointments every 4-12 weeks

Source: California Health Benefits Review Program, 2018; Anderegg et al., 2018; Brummel and Carlson, 2016; Carter et al., 2015; Isetts et al., 2012; Jacobs et al., 2012; Pellegrin et al., 2017; Polinski et al., 2016; Romanelli et al., 2015; Smith et al., 2016; Wassell et al., 2018; Westberg et al., 2014.

## Study Findings

Overall, the 11 studies of CMM included in the CHBRP review provide limited evidence that CMM improves health outcomes and reduces hospitalization relative to usual care. CHBRP found limited evidence that receipt of CMM improves medication adherence. There is limited evidence that CMM reduces hemoglobin A1c and a preponderance of evidence that it reduces blood pressure. There is insufficient evidence to assess the impact of CMM on mortality and on outpatient visits. Evidence regarding effects on ED visit rates is inconclusive. There is limited evidence that CMM reduces hospital admissions and inconclusive evidence regarding the effects of CMM on readmissions.

### Medication Adherence

Two studies assessed the impact of CMM on medication adherence. In the observational study conducted by Brummel and Carlson (2016) study, medication adherence was measured using a metric called proportion of days covered (PDC), where PDC is defined as having filled prescriptions for 80% or a greater percentage of days during a defined period of time. The study included patients taking one of four classes of therapeutic drugs (oral diabetes medications, statins, ACEIs/ARBs, and beta-blockers). The authors conducted analyses that controlled for variables other than CMM that could affect medication adherence. They found that persons who received CMM had significantly higher PDCs for three of the four therapeutic classes (statins, ACEIs/ARBs, and beta-blockers).

The Smith et al. 2016 study relied on self-reported data. This study is a sub-group analysis of persons enrolled in Carter et al. (2015) who had treatment resistance hypertension. When all subjects were analyzed, the study found no statistically significant difference between the intervention and control groups; however, the study did show a greater proportion of minorities enrolled in the study reported significantly better medication adherence.

**Summary of findings regarding effects of CMM on medication adherence:** There is limited evidence from a single observational study with a comparison group and a study of a sub-population enrolled in an RCT that receipt of CMM is associated with better medication adherence. The evidence is limited by the use of different metrics to assess adherence and by the fact that only one of the studies randomly assigned people to the intervention and comparison groups.

**Figure 1.** Comprehensive Medication Management on Medication Adherence



## Clinical Outcomes

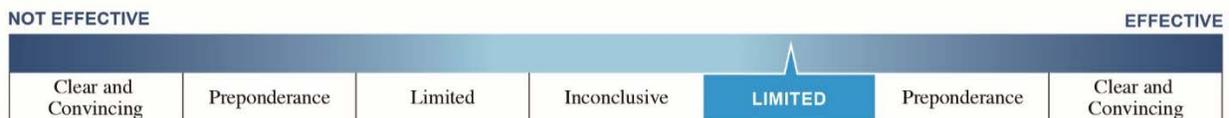
### *Diabetes mellitus*

Three studies assessed the impact of CMM on clinical outcomes of people with diabetes. One observational study with a comparison group showed improvements in diabetes care as measured by the percentage of persons who achieved benchmarks that are used to identify persons with diabetes who are receiving high-quality care (i.e., hemoglobin A1c, LDL cholesterol, blood pressure, aspirin use, and tobacco cessation). Of patients diagnosed with diabetes who received CMM, 40% achieved all five quality performance benchmarks compared to 17.5% of all patients within Minnesota (Isetts et al., 2012).

Two studies examined the effects of CMM on hemoglobin A1c. An observational study with a comparison group by Wassell et al. (2018) found an absolute reduction in HbA1c among both the control and intervention groups, but found a greater absolute reduction in the intervention group compared to the control group (2.7 percentage points vs. 1.1% percentage points). An RCT by Jacobs et al. (2012) also found that people who received the CMM intervention had a larger absolute reduction in hemoglobin A1c than people in the control group (1.8 percentage points vs. 0.8 percentage points).

**Summary of findings regarding effects on diabetes mellitus outcomes:** There is limited evidence from one RCT and two observational studies with comparison groups that CMM improves clinical outcomes for people with diabetes. The evidence is limited by the use of different metrics to assess these outcomes; two studies examined absolute reduction in HbA1c and the third assessed a composite measure. In addition, only one of the studies randomly assigned people to the intervention and comparison groups.

**Figure 2.** Comprehensive Medication Management on Diabetes Mellitus Outcomes



### *Hypertension*

Blood pressure control was defined differently across studies.<sup>10</sup> One study examined attainment of blood pressure goals of <140/90 mmHg for patients with uncomplicated hypertension and <130/80 mmHg for patients with diabetes mellitus or chronic kidney disease (Carter et al., 2015). Another study assessed attainment of blood pressure goals set forth in the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC) guidelines (Romanelli et al., 2015). Neither of these studies found a statistically significant differences between the intervention and control groups' ability to reach blood pressure goals. The Smith et al. (2016) study of a sub-population of people enrolled in Carter et al. (2015) also found no statistically significant difference in the odds of achieving blood pressure control. Conversely, the Anderegg et al. (2018) study of a sub-group of patients enrolled in

<sup>10</sup> Note that the American College of Cardiology changed its hypertensive guidelines in 2017; some studies in this report may have used what are now considered outdated guidelines, but were the appropriate guidelines at that time. The new guidelines can be found here:

[http://www.onlinejacc.org/content/early/2017/11/04/j.jacc.2017.11.006?\\_ga=2.167254134.979805552.1523477928-1688592692.1523477928](http://www.onlinejacc.org/content/early/2017/11/04/j.jacc.2017.11.006?_ga=2.167254134.979805552.1523477928-1688592692.1523477928)

Carter et al. 2015 who had diabetes or chronic kidney disease found that people who received the CMM intervention had higher odds of achieving the JNP goal for blood pressure control. Two RCTs examined effects on measures of mean systolic blood pressure (SBP) and/or diastolic blood pressure (DBP). Jacobs et al. (2012) found that patients with diabetes who received the CMM intervention experienced a larger reduction in diastolic blood pressure relative to persons in the control group and that the difference was statistically significant. Carter et al. (2015) found greater reductions in SBP and DBP in 9-month intervention groups compared to the control group; mean SBP was 6.1 mm lower and mean DBP was 2.9 mm lower across all study participants at 9 months.<sup>11</sup> The Anderegg et al. (2018) study of a sub-population of Carter et al. (2015) that had diabetes and/or chronic kidney disease also found that people who received the CMM intervention had a greater reduction in SBP. Smith et al. (2016), studying the treatment-resistant hypertension sub-population of Carter et al. (2015), found that at 9 months, mean SBP was significantly lower in the intervention group compared to the control group, and DBP was similar among both groups (after adjustment for other factors that could affect blood pressure).

**Summary of findings regarding effects of CMM on blood pressure outcomes:** There is a preponderance of evidence from five studies (2 RCTs, 2 studies of sub-groups of persons enrolled in one of the RCTs and 1 observational study) that receipt of CMM is associated with greater reductions in blood pressure than receipt of usual care. The evidence of the effect of CMM on blood pressure is stronger than the evidence of the effects on diabetes and cholesterol. More studies with consistent findings have been published, two of the studies are RCTs, and analyses of two sub-groups of patients from the RCT reported the same findings about reduction in blood pressure as the overall finding for the RCT.

**Figure 3.** Comprehensive Medication Management on Hypertension Outcomes



The differences in findings among the studies may be a function of the populations studied. Jacobs et al. (2012) enrolled adults 18 years or older with a diagnosis of Type II diabetes and a recorded A1c greater than 8%, a hemoglobin A1c level that suggests that their diabetes was not under control. Carter et al. (2015) also enrolled people who had uncontrolled hypertension. In contrast, Romanelli et al. (2015) stated that approximately 70% of persons in the three groups studied were already at their blood pressure and LDL cholesterol goals at baseline. Thus, the persons studied by Jacobs et al. (2012) and Cater et al. (2015) had more room for improvement in disease-specific outcomes than the persons studied by Romanelli et al. (2015). In addition, Jacobs et al. (2012) and Cater et al. (2015) were RCTs, which enabled the authors to better isolate the effect of the CMM intervention from other factors that affect these outcomes.

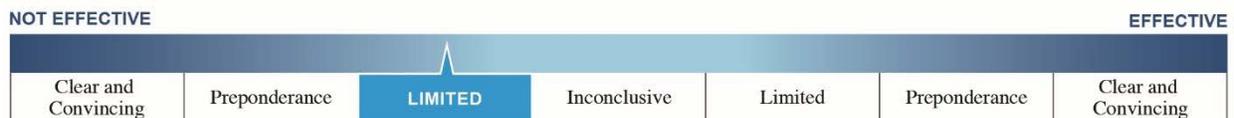
<sup>11</sup> In addition to examining SBP and DBP among intervention and control groups. Carter et al. (2015) also examined differences in SBP and DBP across race as a secondary outcome. SBP and DBP were found to be significantly lower for minority groups at 9 months with differences of 6.4 mm and 2.9 mm, respectively. While there was no evidence that changes in SBP and DPB differed among race at the 9-month mark, there was evidence that reduction in SBP and DBP differed by race over time; while the minority group sustained BP reductions at the 24 month-mark, the nonminority group’s measures deteriorated.

### Cholesterol

One retrospective cohort study found that LDL cholesterol did not significantly differ among the control and two intervention groups (Romanelli et al., 2015). Another retrospective study did not find any significant differences in total cholesterol, LDL cholesterol, or triglycerides between intervention and control groups (Wassell et al., 2018). One limitation of Romanelli et al. (2015) is that approximately 70% of persons in the three groups studied were already at their LDL cholesterol goals at baseline which meant that there was less opportunity for improvement than there would have been if many persons enrolled in the study had not already achieved their LDL cholesterol goals.

**Summary of findings regarding effects of CMM on cholesterol outcomes:** There is limited evidence that suggests that clinical outcomes for cholesterol are similar among people who receive CMM and people who receive usual care. The evidence is limited because neither of these studies randomly assigned people to the CMM intervention or the comparison group. There is a risk that the authors’ findings may be due to unmeasured differences between the intervention and comparison groups and not to the CMM intervention.

**Figure 4.** Comprehensive Medication Management on Cholesterol Outcomes



### Mortality

Only one study compared mortality rates between persons who received CMM and those who did not. The authors did not find any statistically significant differences in all-cause mortality in the 6 months following a hospital discharge between persons who received CMM and persons who received usual care (Westberg et al., 2014).

**Summary of findings regarding effects of CMM on mortality:** There is insufficient evidence from a single observational study with a comparison group to ascertain the impact of CMM on mortality.

**Figure 5.** Comprehensive Medication Management on Mortality



### Outpatient Visits

Only one study evaluated the usage of outpatient visits. In studying three different groups, the cohort that received CMM services had a 20% greater risk of having an outpatient visit compared to the PCMH cohort, while there was no significant difference in the rate of outpatient visits between the CMM cohort

and the usual care cohort (Romanelli et al., 2015). The greater number of outpatient visits in the CMM cohort relative to the PCMH cohort is not surprising because these patients had visits with pharmacists for CMM in addition to physician visits. However, the authors do not present data to support or refute this hypothesis. Nor do they explain why the number of outpatient visits did not differ between the CMM and usual care cohorts.

**Summary of findings regarding effects of CMM on outpatient visits:** There is insufficient evidence from a single observational study with comparison groups to determine whether numbers of outpatient visits differ between people who receive CMM and people who receive usual care.

**Figure 6.** Comprehensive Medication Management on Outpatient Visits



### Emergency Department Visits

Two observational studies with comparison groups studies examined the effects of CMM on ED visits. In studying three different groups, Romanelli et al. (2015) found that patients who received CMM services (i.e., pharmacist providing CMM as part of a patient-centered medical home) did not have a significantly lower rate of ED visits compared to the PCMH group (patient-centered medical home without a pharmacist), but the CMM group did have a lower frequency of ED visits relative to patients in the usual care cohort and the difference was statistically significant. Westberg et al. (2014) did not find any statistically significant difference between control and intervention groups in ED visits 30 days, 60 days, or 6 months after hospital discharge. However, the authors state that the health system in which this study was conducted simultaneously implemented other changes aimed at improving quality of care that may have limited the authors' ability to isolate the effect of the CMM intervention.

**Summary of findings regarding effects of CMM on ED visits:** Evidence from two observational studies with comparison groups that assessed the impact of CMM on ED visits is inconclusive. One study found that CMM is associated with fewer ED visits than receipt of usual care while the other study found similar mean numbers of ED visits in the CMM group and the group that received usual care.

**Figure 7.** Comprehensive Medication Management on Emergency Department Visits

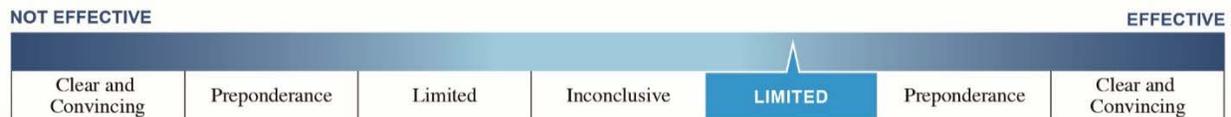


## Hospital Admissions

One observational study with a comparison group examined effects of CMM on all-cause hospitalizations and one observational study with a comparison group examined medication-related hospitalizations. Romanelli et al. (2015) found that patients in the CMM (primary intervention) cohort had a lower rate of all-cause hospitalizations relative to the two comparison cohorts. Pellegrin et al. (2017) looked specifically at medication-related hospitalizations that were defined based on ICD-9 codes and found a 36.5% lower hospitalization rate in the group that received the CMM intervention versus the control group.

**Summary of findings regarding effects of CMM on hospital admissions:** There is limited evidence from two observational studies that CMM reduces all-cause hospitalizations and medication-related hospitalizations. The evidence is limited because neither of these studies randomly assigned people to the CMM intervention or the comparison group. There is a risk that the authors' findings may be due to unmeasured differences between the intervention and comparison groups and not to the CMM intervention.

**Figure 8.** Comprehensive Medication Management on Hospital Admissions



## Hospital Readmissions

Two observational studies with comparison groups examined effects of CMM on readmissions and reached different conclusions. Of these two studies, one reported a 50% reduced relative risk and 11% reduced absolute risk reduction of 30-day readmissions between intervention and comparison groups (Polinski et al., 2016). The other study did not find a statistically significant difference in hospital readmissions between the control and intervention groups. However, the study may not have had inadequate statistical power to detect a difference. In addition, the health system in which this study was conducted simultaneously implemented other changes designed to improve quality of care, which may have made it difficult to isolate the effect of the CMM intervention (Westberg et al., 2014).

**Summary of findings regarding effects of CMM on hospital readmissions:** The evidence from two observational studies regarding the impact of CMM on hospital readmissions is inconclusive. One study found that receipt of CMM is associated with a lower relative risk and a lower absolute risk of readmission, whereas the other study found no difference in the mean number of readmissions between people who received CMM and people who received usual care.

**Figure 9.** Comprehensive Medication Management on Hospital Readmissions



## Population that Benefits Most from CMM

CHBRP identified only one study that compared findings regarding the effects of CMM on persons with chronic conditions who had different conditions or different levels of severity of illness. That study compared the impact of CMM on persons who had been hospitalized for a cardiac condition to the impact on persons hospitalized for a respiratory condition (Polinski et al., 2016). The authors found no statistically significant difference between the two groups with regard to the absolute and relative risk of readmission within 30 days of discharge. However, they also did not find an effect on 30-day readmissions for either group relative to persons with the same condition who were in a comparison group. That finding contrasts with their finding that CMM reduces 30-day readmissions when they pool data on all persons who received CMM regardless of their diagnosis. This suggests that the study may have lacked sufficient statistical power to detect differences between sub-groups. The study examined data on 262 persons (131 in the CMM intervention group and 131 in the comparison group), only 107 of which had been hospitalized for a cardiac condition and only 58 of which had been hospitalized for a respiratory condition. Therefore, CHBRP concludes that there is insufficient evidence to identify the populations that benefit most from CMM. Insufficient evidence is not evidence of no effect.

The authors of an RCT on the effects of CMM on blood pressure control (Carter et al., 2015) published articles that present findings for two sub-groups of people enrolled in the RCT: people with treatment-resistant hypertension (Smith et al., 2016) and people with diabetes and/or chronic kidney disease (Anderegg et al., 2018). Both of these studies of sub-populations reached the same conclusion as the overall RCT (i.e., receipt of CMM was associated with greater reduction in blood pressure). In contrast, the study of persons with diabetes and/or chronic kidney disease was the only one of the three to find that persons who received the CMM intervention were more likely to achieve the JNP goal for blood pressure control. The difference between findings for reduction in mean blood pressure and attainment of the JNP blood pressure goal limits ability to draw inferences from this body of research regarding whether some populations with chronic disease are more likely to benefit from CMM than others.

**Summary of findings regarding the population that benefits most from CMM:** There is insufficient evidence to determine whether some populations of persons with chronic conditions benefit more from CMM than other persons.

**Figure 10.** Population that Benefits Most from Comprehensive Medication Management

NOT EFFECTIVE		INSUFFICIENT EVIDENCE			EFFECTIVE	
Clear and Convincing	Preponderance	Limited	Inconclusive	Limited	Preponderance	Clear and Convincing

## Effect of Receiving More vs. Fewer CMM Visits

CHBRP did not identify any studies that compared participants who received more versus fewer CMM visits. The number of visits that patients received varied across, and in some cases within, the studies CHBRP included in its review but there are other differences among the studies that could affect the findings. Thus, CHBRP concludes that there is insufficient evidence to determine how the number of CMM visits affects the extent to which CMM improves health outcomes or reduces use of other health care services. Insufficient evidence is not evidence of no effect.

**Summary of findings regarding effects of more vs. fewer CMM visits:** There is insufficient evidence to determine whether the impact of CMM on health outcomes and use of other health care services varies depending on the number of CMM visits a person receives.

**Figure 11.** More vs. Fewer Comprehensive Medication Management Visits

NOT EFFECTIVE		INSUFFICIENT EVIDENCE				EFFECTIVE	
Clear and Convincing	Preponderance	Limited	Inconclusive	Limited	Preponderance	Clear and Convincing	

## **BENEFIT COVERAGE, UTILIZATION, AND COST IMPACTS**

As discussed in the *Policy Context* section, SB 1322 would require Medi-Cal to cover comprehensive medication management (CMM) for beneficiaries identified as being at high risk for medication-related problems and as having one or more chronic diseases. The bill would affect the health insurance of Medi-Cal beneficiaries enrolled in managed care through plans regulated by DMHC. In addition, the bill would affect the health insurance of Medi-Cal beneficiaries enrolled in COHS managed care and the health insurance of Medi-Cal beneficiaries associated with Medi-Cal FFS.

SB 1322 would require the California Department of Health Care Services (DHCS), the administrator of Medicaid in California, to evaluate the effectiveness of CMM. Although there would be some cost to DHCS to perform this evaluation, CHBRP cannot quantify it and has not included these costs in this analysis.

This section reports the potential incremental impacts of SB 1322 on estimated baseline benefit coverage, utilization, and overall cost related to Medi-Cal beneficiaries enrolled in DMHC-regulated managed care plans (7,510,000 persons). A large majority of Medi-Cal beneficiaries in California is enrolled in managed care plans. A brief discussion of impacts related to beneficiaries enrolled in COHS managed care (1,772,000 persons) or FFS (1,308,000 persons) is included in the discussion of premiums. While it is possible that DHCS could develop and centrally operate an SB 1322-compliant CMM program, CHBRP assumes that DHCS would require managed care plans to cover CMM. Two critical estimates are the proportion of Medi-Cal beneficiaries who would use CMM services and the short-term impact on health service use this would have. The first estimate is related to the proportion of Medi-Cal beneficiaries that would be identified as being at high risk for poor health outcomes associated with medications or as high risk for medication-related problems, and who have one or more chronic diseases. Also important is how many of this particular group would receive CMM services. The second assumption about the short-term impact is related to possible cost offsets due to optimal medication management. For further details on the underlying data sources and methods, please see Appendix C.

### **Baseline and Postmandate Benefit Coverage**

Of the 23,433,000 total enrollees with health insurance regulated by DMHC or CDI (see Table 1), 7,510,000 enrollees (Medi-Cal beneficiaries enrolled in managed care through DMHC-regulated plans) have health insurance that would be subject to SB 1322. At baseline, among that 7,510,000, the number of enrollees that have coverage that includes a CMM program compliant with SB 1322 is 1,552,000. This means that 21% have health insurance fully compliant at baseline (before the SB 1322 mandate is in effect). Postmandate, 100% or an additional 5,958,000 of these enrollees would have insurance fully compliant with SB 1322.

### **Baseline and Postmandate Utilization**

SB 1322 only impacts benefit coverage for the Medi-Cal population. As this population is non-elderly and includes children, the rates of chronic conditions are lower than rates reported across the entire population of California since prevalence of chronic conditions increases with age.

At baseline, 28,000 (0.38%) of Medi-Cal beneficiaries enrolled in DMHC-regulated managed care plans are using a CMM program that is fully compliant with SB 1322. Dual-eligible enrollees (beneficiaries eligible for both Medi-Cal and Medicare) do not contribute to the postmandate estimates as their use of medication therapy management (MTM) programs are assumed to be covered by Medicare and

additional use of CMM programs is assumed to be unlikely. Postmandate, 137,000 (1.82%) of Medi-Cal beneficiaries would use a CMM program that is fully compliant with SB 1322, an increase of 389%. Users of CMM per 1,000 covered enrollees are 3.76 at baseline and 18.19 postmandate. There is an increase in the number of people who would use a CMM program that is compliant with SB 1322 because many beneficiaries do not currently have coverage that includes CMM compliant with SB 1322. CHBRP assumes that the initial 1.82% of Medi-Cal beneficiaries using CMM postmandate have comorbidity and disease severity profiles similar to the Medicare population. Consequently, CHBRP used CMM impact estimates (e.g., cost offsets) from the CMM literature involving the Medicare-aged population to estimate postmandate expenditures.

## Baseline and Postmandate Per-Unit Cost

The changes in benefit coverage and utilization are not expected to impact per-unit cost, since the cost per service is assumed to be exactly the same at baseline and postmandate. The average cost per year per user for CMM is estimated to be \$214 at baseline and postmandate. This was calculated based on 2016 MarketScan® commercial claims for CMM services in New Mexico, adjusted for administrative load, the cost relativity between California and New Mexico, assumed increase in CMM services per year, a Medicaid to Commercial ratio, and trend. See Appendix C for details.

## Baseline and Postmandate Expenditures

Table 5 and Table 6 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).

Factoring in potential cost offsets, SB 1322 would increase total net annual expenditures by \$2,856,000 from a baseline total expenditures estimate of \$155,467,770,000 to a postmandate total expenditures estimate of \$155,444,710,000. This represents a 0.0018%% increase in total expenditures — an increase associated only with changes in premiums for Medi-Cal beneficiaries enrolled in DMHC-regulated plans.

## Premiums

Changes in premiums as a result of SB 1322 would vary by market segment (see Table 6) because the bill would impact only the health insurance of Medi-Cal beneficiaries. The expected premium impact on what DHCS has to pay to enroll Medi-Cal beneficiaries in DMHC-regulated plans would increase by 0.0098% or \$2,856,000 from \$29,259,588,000 (baseline) to \$29,262,444,000 (postmandate).

SB 1322 applies to all Medi-Cal beneficiaries, including beneficiaries enrolled in COHS managed care as well as Medi-Cal beneficiaries associated with the Medi-Cal's FFS program. CHBRP believes that CMM coverage would increase from 0% baseline to 100% postmandate in COHS. In addition, CHBRP believes that the presence of chronic conditions is similar to that among the Medi-Cal beneficiaries enrolled in DMHC-regulated plans. For this reason, CHBRP expects the per enrollee cost of providing CMM to be similar. Therefore, CHBRP estimates an increase of \$674,000 for the 1,772,000 Medi-Cal beneficiaries enrolled in COHS managed care. The similarity of the FFS population with the group enrolled in DMHC-regulated plans (in terms of the presence of chronic conditions) is unknown, and their usage of the benefit coverage may differ, so the exact amount of such an increase is unknown. CHBRP presumes compliance for FFS beneficiaries would involve additional expenditure, but that the exact cost impact is unknown (due to different morbidity and drug utilization).

## Enrollee Expenses

SB 1322 is not expected to measurably impact enrollee expenses for covered benefits (deductibles, copays, etc.) because the bill would only impact the health insurance of Medi-Cal beneficiaries, for whom enrollee expenses are uncommon (see Table 1, Table 5, and Table 6).

CHBRP projects no change to enrollee cost sharing (i.e., copayments or coinsurance rates are unlikely to increase as Medi-Cal beneficiaries do not face cost sharing) but does project an increase in utilization of treatments or services.

## 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 estimates no measurable impact due to new coverage, as it seems unlikely that any of these enrollees would have been paying out-of-pocket for CMM-related services (enrollee expenses for noncovered benefits).

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

Congruent with the findings from the *Medical Effectiveness* section, CHBRP includes a cost offset estimate related to reduced hospital admissions.

Based on a published study, CHBRP estimated hospital admissions to decline by 36% as a result of the improved medication reconciliation implemented under a CMM program (Pellegrin et al., 2017). These assumptions produce the finding that inpatient readmissions could decrease from 733,074 (baseline) to 731,153 (postmandate), a reduction of 1,921 hospitalizations (0.3%).

## Postmandate Administrative Expenses and Other Expenses

CHBRP estimates that the increase in administrative costs of DMHC-regulated plans and/or CDI-regulated policies would 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.

## Postmandate Changes in the Number of Uninsured Persons<sup>12</sup>

Because the change in average premiums does not exceed 1% for any market segment (see Table 1, Table 5, and Table 6), CHBRP would expect no measurable change in the number of uninsured persons due to the enactment of SB 1322.

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<sup>12</sup> 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](http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php).

### **Changes in Public Program Enrollment**

CHBRP estimates that SB 1322 would produce no measurable impact on enrollment in publicly funded insurance programs.

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

CHBRP does not expect that SB 1322 would result in cost shifts to other payers.

**Table 5.** Baseline Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2019

	DMHC-Regulated						CDI-Regulated			Total
	Privately Funded Plans (by Market) <sup>(a)</sup>			Publicly Funded Plans			Privately Funded Plans (by Market) <sup>(a)</sup>			
	Large Group	Small Group	Individual	CalPERS HMOs <sup>(b)</sup>	MCMC (Under 65) <sup>(c)</sup>	MCMC (65+) <sup>(c)</sup>	Large Group	Small Group	Individual	
<b>Enrollee counts</b>										
Total enrollees in plans/policies subject to state mandates <sup>(d)</sup>	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 SB 1322	0	0	0	0	6,832,000	678,000	0	0	0	7,510,000
<b>Premiums</b>										
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
<b>Enrollee expenses</b>										
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 <sup>(e)</sup>	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0
<b>Total expenditures</b>	\$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 would 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 6.** Postmandate Per Member Per Month Premiums and Total Expenditures by Market Segment, California, 2019

	DMHC-Regulated						CDI-Regulated			Total
	Privately Funded Plans (by Market) <sup>(a)</sup>			Publicly Funded Plans			Privately Funded Plans (by Market) <sup>(a)</sup>			
	Large Group	Small Group	Individual	CalPERS HMOs <sup>(b)</sup>	MCMC (Under 65) <sup>(c)</sup>	MCMC (65+) <sup>(c)</sup>	Large Group	Small Group	Individual	
<b>Enrollee counts</b>										
Total enrollees in plans/policies subject to state mandates <sup>(d)</sup>	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 SB 1322	0	0	0	0	6,832,000	678,000	0	0	0	7,510,000
<b>Premiums</b>										
Average portion of premium paid by employer	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0348	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$2,855,000
Average portion of premium paid by employee	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0
Total premium	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0348	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$2,855,000
<b>Enrollee expenses</b>										
For covered benefits (deductibles, copays, etc.)	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0
For noncovered benefits <sup>(e)</sup>	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0
<b>Total expenditures</b>	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0348	\$0.0000	\$0.0000	\$0.0000	\$0.0000	-\$36,894,000
<b>Percent change</b>										
Premiums	0.0000%	0.0000%	0.0000%	0.0000%	0.0126%	0.0000%	0.0000%	0.0000%	0.0000%	0.0020%
Total expenditures	0.0000%	0.0000%	0.0000%	0.0000%	0.0126%	0.0000%	0.0000%	0.0000%	0.0000%	0.0018%

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 would 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.

## PUBLIC HEALTH IMPACTS

As discussed in the *Policy Context* section, SB 1322 would mandate coverage of comprehensive medication management (CMM) for Medi-Cal beneficiaries identified as being high risk for poor health outcomes associated with medications, or as high risk for medication-related problems, and who has one or more chronic diseases. SB 1322 defines CMM services and specifies continual monitoring of beneficiaries, for an average of eight visits per year.

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<sup>13</sup> of SB 1322 on CMM for multiple chronic conditions and associated treatment outcomes such as medication adherence, medical care visits (emergency and non-emergency), and mortality. 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 SB 1322 include medication adherence, disease-specific outcomes (e.g., diabetes), mortality, ambulatory care visits, emergency department visits, hospital admissions and readmissions, and cost savings.

As presented in the *Medical Effectiveness* section, there was:

- Limited evidence that receiving CMM is associated with improved medication adherence.
- Limited evidence that CMM reduces hemoglobin A1c among people with diabetes.
- A preponderance of evidence that CMM reduces blood pressure among people with uncontrolled hypertension.
- Limited evidence that CMM reduces mortality.
- Insufficient evidence to determine the impact of non-emergency ambulatory care visits.
- Inconclusive evidence on the impact of CMM on emergency department visits.
- Limited evidence that CMM reduces hospital admissions and the evidence that CMM reduces readmissions is inconclusive.

As presented in the *Benefit Coverage, Utilization, and Cost Impacts* section, 79% of Medi-Cal beneficiaries would gain coverage for CMM were SB 1322 to pass into law. CHBRP estimates that 109,000 Medi-Cal beneficiaries with chronic conditions would become new users of CMM under SB 1322.

In the first year postmandate, of the 109,000 Medi-Cal beneficiaries newly using CMM (those with greatest disease burden), CHBRP estimates, based on limited evidence, that those engaged with CMM would see improvements in medication adherence, reductions in hemoglobin A1c levels among diabetics, reductions in mortality, and reductions in hospital admissions. In addition, based on a preponderance of evidence, CHBRP estimates that there would be a reduction in blood pressure among people with uncontrolled hypertension.

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<sup>13</sup> CHBRP defines short-term impacts as changes occurring within 12 months of bill implementation.

## Impact on Disparities<sup>14</sup>

### Impact on Racial or Ethnic Disparities

CHBRP has previously identified that the racial/ethnic composition of Medi-Cal beneficiaries differs from that of persons with commercial health insurance (other persons enrolled in DMHC-regulated plans and persons enrolled in CDI-regulated policies).<sup>15</sup> Specifically, Latinos, African Americans, and Other race/ethnicities have disproportionately high representation in Medi-Cal as compared to Whites and Asians. Mandates such as SB 1322 that are specific to Medi-Cal may lead to differences in the coverage and utilization of certain services for these beneficiaries; therefore, it may disproportionately affect the Latino, African-American, or Other racial/ethnic population if the mandate-relevant service is found to be medically effective.

As discussed previously, there is limited evidence that those who undergo CMM would see improvements in medication adherence, reductions in hemoglobin A1c levels among diabetics, reductions in mortality, and reductions in hospital admissions, and a preponderance of evidence that there would be a reduction in blood pressure among people with uncontrolled hypertension for people with chronic conditions with the passage of SB 1322. There was no evidence in the reviewed literature that there was a difference in this outcome for certain racial or ethnic populations. However, due to the Medi-Cal population distribution (higher representation of some racial/ethnic groups), it is possible that there could be a greater improvement in health outcomes for Latino and African-American beneficiaries with multiple chronic conditions relative to Whites and Asians.

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<sup>14</sup>. For details about CHBRP's methodological approach to analyzing disparities, see [http://www.chbrp.org/analysis\\_methodology/docs/Estimating\\_Impacts\\_on\\_Racial\\_and\\_Ethnic\\_Disparities\\_FINAL.pdf](http://www.chbrp.org/analysis_methodology/docs/Estimating_Impacts_on_Racial_and_Ethnic_Disparities_FINAL.pdf).

<sup>15</sup> Accessible at [http://chbrp.com/document\\_center/Analysis%20Methodology/Estimating%20Impacts%20on%20Racial%20and%20Ethnic%20Disparities%20FINAL.pdf](http://chbrp.com/document_center/Analysis%20Methodology/Estimating%20Impacts%20on%20Racial%20and%20Ethnic%20Disparities%20FINAL.pdf)

## LONG-TERM IMPACTS

In this section, CHBRP estimates the long-term impact<sup>16</sup> of SB 1322, 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.

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-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.

Limited evidence exists on the long-term outcomes of CMM on one or more chronic conditions. To the extent that CMM leads to optimized adherence and treatment regimens, there may be some continued improvement in health outcomes and some further decline in use of acute care services. Additionally, there may be postponement of long-term chronic disease outcomes such as heart attacks or kidney failure.

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<sup>16</sup> See also CHBRP's *Criteria and Guidelines for the Analysis of Long-Term Impacts on Healthcare Costs and Public Health*, available at [http://www.chbrp.org/analysis\\_methodology/cost\\_impact\\_analysis.php](http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php).

## **APPENDIX A TEXT OF BILL ANALYZED**

On February 20, 2018, the California Senate Committee on Health requested that CHBRP analyze SB 1322. On March 22, 2018, the committee asked CHBRP to use proposed amended language (see following pages) as the basis of its analysis. Due to the limited nature of the proposed amendments, CHBRP was able to do so.

AMENDED IN SENATE MARCH 22, 2018

CALIFORNIA LEGISLATURE— 2017–2018 REGULAR SESSION

**SENATE BILL**

**No. 1322**

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**Introduced by Senator Stone**

**February 16, 2018**

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An act to add Section 14132.08 to the Welfare and Institutions Code, relating to Medi-Cal.

### **LEGISLATIVE COUNSEL'S DIGEST**

SB 1322, as amended, Stone. Medi-Cal: comprehensive medication management.

Existing law provides for the Medi-Cal program, which is administered by the State Department of Health Care Services, under which qualified low-income individuals receive health care services. The Medi-Cal program is, in part, governed and funded by federal Medicaid Program provisions. Existing law provides for a schedule of benefits under the Medi-Cal program, which includes outpatient prescription drugs, subject to utilization controls and the Medi-Cal list of contract drugs.

This bill would provide that comprehensive medication management (CMM) services, as defined, are a covered benefit under the Medi-Cal program, and would require those services to include, among other

things, the development and implementation of a written medication treatment plan that is designed to resolve documented medication therapy problems and to prevent future medication therapy problems. The bill would require the department to evaluate the effectiveness of CMM on quality of care, patient outcomes, and total program costs, as specified.

## DIGEST KEY

Vote: majority Appropriation: no Fiscal Committee: yes Local Program: no

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## BILL TEXT

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

### SECTION 1.

Section 14132.08 is added to the Welfare and Institutions Code, to read:

#### **14132.08.**

- (a) (1) Comprehensive medication management (CMM) services are covered under the Medi-Cal program.
- (2) (A) For purposes of this section, “comprehensive medication management” means the process of care that ensures each beneficiary’s medications, whether they are prescription drugs and biologics, over-the-counter medication, or nutritional supplements, are individually assessed to determine that each medication is appropriate for the beneficiary, effective for the medical condition, and safe given the comorbidities and other medications being taken, and all medications are able to be taken by the patient as intended.
- (B) The goals of CMM are to improve quality outcomes for beneficiaries and to lower overall health care costs by optimizing appropriate medication use linked directly to achievement of the clinical goals of therapy.
- (b) (1) CMM services shall be offered to a beneficiary who has been identified ~~by a treating prescriber~~ as high risk for ~~medication-related problems~~ *poor health outcomes associated with medications, or as high risk for medication-related problems*, and who has one or more chronic diseases.
- (2) *The department shall establish the criteria to identify high risk for poor health outcomes associated with medications and the criteria to identify high risk for medication-related problems. The department shall base the criteria on peer-reviewed, evidence-based medical practice.*
- (c) Utilizing the clinical services of a ~~primary care physician or~~ pharmacist, working in collaboration with other appropriate providers and in direct communication with the beneficiary, CMM services that are provided pursuant to this section shall include the following services:
- (1) Assessment of the beneficiary’s health status, including discussing the beneficiary’s personal medication experience and preferences, and documenting the beneficiary’s actual use patterns of all prescription drugs and biologics, over-the-counter medications, and nutritional supplements.
  - (2) Documentation of the beneficiary’s current clinical status and clinical goals of therapy for each identified chronic condition for which a medication therapy is indicated, such as current blood pressure and the prescriber’s clinical goals of therapy in a hypertensive patient.
  - (3) Assessment of each medication for appropriateness, effectiveness, safety, and adherence, with a focus on achievement of the desired clinical and beneficiary goals.
  - (4) Identification of all medication therapy problems.
  - (5) Development and implementation, in collaboration with the beneficiary, of a written medication treatment plan that is designed to resolve documented medication therapy problems and to prevent future medication therapy problems, including any additions, deletions, or adjustments to a medication treatment plan by, or in collaboration with, the treating prescriber or primary care physician, that may be needed to achieve optimal therapeutic outcomes.

(6) Verbal education and training, information, support services, and resources designed to enhance the beneficiary's adherence to, and appropriate use of, medication.

(7) Follow-up evaluation and monitoring with the beneficiary to determine the effects of any changes made to a beneficiary's medication treatment plan, reassess actual outcomes, and recommend or implement further therapeutic changes necessary to achieve desired clinical outcomes.

(d) The typical intervention for a beneficiary receiving CMM services shall include an average of ~~three to four~~ *eight* visits per year with a CMM primary care physician or pharmacist, as appropriate, to continually monitor and evaluate medication therapy progress and problems, and to recommend resolutions or to make changes consistent with a collaborative practice agreement.

(e) The department shall evaluate the effectiveness of CMM on quality of care, patient outcomes, and total program costs, and shall include a description of any savings generated under the Medi-Cal program that can be attributed to the coverage of CMM services, including the effect on emergency room, hospital, and other provider visit costs. The department may utilize patient and prescriber surveys to assess the acceptance of, and perceived value added by, CMM services.

## APPENDIX B LITERATURE REVIEW SPECIFICATIONS

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 the effects of CMM were identified through searches of PubMed, the Cochrane Library, Web of Science, Scopus, and EMBASE.

The search was limited to abstracts of studies published in English. The medical effectiveness search was limited to studies published from 2016 to present, because CHBRP had previously reviewed this literature using the same search terms in 2016 for the AB 2084 analysis.

Reviewers screened the title and abstract of each citation retrieved by the literature search to determine eligibility for inclusion. The reviewers acquired the full text of articles that were deemed eligible for inclusion in the review and reapplied the initial eligibility criteria.

The literature review returned abstracts for 226 articles, of which 15 were reviewed for inclusion in this report. The medical effectiveness team also reviewed 13 additional articles that were not included in the search results. A total of three studies of CMM were included in the medical effectiveness review for AB 2084. A total of three new studies that were not discussed in CHBRP's report on AB 2084 were included in the medical effectiveness review for SB 1322 along with the three studies discussed in the AB 2084 report.

### 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*.<sup>17</sup> 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;
- 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;

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<sup>17</sup> Available at: [www.chbrp.org/analysis\\_methodology/docs/medeffect\\_methods\\_detail.pdf](http://www.chbrp.org/analysis_methodology/docs/medeffect_methods_detail.pdf).

- 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)**

Comprehensive medication management (CMM)

CMM AND adherence

CMM AND adverse drug interactions

CMM AND beneficiaries

CMM AND eligibility

CMM AND emergency department visits

CMM AND frequency

CMM AND health outcomes

CMM AND hospitalizations

CMM AND medication reconciliation

CMM AND provider

CMM AND self-management behaviors

CMM AND training

## APPENDIX C 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).<sup>18</sup>

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.<sup>19</sup>

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

### Analysis-Specific Caveats and Assumptions

This subsection discusses the caveats and assumptions specifically relevant to the coverage requirement for comprehensive medication management (CMM) services per SB 1322.

The modeling for this report reflects the Medi-Cal beneficiaries enrolled in DMHC-regulated managed care plans. Where possible, CHBRP has extrapolated to discuss impacts for Medi-Cal beneficiaries enrolled in COHS managed care and Medi-Cal beneficiaries associated with Medi-Cal fee-for-service.

Following is a description of methods used to develop the estimates of impacts.

#### Cost Per CMM User Per Year

Baseline annual cost per user for the CMM program in 2019 is estimated to be \$214 per user. This estimate was based on 2016 MarketScan® commercial claims for services in New Mexico, adjusted for administrative load, the cost relativity between California and New Mexico, assumed increase in CMM services per year, a Medicaid to Commercial ratio, and trend. The estimate assumes an in-house or vendor subcontract model where the health plan reflects the costs in its administrative expense rather than medical expense. New Mexico has evidence of outpatient services similar to what would be required by SB 1322 in commercial claims. Claims with CPT 99605, 99606, and 99607 were extracted from MarketScan®. These are 15-minute time-based codes for medication management that were billed by a pharmacy or pharmacist.

- The 2016 New Mexico cost per user was \$161.89. This includes a 16.7% administrative load and represents 2.84 claims per user.
- The number of CMM services for the SB 1322 analysis was estimated as eight services per year (as specified in the bill). Therefore, the cost per user was adjusted by  $8/2.84 = 2.8$ . This increases the estimated cost from \$161.89 to \$455.42 per CMM user.
- The cost per CMM user was then adjusted for a calculated California to New Mexico Cost Relativity, which was developed from office visit codes extracted from MarketScan®.

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<sup>18</sup> CHBRP's authorizing statute, available at [www.chbrp.org/docs/authorizing\\_statute.pdf](http://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.

<sup>19</sup> See *2017 Cost Impact Analyses: Data Sources, Caveats, and Assumptions*, available at [www.chbrp.org/analysis\\_methodology/cost\\_impact\\_analysis.php](http://www.chbrp.org/analysis_methodology/cost_impact_analysis.php).

- This used CPTs reflecting evaluation and management (starting with “992”), excluding CPTs related to hospital-based consultations: 99241-99245 & 99251-99255.
- It included the following types of Providers: Family Practice, MultiSpecialty Physician Group, Medical Doctor - MD (NEC), Internal Medicine (NEC), Pediatrician (NEC), Urgent Care Facility.
- The calculated commercial rate relativity indicates California payments are 7.7% higher than New Mexico for a commercial rate relativity of 1.077. Applying this factor increases the estimated cost per CMM user for eight services from \$455.42 to \$490.67.
- CHBRP assumed that Medi-Cal rates are 40% of commercial rates. This reduces the \$490.67 per CMM user to \$196.27 for eight services per year.
- This value was trended by 3% a year from 2016 to 2019 for a total increase of 9.3% over the time period. Applying trend results in an estimate of \$214.47 per CMM user per year for 2019.

The \$214.47 PMPM per user per year appears consistent with payment amounts for other state Medicaid programs that reimburse pharmacists for medication management services. Since 2012, the Wisconsin Medicaid BadgerCare program has a Comprehensive Medications Review and Assessments program that reimburses \$85 for an initial assessment (limit 1 per rolling year) and \$40 for follow up assessments (limit 3 per rolling year), for a maximum of \$205 per member per year.<sup>20</sup> The Oregon Medicaid program reimburses the initial medication management consultation at \$28.22, follow up consultations at \$26.34, and additional 15 minute increments of medication management services at \$13.17. For the 8 visits per year permitted in SB1322, the initial 15 minute consultation and 7 follow up consultations would be reimbursed \$212.72.<sup>21</sup>

### **Baseline and Postmandate CMM Users and Hospital Admissions**

CHBRP’s surveys of DMHC-regulated plans enrolling Medi-Cal beneficiaries indicated that 2% of enrollees with SB 1322–compliant coverage were engaged in CMM. Anticipating that all these enrollees will have SB 1322–compliant coverage postmandate, CHBRP expects engagement with CMM among the entire population to rise, from 0.41% to 2.00%. The dual-eligible Medicare-Medicaid population is assumed to be covered for CMM type services by the medication management therapy (MTM) services required in Medicare Advantage and Medicare Part D Prescription Drug plans and so no new engagement in CMM was projected for them. Baseline inpatient utilization was estimated to be 107.3 admits per 1,000 members for Medi-Cal population under age 65, based on the Medi-Cal Managed Care Performance Dashboard.<sup>22</sup>

- This resulted in 733,000 of baseline inpatient admission for the total Medi-Cal managed care population
- However, the CMM program admission reduction was applied only to a subset of the Medi-Cal managed care population.
  - The Medi-Cal managed care population targeted for CMM was assumed to be those most likely to have multiple chronic conditions and a greater number of prescriptions. CHBRP used

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<sup>20</sup> \$205 = 85 +(3 \* 40). ForwardHealth Medication Therapy Management. Accessed April 2018. <https://www.forwardhealth.wi.gov/WIPortal/Subsystem/KW/Print.aspx?ia=1&p=1&sa=48&s=2&c=642&nt>

<sup>21</sup> \$212.72 = 28.22 + (7 \* 26.34) Oregon Health Plan Fee for Service Fee Schedule. Accessed April 2018. <http://www.oregon.gov/oha/hsd/ohp/pages/fee-schedule.aspx>, March 2018 Medical-Dental file.

<sup>22</sup> Managed Care Performance Dashboard, December 2017 Release. Accessed April 5, 2018. <http://www.dhcs.ca.gov/services/Documents/MMCD/December2017Release.pdf> .

492 admits per 1,000 member for the Seniors and Persons with Disability (SPD) population as calculated from the inpatient admissions per 1,000 member months for December 2016 from the Medi-Cal Managed Care Performance Dashboard.<sup>22</sup>

- The 2% CMM engagement for the Medi-Cal managed care plans resulted in an estimated increase of 109,000 beneficiaries using CMM services.
- Total baseline admissions for this population was estimated to be 53,628 per year (=492\*109).
- Of these, 10% of admissions are estimated to be medication related.
- Based on reported research, hospital admissions are estimated to decline by 36% as a result of the improved medication reconciliation implemented under a CMM program.<sup>23</sup>
- Reduction in admissions for the new persons engaged with CMM is calculated as approximately 1,930 admissions.(= 53,628 \*10% \* 36%)
- However, Table 1 shows the change for Total Medi-Cal Managed Care population. Therefore, the number of inpatient admissions uses the baseline total of 733,074 and shows the postmandate total of 731,153. The 1,921 decrease in inpatient admission is equal to the decrease in admissions calculated for the SPD population that is estimated to be new CMM users

### Cost Per Medi-Cal Hospital Admission

Estimated cost per Medi-Cal managed care admission was based on reports issues by the State of California.

- Based on 2016 Final Hospital Utilization and Financial Report from the California Office of Statewide Planning and Development (OSHPD) Medi-Cal Managed Care<sup>24</sup>, Inpatient cost per discharge was estimated to be \$10,800 after discounts and settlements.
- Baseline and postmandate noncovered benefit expense were assumed to be zero.

### Other

- Numbers reported in Table 1 reflect rounding in the calculations.
- Numbers used in Table 1 are slightly smaller than the calculation reported for the Medi-Cal managed care population under 65 because Medi-Cal managed care plans include dual-eligible beneficiaries that are included in the denominator.
  - Baseline survey result is reduced from 0.41% to 0.38%.
  - Postmandate CMM participation rate is reduced from 2.00% to 1.82%.
  - Baseline inpatient admission per 1,000 enrollees is reduced from 107.3 to 97.6. This assumes all dual-eligible inpatient admissions are paid by Medicare; there is 0 inpatient admission paid by Medi-Cal.

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<sup>23</sup> Pellegrin et al., 2017.

<sup>24</sup> Hospital Annual Financial Data State California - <https://www.oshpd.ca.gov/HID/Hospital-Financial.html#Trends>

## Determining Public Demand for the Proposed Mandate

This subsection discusses public demand for the benefits SB 1322 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 CMM or service. 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 do not provide benefit coverage similar to what is available through group health insurance plans and policies that would be subject to the mandate.

## APPENDIX D INFORMATION 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 on behalf of the author's office in March 2018.

Nace DK, Nielsen M, Grundy P. Integrating Comprehensive Medication Management to Optimize Patient Outcomes. Available at: <https://www.pcpcc.org/sites/default/files/media/medmanagement.pdf>. Accessed March 23, 2018.

National Governors Association. The Expanding Role of Pharmacists in a Transformed Health Care System. Available at: <https://www.nga.org/files/live/sites/NGA/files/pdf/2015/1501TheExpandingRoleOfPharmacists.pdf>. Accessed March 23, 2018.

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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](http://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.

### Faculty Task Force

**Janet Coffman, MA, MPP, PhD**, *Vice Chair for Medical Effectiveness*, University of California, San Francisco

**Sara McMenamin, PhD**, *Vice Chair for Medical Effectiveness and Public Health*, University of California, San Diego

**Joy Melnikow, MD, MPH**, *Vice Chair for Public Health*, University of California, Davis

**Ninez Ponce, PhD**, *Co-Vice Chair for Cost*, University of California, Los Angeles

**Nadereh Pourat, PhD**, *Co-Vice Chair for Cost*, University of California, Los Angeles

**Sylvia Guendelman, PhD, LCSW**, University of California, Berkeley

**Marilyn Stebbins, PharmD**, University of California, San Francisco

### Task Force Contributors

**Danielle Casteel, MA**, University of California, San Diego

**Shana Charles, PhD, MPP**, University of California, Los Angeles, and California State University, Fullerton

**Shauna Durbin, MPH**, University of California, Davis

**Margaret Fix, MPH**, University of California, San Francisco

**Ronald Fong, MD, MPH**, University of California, Davis

**Brent Fulton, PhD**, University of California, Berkeley

**Barry Hill, MPH**, University of California, Davis

**Sarah Hiller, MA**, University of California, San Diego

**Naomi Hillery, MPH**, University of California, San Diego

**Jeffrey Hoch, PhD**, University of California, Davis

**Michelle Ko, MD, PhD**, University of California, Davis

**Gerald Kominski, PhD**, University of California, Los Angeles

**Elizabeth Magnan, MD, PhD**, University of California, Davis

**Ying-Ying Meng, PhD**, University of California, Los Angeles

**Jacqueline Miller, BA**, University of California, San Francisco

**Jack Needleman, PhD**, University of California, Los Angeles

**Dominique Ritley, MPH**, University of California, Davis  
**Dylan Roby, PhD**, University of California, Los Angeles, and  
University of Maryland, College Park  
**AJ Scheitler, EdD**, University of California, Los Angeles\*  
**Eleanor Bimla Schwarz, MD, MS**, University of California, Davis  
**Riti Shimkhada, PhD**, University of California, Los Angeles  
**Meghan Soulsby Weyrich, MPH**, University of California, Davis  
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**California Health Benefits Review Program**  
**MC 3116**  
**Berkeley, CA 94720-3116**  
[info@chbrp.org](mailto:info@chbrp.org)  
[www.chbrp.org](http://www.chbrp.org)  
(510) 664-5306

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Garen Corbett, MS  
Director

Please direct any questions concerning this document to: California Health Benefits Review Program; MC 3116; Berkeley, CA 94720-3116, [info@chbrp.org](mailto:info@chbrp.org), or [www.chbrp.org](http://www.chbrp.org)