California Dreamin':
Integrating Health Care, Containing Costs, and Financing Universal Coverage

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Authors' Bio

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Richard M. Scheffler is a Distinguished Professor Emeritus of Health Economics and Public Policy and Professor of the Graduate School at the School of Public Health and the Goldman School of Public Policy at the University of California, Berkeley. He is also the Director of the Petris Center for Healthcare Markets and Consumer Welfare endowed by the Office of the Attorney General for the State of California in 1999. Dr. Scheffler has been a visiting scholar at the World Bank, the Rockefeller Foundation in Bellagio, and the Institute of Medicine at the National Academy of Sciences and a consultant for the World Bank, the WHO, and the OECD. He has been a Fulbright Scholar at Pontifica Universidad Catolica de Chile in Santiago, Chile, and at Charles University, Prague, Czech Republic. He received the Carl A. Taube Award in 2004, honoring distinguished contributions to the field of mental health services research, American Public Health Association's Mental Health Section. He was awarded the Chair of Excellence Award at the Carlos III University of Madrid in 2013. In 2015, Dr. Scheffler was awarded the Gold Medal for Charles University in Prague for his longstanding and continued support of international scientific and educational collaboration. He was also awarded the Astor Visiting Fellowship by Oxford University in 2016. He is an elected member of the International Health Economists Association and National Academy of Social Insurance. In 2018, Dr. Scheffler was awarded the Berkeley Citation, among the highest honors the campus bestows on its community presented on behalf of the Chancellor to individuals whose contributions to UC Berkeley go beyond the call of duty and whose achievements exceed the standards of excellence in their fields.

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A leading health care scholar, Dr. Shortell and his colleagues have received numerous awards for their research examining the performance of integrated delivery systems; the organizational factors associated with quality and outcomes of care; and the factors associated with the adoption of evidence-based processes for treating patients with chronic illness. He is currently conducting research on patient engagement and the performance of Accountable Care Organizations (ACOs) and on Lean applications in healthcare. He is Co-PI on a five year AHRQ funded Center of Excellence award (with The Dartmouth Institute and the High Value Health Care Collaborative) to examine the adoption and implementation of innovations to create high performing health systems. In 2007, he was a Fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford. He is an elected member of the National Academy of Medicine and a recent recipient of the AHA/HRET TRUST Visionary Leadership Award.

Contents

Abstract

Building on California's distinct integrated health system we show how expanding it and using risk adjusted capitation payments are able to reduce spending and improve quality. Moreover, this approach puts California on a path that will achieve universal coverage. Finally, we provide a new plan to finance universal coverage in California.

1. Introduction

Healthcare coverage for all at an affordable cost and high quality is a continuing challenge for policymakers in the US. For California, the fifth largest economy in the world, universal healthcare coverage is an achievable goal. Today, almost three million Californians are uninsured and healthcare costs have continued to escalate rapidly. California now faces the challenge of mapping a pathway towards healthcare delivery that can contain costs, integrate care and achieve universal coverage[3]. California is leading the country in delivering care using a risk-based integrated delivery model. Expanding this model would help achieve the triple aim of better care and better health at reduced cost.

The main goal of this paper is to propose a design of a financing plan to raise the revenue required to finance universal coverage in California. This coverage would be for the uninsured population, including undocumented persons. California's integrated care delivery model and its expansion are crucial to the successful implementation of this financing plan.

To demonstrate how universal coverage can be financed, we have organized the paper into the following five sections. Section 2 describes the key characteristics of California's healthcare system in terms of utilization, expenditure, integrated delivery model, and health disparities. Section 3 lays out the main causes of growth in healthcare expenditure, including rising prices, high market concentration and leading cost-driving conditions. Section 4 expands on the integrated delivery model and its characteristics. Section 5 proposes novel sources of funding to finance universal coverage, and Section 6 concludes with an implementation plan outline for expanding the capitated integrated model to achieve universal coverage.

2. Key Characteristics of California's Healthcare System

There are four important characteristics that distinguish California's healthcare system. First, utilization of health services has historically been lower in California than the US. Second, spending patterns by public and private insurance coverage differ from the rest of the country – Medicaid spending in California is dramatically lower than the national average, Medicare

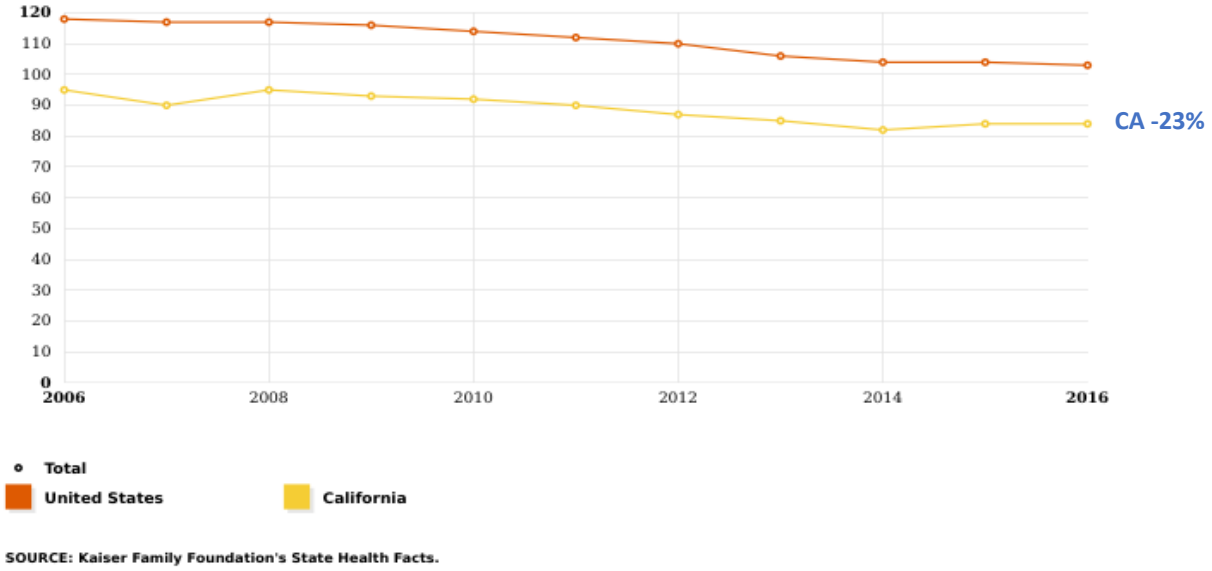
[3] A statewide poll of California residents conducted jointly by CHCF and KFF identified that "making sure all Californians have access to health coverage" (45% respondents say it is "extremely important") and "reducing what people pay for their health care" (41%) are among Californians' top priorities in healthcare.

spending is higher, and spending on commercial plans is at par with the national average. Much of the lower Medicaid spending in California is due to the high percentage (83%) of managed care enrollees in the program for whom payments are made on a capitated, per-member per-month basis. Thirdly, California has the most integrated and capitated healthcare system in the US. Lastly, disparities in the prevalence of chronic conditions and health behaviors are particularly pronounced in California, in part because of its diverse population and unequal distribution of income[4]. We now describe these characteristics in greater detail.

Lower Utilization

California has lower average utilization rates on virtually every measure studied as compared to the US. Figure 1 shows hospital admissions per 1,000 population from 2006 to 2016 in California and the US. Over the last decade, both California and US hospital admissions per 1,000 population have been decreasing. Throughout the period, California has been significantly below the US. As of 2016, California hospital admissions per 1,000 population was 84 – 23% below the US average of 103.

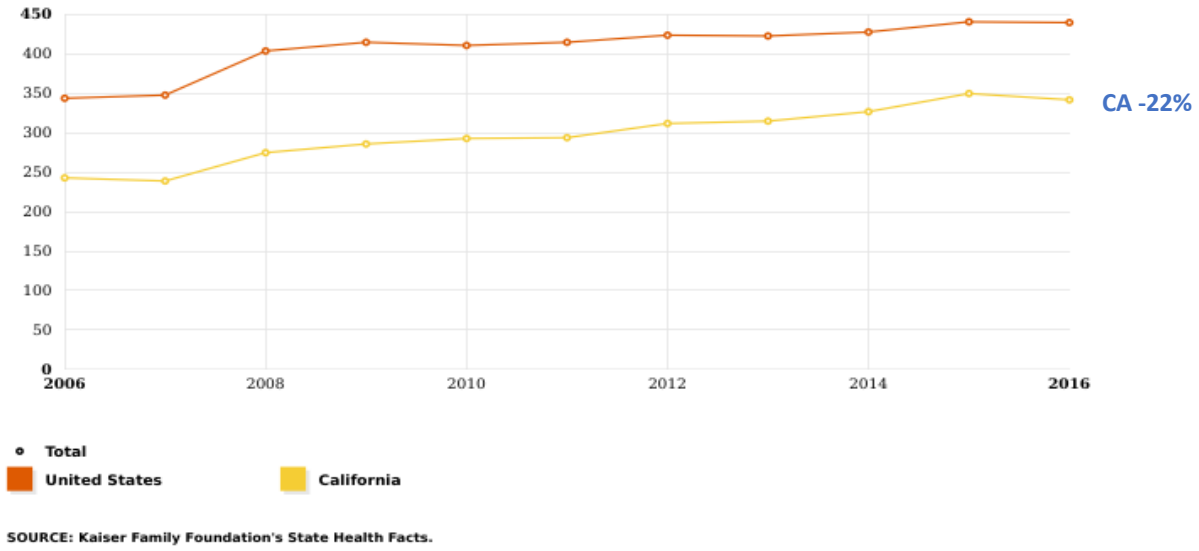
Figure 1. Hospital Admissions per 1,000 population, 2006-2016



[4] California's Gini coefficient, a measure of equality in income in a society, is 0.507 where 1 represents maximum inequality. This is higher than the national average of 0.485. California is the eighth most unequal State in the US with respect to household income. (Source: Data USA, https://datausa.io/profile/geo/california/#economy)

Figure 2 shows a similar pattern for emergency room visits per 1,000 population – the upward trend in California follows that of the US, but at a significantly lower level. As of 2016, California emergency room visits per 1,000 population was 342 – 22% below the US average of 440.

Figure 2. Hospital Emergency Room Visits per 1,000 population, 2006-2016



Other measures of utilization tell a similar story – California utilization (per 1,000 population) is lower than the US. How California and the US compare across five measures of utilization (per 1,000 population) is as follows[5].

- California Hospital Admissions 23% below US
- California Hospital Emergency Room Visits 22% below US
- California Hospital Outpatient Visits 36% below US
- California Office-Based Outpatient Visits 11% below US
- California Prescription Fills and Refills 31% below US

These measures of utilization are evidence that California has had a consistently lower utilization rate than the US over the past decade[6].

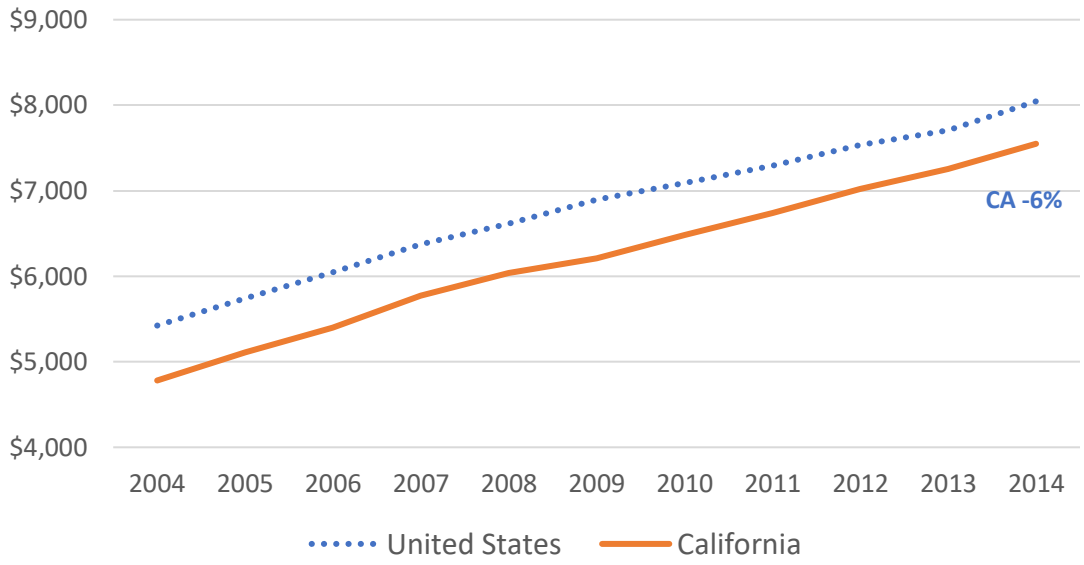
[5] The graphs for the remaining measures are presented in Figures A1-A3 in Appendix A

[6] The distribution of demographic groups that have the greatest need and utilization of healthcare – under 18 years and over 65 years – is similar for California and the US at 23% and 14%, respectively.

Expenditures by Insurance Coverage

Per capita healthcare spending in California is below the US average. Figure 3 shows per capita healthcare expenditures in the US from 2004 to 2014. In 2014, California per capita medical expenditure was $7,549 – 6% below the US average of $8,045.

Figure 3. Per Capita Healthcare Expenditures, 2004-2014

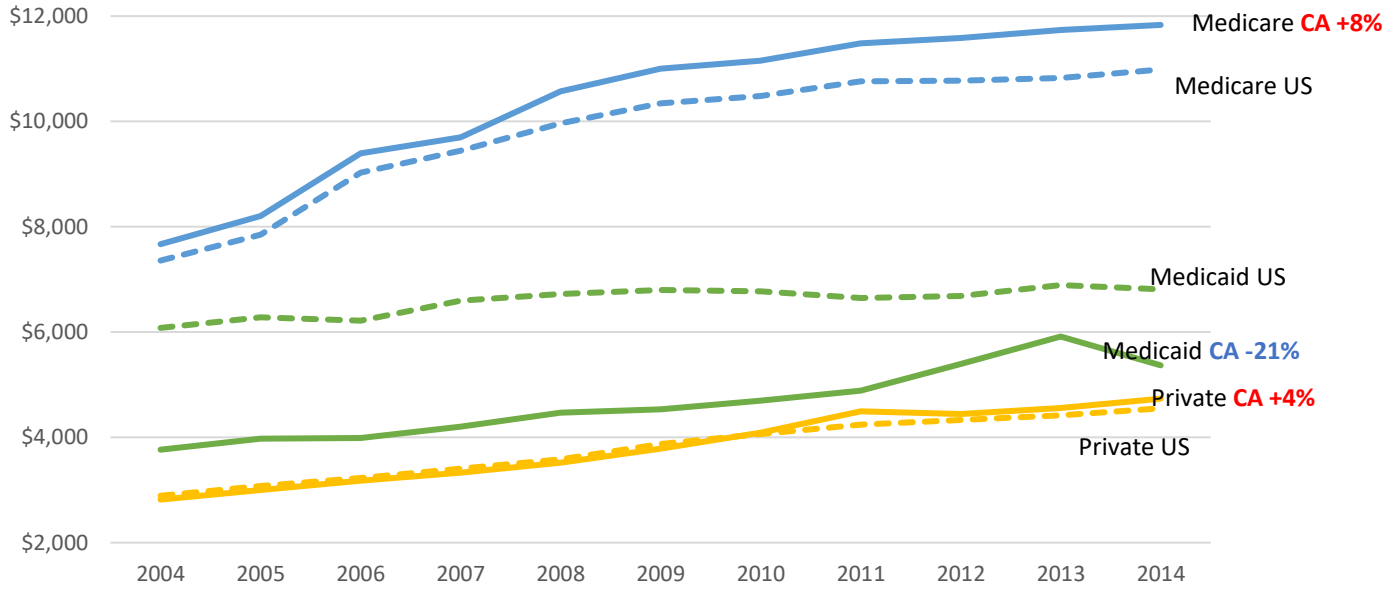


Source: Authors' analysis of CMS State Health Expenditure Accounts

As Figure 3 makes clear, per capita healthcare spending is increasing rapidly in both California and the US. In 2004, California had the 8th lowest healthcare spending per capita among states at $4,781. By 2014, California had the 15th lowest health spending per capita among states at $7,549 – an increase of 58% from 2004 to 2014. Some of this increase in spending can be attributed to increased enrollment in health plans through the state-based health insurance exchange, Covered California. From 2010 to 2014, the American Community Survey estimated that 3.5 million Californians gained insurance coverage, which led to the uninsured rate decreasing from 18.5% to 12.4% (or –33%) (US Census Bureau 2017b). California was also one of 33 states that expanded Medicaid resulting in increased coverage.

However, Figure 3 masks the large differences in healthcare spending by insurance coverage (private insurance, Medicare, Medicaid) in California and the US. Figure 4 below presents these differences in greater detail.

Figure 4. Per Enrollee Healthcare Spending by Insurance Coverage, 2004-2014



Source: Authors' analysis of CMS State Health Expenditure Accounts

Note: The percent difference is between California and the national average for each of the three categories of healthcare spending

In Figure 4, California per enrollee healthcare spending is represented by solid lines, while US per enrollee health spending is represented by dotted lines. The top two lines in the figure represent Medicare per enrollee spending. Medicare per enrollee spending has increased rapidly in both California (from $7,669 in 2004 to $11,833 in 2014 – an increase of 54%) and the US (from $7,358 in 2004 to $10,986 in 2014 – an increase of 49%). In 2014, Medicare per enrollee spending was 8% higher than the US average ($11,833 vs. $10,986).

Medicaid is the biggest difference between California and the US in terms of spending by insurance coverage. Medicaid per enrollee spending is represented by the two middle lines in Figure 4. Medicaid per enrollee spending has grown much more rapidly in California than the rest of the country (from $3,766 in 2004 to $5,368 in 2014 in California – an increase of 43%; from $6,079 in 2004 to $6,815 in 2014 in the US – an increase of 12%). Despite the closing of the gap between California and the US, Medicaid per enrollee spending was still 21% below the US average in 2014 ($5,368 vs. $6,815).

The bottom two lines in Figure 4 represent per enrollee private insurance spending in California and the US. The levels and trends of spending have been similar for California and the US when it comes to private insurance. In 2004, per enrollee private insurance spending was $2,818 in California and $2,891 in the US. By 2014, per enrollee private insurance spending was

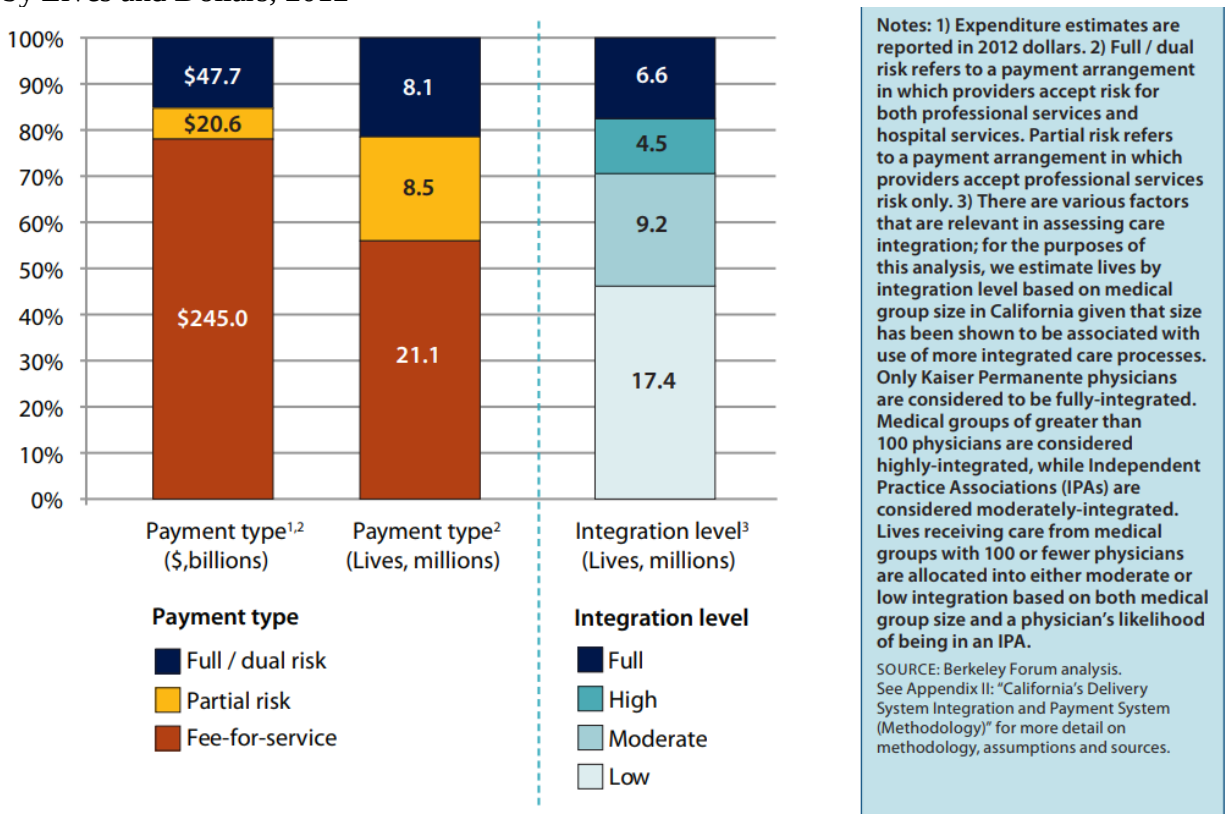
$4,735 in California and $4,551 in the US – an increase of 68% and 57% for California and the US, respectively.

In sum, California spends more than the national average on Medicare patients, dramatically less than the national average on Medicaid patients, and is roughly at par with the national average on commercial plan expenditure.

Integrated Delivery Model

The 2013 Berkeley Forum Report "A New Vision for California's Healthcare System: Integrated Care with Aligned Financial Incentives" [1] examined the current state of payment methods and integration in California's healthcare system as shown in Figure 5. The data are based on estimates and assumptions regarding Health Maintenance Organization (HMO) penetration, capitation arrangements, medical group size and physician participation rates in "virtually integrated" Independent Practice Associations.

Figure 5: Breakdown of Payment Mechanisms and Delivery System Integration in California, by Lives and Dollars, 2012



Notes: 1) Expenditure estimates are reported in 2012 dollars. 2) Full / dual risk refers to a payment arrangement in which providers accept risk for both professional services and hospital services. Partial risk refers to a payment arrangement in which providers accept professional services risk only. 3) There are various factors that are relevant in assessing care integration; for the purposes of this analysis, we estimate lives by integration level based on medical group size in California given that size has been shown to be associated with use of more integrated care processes. Only Kaiser Permanente physicians are considered to be fully-integrated. Medical groups of greater than 100 physicians are considered highly-integrated, while Independent Practice Associations (IPAs) are considered moderately-integrated. Lives receiving care from medical groups with 100 or fewer physicians are allocated into either moderate or low integration based on both medical group size and a physician's likelihood of being in an IPA.

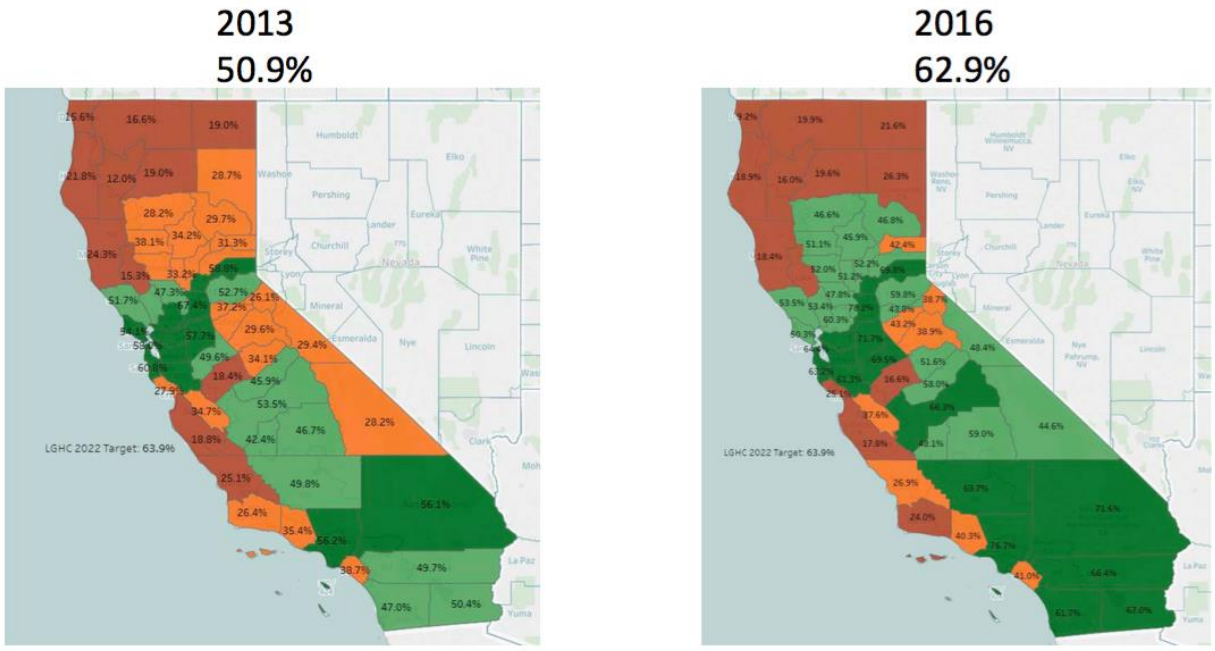
SOURCE: Berkeley Forum analysis. See Appendix II: "California's Delivery System Integration and Payment System (Methodology)" for more detail on methodology, assumptions and sources.

Source: Berkeley Healthcare Forum Report, 2013 http://berkeleyhealthcareforum.berkeley.edu/wp-content/uploads/A-New-Vision-for-California%E2%80%99s-Healthcare-System.pdf

The Forum emphasized that California is well-positioned to shift towards a more coordinated, cost-effective healthcare system given its high rate of HMO enrollment and its highly organized medical groups and health systems.

Recent estimates from Let's Get Healthy California show that the percentage of Californians who receive care in an integrated system, defined as an HMO that is tracked by the Department of Managed Health Care, has increased from about 51% in 2013 to almost 63% in 2016 (see Figure 6). In Section 4 we discuss the performance of the integrated care delivery model and how it might be expanded in the future.

Figure 6: Percentage of Californians Receiving Care in an Integrated System



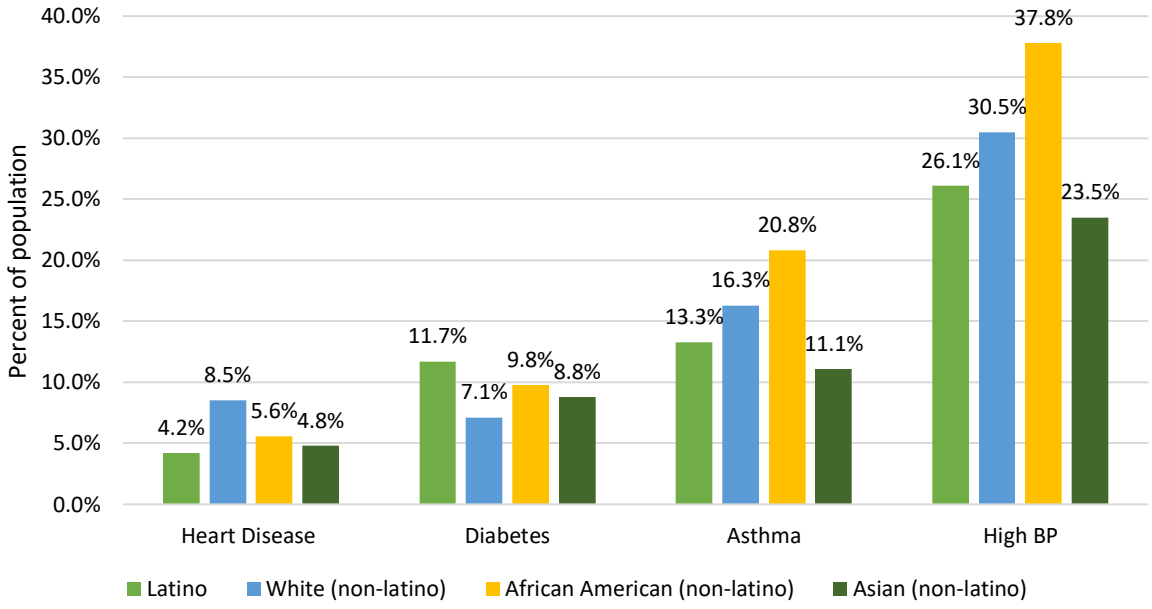
Source: Let's Get Healthy California https://letsgethealthy.ca.gov/goals/lowering-the-cost-of-care/receiving-care-in-an-integrated-system/

Health Disparities

Another distinguishing feature of California is its distinct demographic constitution. The state's population is 39.1% Hispanic, 37.2% White, 15.2% Asian, and 6.5% African American as per data from the Census Bureau. This population diversity entails largescale disparities in the prevalence of chronic conditions and health behaviors across ethnic, income and geographic lines.

Figure 7 shows the prevalence of four chronic conditions – heart disease, diabetes, asthma, and high blood pressure – for adults by ethnicity in California. The prevalence of heart disease is highest among white populations while diabetes is most common among Latinos and African-Americans. Turning to asthma, over 20% or 1 out of 5 African Americans have asthma. Lastly, the prevalence of high blood pressure is staggering at 37.8% of African Americans.

Figure 7. Chronic Conditions by Ethnicity, 2016



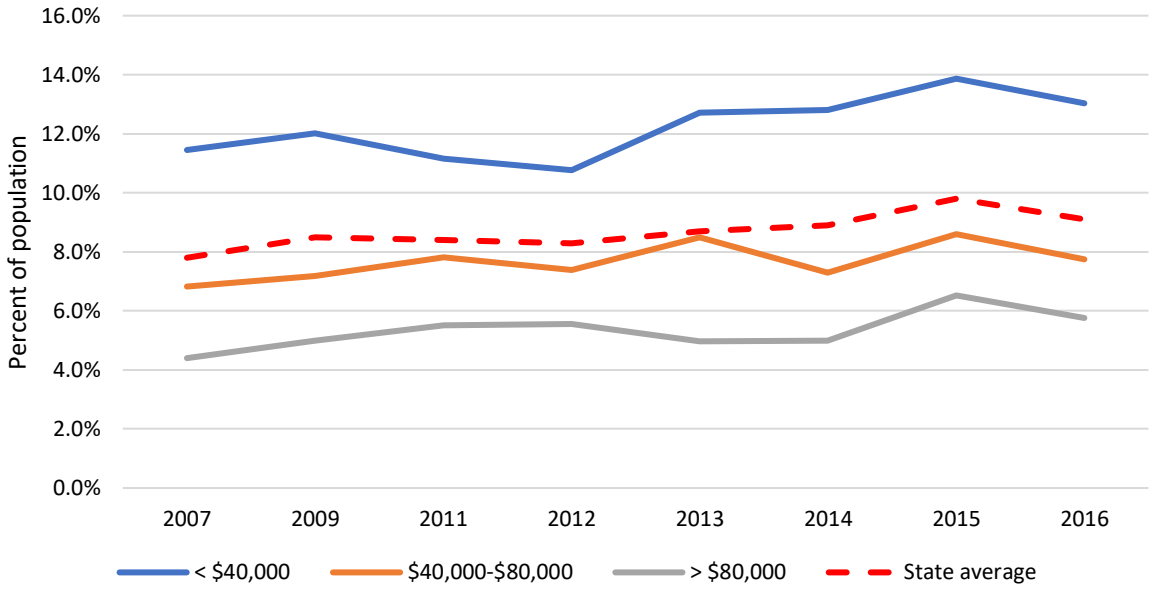
Source: Authors' analysis of California Health Interview Survey data

There are also large income inequalities within California. The State's income inequality index is the eighth highest in the country, represented by a Gini coefficient of 0.507 in 2016, where a score of 1 represents the maximum inequality. The Gini coefficient has increased from

the previous year (0.504) indicating that income distribution in California has become more uneven.

There is a distinct income gradient in the prevalence of chronic conditions, such as diabetes, heart disease and high blood pressure, and health behaviors such as obesity and smoking. In Figure 8, the 2016 prevalence rate of diabetes for households with an annual income below $40,000 was 13% as compared to 5.8% for households with an annual income over $80,000.

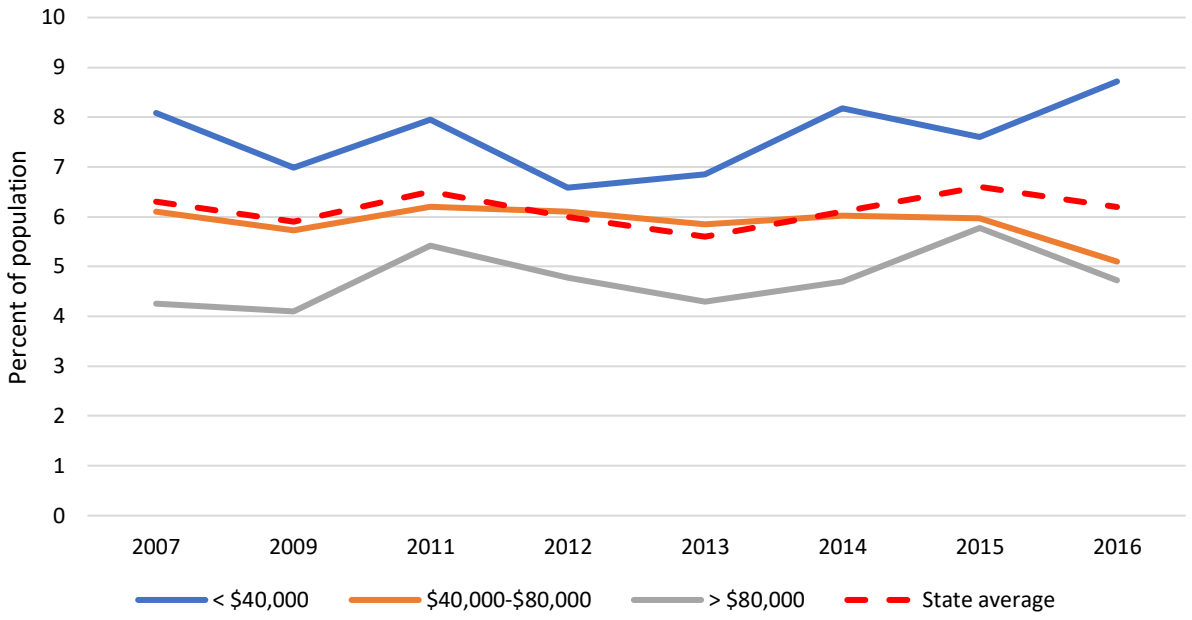
Figure 8. Prevalence of Diabetes by Annual Household Income, 2007-2016



Source: Authors' analysis of California Health Interview Survey data

Similarly, Figure 9 shows that the prevalence rate of heart disease is 8.7% for households with an annual income below $40,000 as compared to 4.7% for households with an annual income over $80,000 in 2016. It is also notable that although the prevalence of, and deaths from, heart disease are decreasing overall, the rates have spiked up for lower income households.

Figure 9. Prevalence of Heart Disease by Annual Household Income, 2007-2016

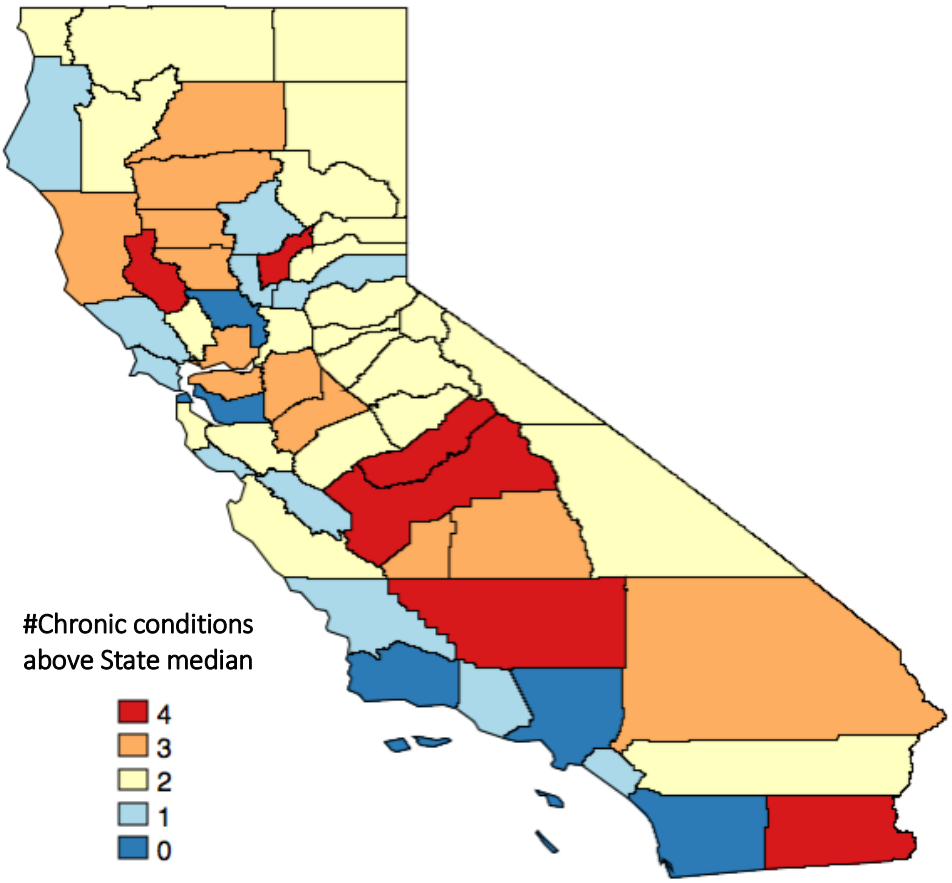


Source: Authors' analysis of California Health Interview Survey data

These findings are consistent across all the health conditions and behaviors studied. The data shows that prevalence rates for diabetes, heart disease, psychological distress, and smoking among lowest income groups (<$40,000) are almost double that for the highest income groups (>$80,000). Similarly, prevalence rates for high blood pressure and obesity are higher by about 50% for lowest income groups (<$40,000) as compared to the highest income groups (>$80,000).

The United Health Foundation's 2017 America's Health Rankings® Annual Report ranks California as seventeenth nationally on health outcomes – a decrease in its ranking as compared to previous years. This geographic difference in health conditions and behaviors is pronounced within the State as well. Figure 10 shows our analysis of the prevalence of four major chronic conditions – diabetes, heart disease, asthma, and high blood pressure – by county. We assigned one index point if the county's prevalence rate for the condition is above the State median value. A county can have a maximum index value of 4 if it is higher than the State median on all four metrics, and a minimum value of 0 if it is lower than the State median on all metrics. We then created a heat map (Figure 10) based on the index points assigned to each county. The counties with the worst health record, depicted in red, are Madera, Fresno, Imperial, Kern, Lake and Yuba counties.

Figure 10. Prevalence of Chronic Conditions by County, 2016



Source: Authors' analysis of California Health Interview Survey data
Notes: Each county is assigned scores based on prevalence of four chronic conditions: diabetes, heart disease, asthma, and high blood pressure. Counties are assigned one point if the prevalence rate of the condition is higher than the state median value. Higher scores indicate worse health outcomes. The scores can also be interpreted as a thermal gradient, with the cool colors indicating counties that have better health outcomes on these four measures and the hotter colors indicating counties that have worse health outcomes.

3. It's the Prices, Stupid

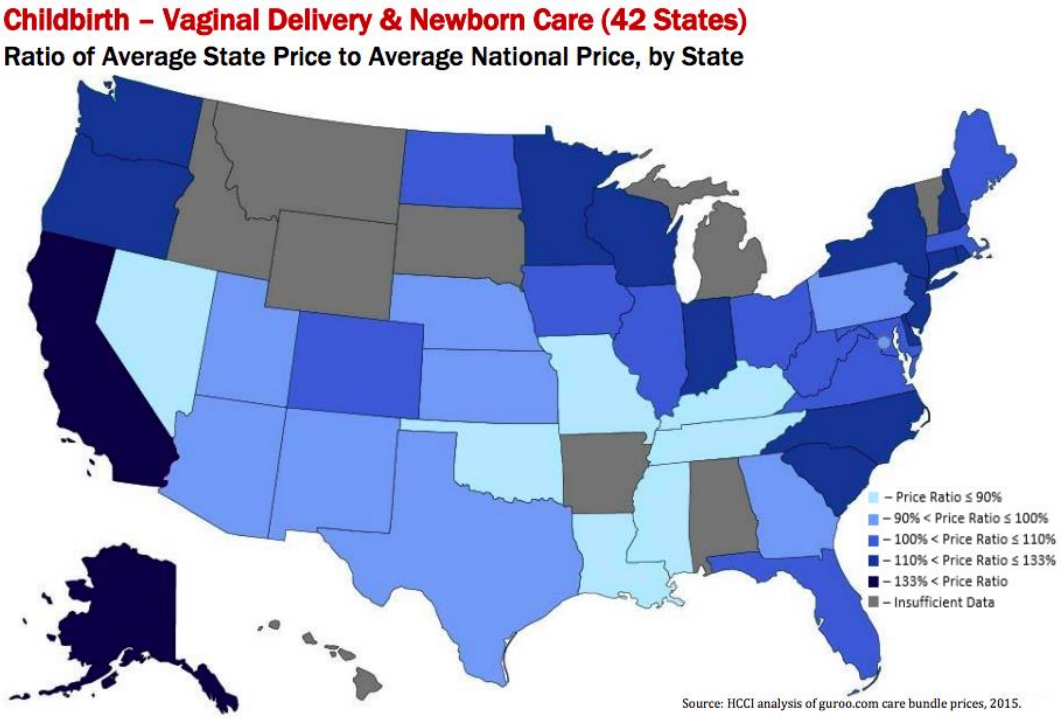
A seminal paper by Anderson, Reinhardt, Hussey, and Petrosyan (2003) titled "It's The Prices, Stupid: Why The United States Is So Different From Other Countries" found that the healthcare bill of the United States was substantially higher than that of other OECD countries[2]. The study, supported by a recently updated analysis, attributed high spending to higher prices for healthcare goods and services in the US, noting that utilization on most measures is lower than the median utilization of most other OECD countries[3]. This pattern of high average expenditure despite lower utilization is mirrored in California as compared to the rest of the country. Higher prices in California explain much of this difference in expenditure. In this section, we explore California's healthcare pricing differentials, market concentration in the State, and the top ten most expensive medical conditions that account for over half of total healthcare spending.

Using a top down approach, we looked at price differentials at the census division level, California state level, and for specific MSAs in California. The Pacific census division, which includes California, experiences higher healthcare prices than the national average[4]. Mean inpatient charges per stay for all stays (including Medicaid, Medicare and private plans) in the region are 137% of the national average. This ratio reduces to 109% after adjusting for area wages but continues to be higher than the national average.

The Health Care Cost Institute (HCCI) used 2015 data to compare prices of select conditions across States[7]. They found that over 60% of the 240 healthcare service bundles studied are more expensive in California as compared to the average national prices[5]. Figure 11 shows that the cost of having a baby in California is over 33% higher than the national average -- the highest in the country. Figure 12 shows the same for knee replacement, which is 10%-33% more expensive in California as compared to the national average. Finally, the average cost per inpatient day was highest in California's nonprofit hospitals ($3,533) as compared to other States[6].

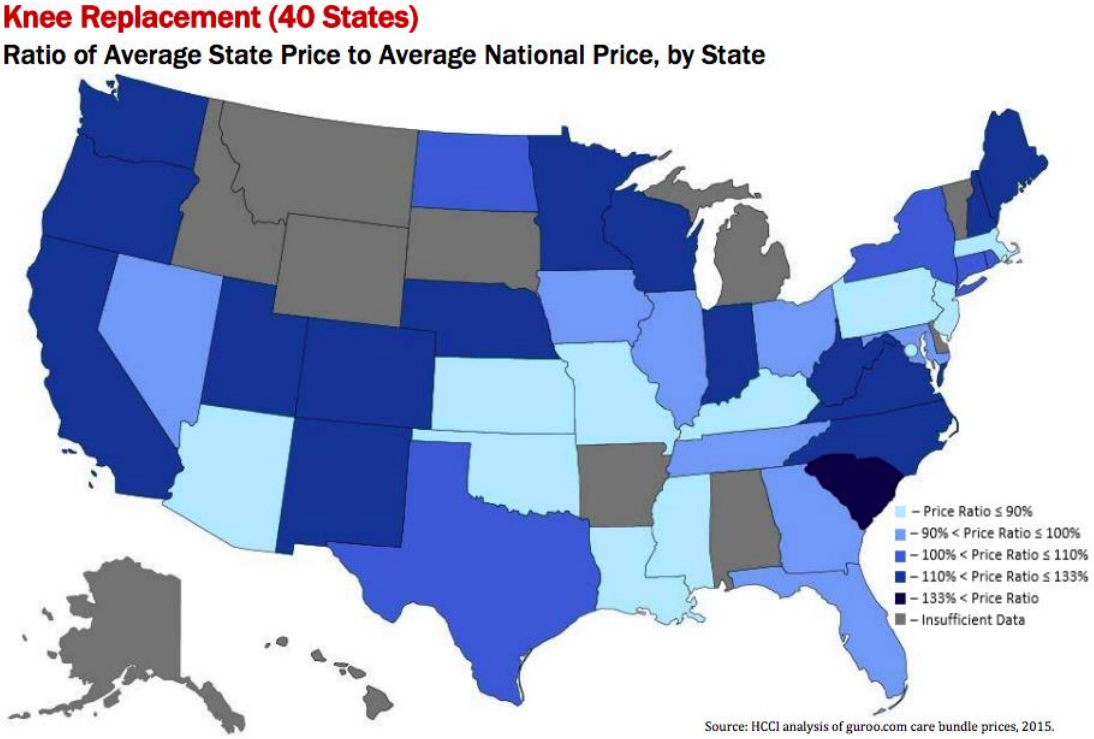
[7] HCCI noted that no adjustments (demographic, risk, wage, etc.) or normalizations were applied to the data to account for differences in local price levels.

Figure 11: Childbirth price ratios by State, 2015



Source: HCCI analysis of guroo.com care bundle prices, 2015

Figure 12: Knee Replacement price ratios by State, 2015



Source: HCCI analysis of guroo.com care bundle prices, 2015

Price differences exist within California as well. As per the same HCCI analysis, overall healthcare prices in San Francisco and San Jose MSAs are greater than the national average by 49% and 65%, respectively. In Southern California, Los Angeles and San Diego MSAs have overall healthcare prices that are greater than the national average by 11% and 12% respectively. Inpatient prices are 77% higher in San Francisco and 28% higher in Los Angeles as compared to the national average. Outpatient prices were similarly higher by 51% and 30% for San Francisco and Los Angeles, respectively.

We also looked at the actual payments for three of the most common Medicare Severity Diagnosis Related Groups (MS-DRGs)[8] – vaginal delivery, cesarean section, and major joint replacement or reattachment – in California and the US from 2012-2016 in Table 1. In 2016, the average total payment for vaginal delivery in California was around $11,000 – 56% higher than the US average of around $7,000. Similarly, the average total payments for cesarean section and major joint replacement or reattachment were higher by 65% and 24%, respectively, in California as compared to the US[9].

Table 1: Average Total Payments in California and US by Diagnosis Related Group (DRG)

Vaginal delivery (DRG 775)		
Year	California	US
2012	$9,377.11	$5,498.38
2013	$9,921.09	$6,124.67
2014	$10,401.41	$6,333.08
2015	$10,106.00	$6,583.39
2016	$11,090.55	$7,095.24
Cesarean section (DRG 766)		
Year	California	U.S.

[8] Each of the Medicare Severity Diagnosis Related Groups (MS-DRGs) is defined by a particular set of patient attributes which include principal diagnosis, specific secondary diagnoses, procedures, sex and discharge status

[9] As an additional analysis, we adjusted payments by household income for the three procedure groups. We found that the differences declined somewhat. After adjusting, total payments for vaginal delivery, cesarean section, and major joint replacement or reattachment in 2016 were higher by 33%, 40%, and 5% respectively in California as compared to the US.
The adjustment was done by dividing total average payments by annual median household incomes in both California and the United States. As an example, in 2016 the annual average payment for a vaginal delivery in California was 16.4% of the California annual median income. For the United States, a vaginal delivery was 12.3% of the annual median income. Thus, the difference is 33% (=(16.4-12.3)/12.3).

2012	$13,897.15	$8,329.61
2013	$14,472.46	$9,199.08
2014	$15,149.05	$9,283.44
2015	$15,031.78	$9,426.41
2016	$16,001.07	$9,693.14
Major joint replacement or reattachment (DRG 470)		
Year	California	U.S.
2012	$28,546.17	$24,443.67
2013	$29,709.19	$25,800.07
2014	$30,625.07	$25,948.80
2015	$32,285.47	$26,472.55
2016	$33,365.95	$26,997.84

Source: Authors' analysis of Truven Health MarketScan® Research Databases
Notes: Tables show total fee for service payments made to providers for admissions to acute care hospitals. Codes correspond to the Medicare Severity diagnosis-related group (MS-DRG) assigned to each admission. Admissions with complicating diagnoses are excluded. The top 1 percent of payments within each cell are excluded from the sample.
This analysis was supported by a grant from the California Health Care Foundation (Grant No. 20708)

Market Concentration

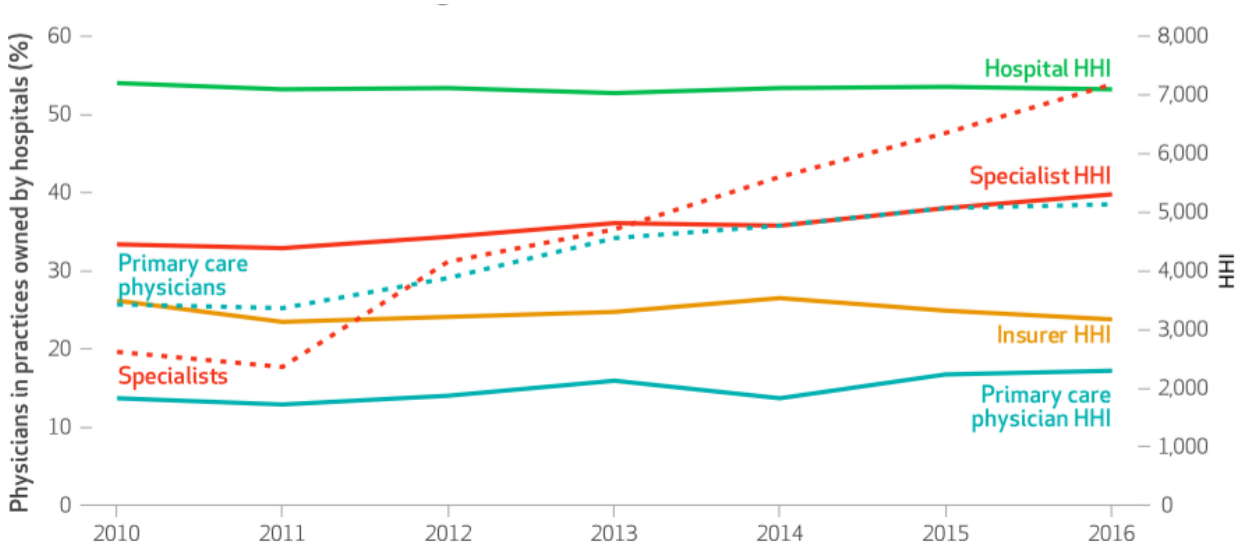
Following a national trend[7], insurer and provider markets in California are becoming more concentrated[8, 9]. Highly concentrated markets have been shown to be associated with higher healthcare costs for consumers[10-15][10]. A Petris Center Report entitled "Consolidation in California's Health Care Market 2010-2016: Impact on Prices and ACA Premiums" found that healthcare prices cost up to 30% more in Northern California than in Southern California, even after adjusting for higher cost of living and wages[17]. Further, studies have shown that higher hospital market concentration leads to fewer Accountable Care Organizations (ACOs) entering the market and lower enrollment[18]. The innovative healthcare delivery model of ACOs is discussed in detail in Section 5.

[10] This was reported in a recent New York Times article which cited the Petris Center's research in highlighting that "*mergers have essentially banished competition and raised prices for hospital admissions in most cases*" [Reference: 16. Abelson, R., *When Hospitals Merge to Save Money, Patients Often Pay More*, in *The New York Times*. 2018.]

Concentration Trends in California

California has heavily concentrated hospital, physician, and health insurance markets. Scheffler et al (2018) found that market concentration of hospitals, insurers, and specialist physicians has been consistently high over a six-year time period (see Figure 13). They found dramatic increases in vertical integration, with the percentage of primary care physicians in practices owned by hospitals increasing from 26 percent to 38 percent, and specialists in such practices increasing from 20 percent to 54 percent from 2010 to 2016 [13].

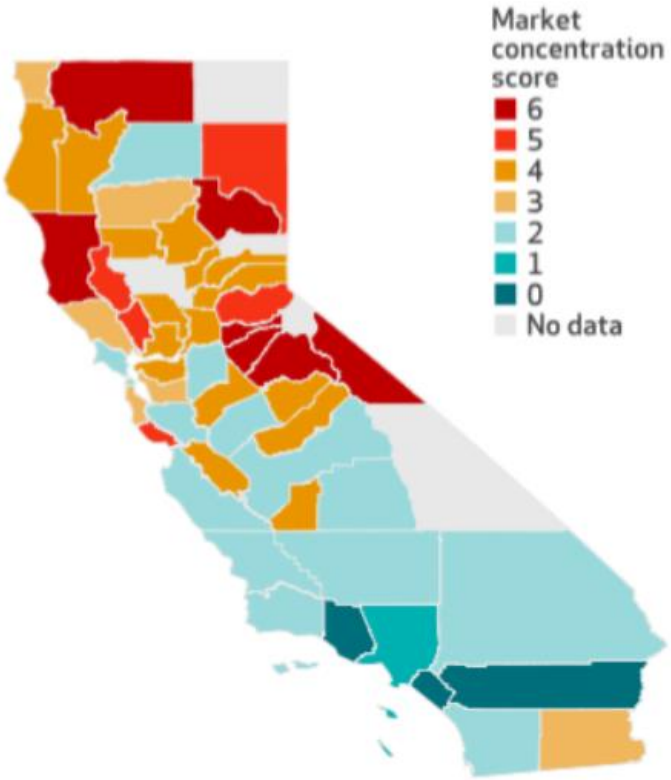
Figure 13: Horizontal Concentration and Vertical Integration in selected California counties, 2010-2016



Source: Scheffler, et al (2018) *"Consolidation Trends In California's HealthCare System: Impacts On ACA Premiums And Outpatient Visit Prices."* Health Affairs
Notes: The Herfindahl-Hirschman Index (HHI), represented on the secondary vertical axis, is a measure of horizontal market concentration. The HHI is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers.

The study also traces the variation in concentration by county in California, as shown in Figure 14. The heat map of California's counties shows market concentration on six measures – horizontal market concentration of hospitals, insurers, primary care physicians, and specialist physicians (assigned score if concentration higher than 2,500 HHI points) and vertical integration of primary care physicians and specialist physicians working in practices owned by hospitals or health systems (assigned score if integration is greater than State median). Seven counties have highly concentrated markets on all six measures, and five counties are highly concentrated on five of six measures (See Map A1 in Appendix A for a map of California counties to identify the county names referred).

Figure 14: Geographical variation in concentration 'hotspots' across CA counties, 2016



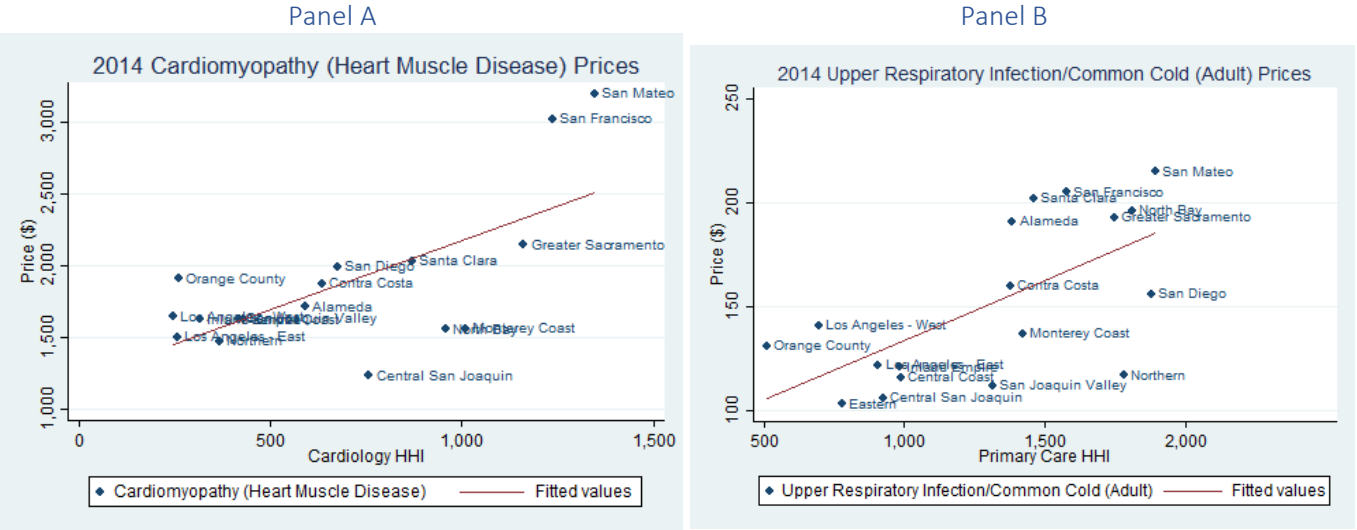
Source: Scheffler, et al (2018) *"Consolidation Trends In California's HealthCare System: Impacts On ACA Premiums And Outpatient Visit Prices."* Health Affairs
Notes: Each county has a market concentration score based on six measures: the average Herfindahl-Hirschman Indices (HHIs) for hospitals, insurers, primary care physicians, and specialists; and the percentages of primary care physicians and specialists working in practices owned by hospitals. Counties are assigned one point for each HHI greater than 2,500 and for the percentage of primary care and specialist ownership greater than 33.23 percent and 32.35 percent, respectively (the medians for the period 2010–16). Higher scores indicate greater market concentration. The scores can also be interpreted as a thermal gradient, with the cool colors indicating counties that warrant lower concern and scrutiny by regulators and the hotter colors indicating counties that warrant increasingly more.

How does concentration affect prices?

In a Petris Center report "Consolidation in California's Health Care Market 2010-2016: Impact on Prices and ACA Premiums" published in 2018, the correlation between specific prices of services and vertical and horizontal concentration was examined[17]. These associations are shown in Figures 15 and 16 for cardiomyopathy and common cold. In Panel A of Figure 15, as we move from Alameda county with a cardiologist concentration of around 600 HHI points to Greater Sacramento county with concentration of around 1200 points, the prices of cardiomyopathy increase from $1,750 to $2,100 demonstrating a positive correlation between concentration and prices. This is reiterated in Panel B for common cold, where East Los Angeles

county's primary care physician concentration of 900 points is associated with a comparatively lower price of $125 as compared to Contra Costa county where primary care physician concentration of around 1400 points is associated with a price of $160.

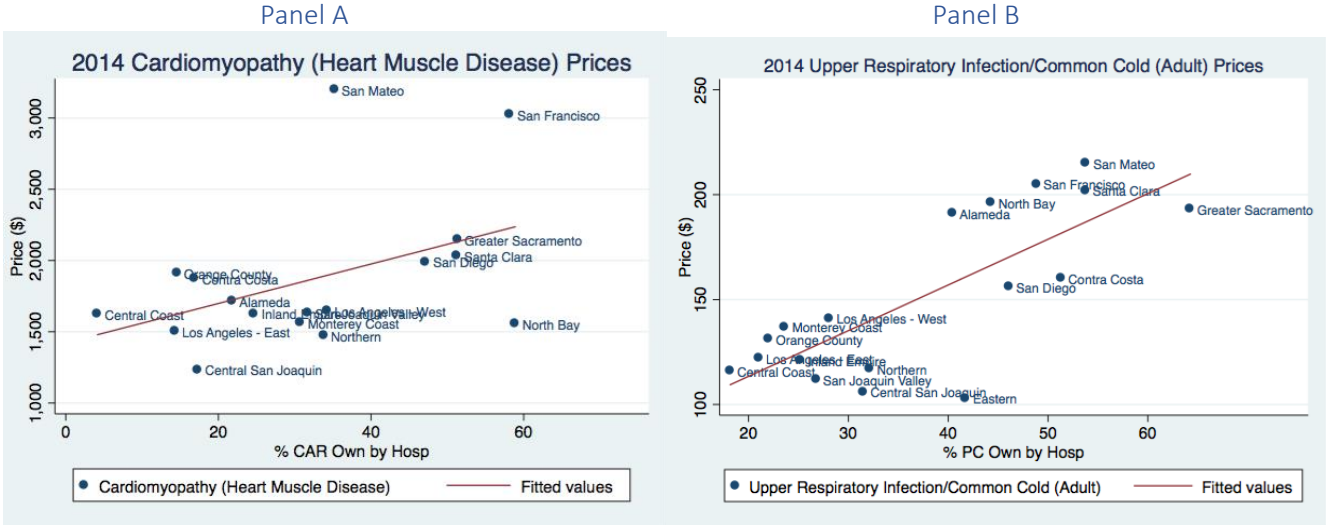
Figure 15: Correlations between horizontal concentration and prices for select conditions



Source: "Consolidation in California's Health Care Market 2010-2016: Impact on Prices and ACA Premiums", Petris Center, 2018

A similar positive association is evident between prices and vertical integration (percent of specialists/physicians working for a hospital or health system). Panel A of Figure 16 shows that the vertical concentration of cardiologists is around 20% in Alameda county and around 50% for Greater Sacramento, which is associated with cardiomyopathy prices of $1,750 and $2,100 respectively. The same positive association is visible for common cold prices and vertical integration in Panel B.

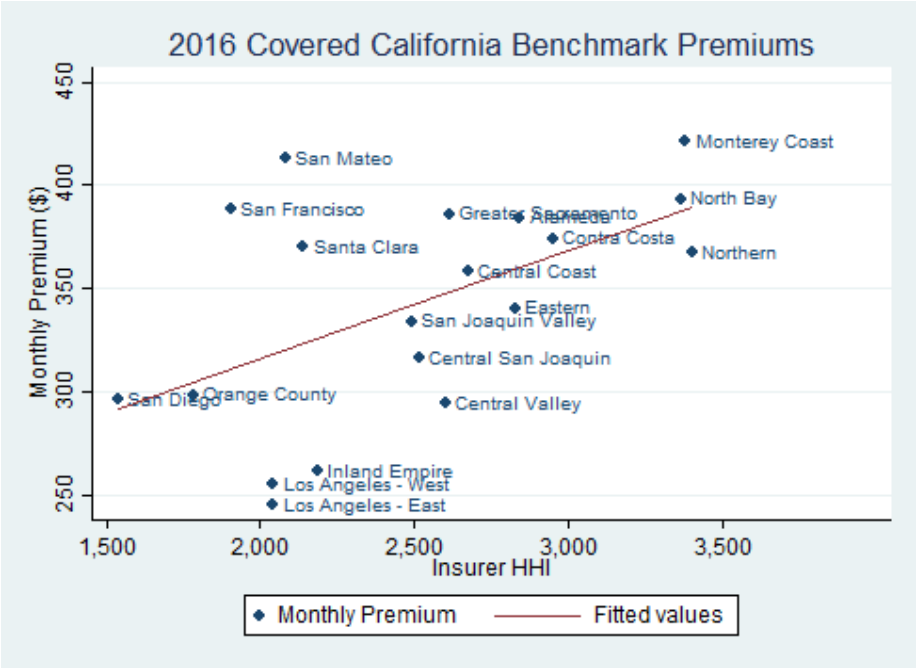
Figure 16: Correlations between vertical integration and prices for select conditions



Source: "Consolidation in California's Health Care Market 2010-2016: Impact on Prices and ACA Premiums", Petris Center, 2018

There is also a significantly positive relationship between insurer concentration and premiums. Figure 17 shows that as we move from Orange county's insurer concentration of around 1,750 points to Contra Costa county's concentration of around 3,000 points, the monthly premium increases from $300 to $375.

Figure 17: Covered California Benchmark Premium and Insurer HHI Correlation



Source: "Consolidation in California's Health Care Market 2010-2016: Impact on Prices and ACA Premiums", Petris Center, 2018

In moderately and highly concentrated markets, average inpatient procedures prices were 79% higher than the prices in low concentration markets[11]. Likewise, average outpatient physician prices ranged from 35% to 63% higher (depending on the physician specialty) in moderately and highly concentrated markets. In Northern California – which is considerably more concentrated than Southern California across all measures of healthcare market concentration that were analyzed – inpatient prices were 70% higher, outpatient prices were 17-55% higher (depending on the specialty of physician performing the procedure), and ACA premiums were 35% higher than they were in Southern California. Even after adjusting for input

[11] The FTC DOJ horizontal merger guidelines define market concentration in the following way: HHI < 1,500: unconcentrated market; 1,500 ≤ HHI ≤ 2,500: moderately concentrated market; HHI > 2,500: highly concentrated market.

cost differences (i.e. wages) between Northern California and Southern California, procedure prices were still often 20-30% higher in Northern California than Southern California.

Combined vertical and horizontal concentration

Scheffler et al (2018) found that there is an interactive effect between horizontal concentration and vertical integration on prices. This implies that the increase in prices and premiums associated with an increase in horizontal market concentration is greater in markets which have a high degree of vertical integration[13]. For example, if hospital concentration doubles from 3,500 to 7,000 HHI points, then the average monthly ACA premium for a forty-year-old person will increase by 11% more in a highly vertically concentrated market where 55% of physicians are in practices owned by hospitals as compared to 35%.

See Table A1 in Appendix A for a list of other studies that confirm the relationship between market concentration and prices, premiums, and quality.

Top ten most expensive medical conditions

We now turn to identifying the ten medical conditions which contribute to over 50% of medical expenditures in California. For this analysis, we used data from the Medical Expenditures Panel Survey (MEPS), an annual survey conducted by the Agency for Healthcare Research and Quality (AHRQ) which is designed to provide estimates of healthcare use, spending, sources of payment, and insurance coverage for the U.S. civilian noninstitutionalized population. In 2015, 13,587 families (representing 33,259 people) were surveyed.

Using state post-stratified weights, we estimate California medical expenditures in MEPS to be $151 billion in 2014-2015.[12,13] Of this $151 billion, $78 billion (or 52%) is associated with ten medical conditions (see Table 1). Cancer and heart disease, both at nearly $12 billion, were 1

[12] We pooled two years of MEPS data to produce more precise estimates. For example, 2014-2015 California medical expenditures is the average of 2014 California medical expenditures and 2015 California medical expenditures in MEPS.

[13] Total health spending in California was $292 billion in 2014 according to CMS's State Health Expenditures Accounts (https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsStateHealthAccountsResidence.html). Estimates of medical expenditures in MEPS are lower than the national and state estimates of health expenditures published by CMS due to MEPS' narrower scope (e.g. noninstitutionalized population).

and 2 in terms of expenditures. Expenditures on these two conditions have grown rapidly over a six-year period, at 136% and 110%, respectively. Mean expenditure per person with care is also among the highest for these conditions, along with per person expenditures for COPD and kidney disease. As Table 1 makes clear, however, cancer and heart disease are not alone when it comes to rapid expenditure growth. Expenditures on five of the ten conditions listed in Table 2 have increased by over 100% since 2008-2009, while expenditures on nine of the ten conditions have increased by 50% or more since 2008-2009.

It is important to note that most of these are chronic illnesses that integrated care models are best designed to treat. Existing research suggests that such models are associated with improved patient care and better health outcomes[19]. For example, diabetic patients have experienced reduced risk of cardiovascular disease when care was received from a team based practice[20]. Further, patients with both medical and psychiatric conditions reported being more satisfied with care and had somewhat fewer ED visits when receiving care from an integrated care practice[21].

Table 2: Top ten cost drivers in California healthcare, 2014-2015

Name	Total Expenditures 2014-2015 (Billions)	Mean Expenditure Per Person with Care 2014-2015	Growth in Total Expenditures since 2008-2009
Cancer	$11.9	$7,839	136%
Heart disease	$11.6	$5,271	110%
Trauma-related disorders	$9.7	$2,504	72%
Mental disorders	$9.2	$1,999	78%
Osteoarthritis and other non-traumatic joint disorders	$8.1	$2,397	107%
Diabetes mellitus	$7.3	$2,641	93%
COPD, asthma	$6.2	$9,005	50%
Normal birth/live born	$5.6	$1,345	130%
Back problems	$4.9	$1,768	36%
Kidney disease	$3.7	$7,549	145%

Source: Authors' analysis of Medical Expenditures Panel Survey (MEPS)
Notes: Expenditures by condition represent expenditures for events (e.g. inpatient stay, outpatient visit) that were at least in part or entirely associated with care for that condition, not all expenditures for people with the condition. Because a provider visit may occur for multiple reasons, expenditures associated with specific conditions are not mutually exclusive.

4. Integrated Model for Healthcare Delivery

California's Integrated Care Model

A key part of the healthcare delivery system in California is the enormous influence of the integrated care model. The state has long been known for having more physicians practicing in organized medical groups with the potential to provide more technology-enabled team-based coordinated care to patients than is true in almost all other states[22]. This is, in part, due to the development of the Kaiser-Permanente (KP) model of integrated care that emerged in the 1930s and has now evolved to cover approximately 40 percent of the California market in 2018. However, the development of such models is not restricted to KP alone, which had over 8.8 million enrollees in its HMO plans in 2018. Blue Shield had around 800,000 enrollees in its HMO plans while Anthem had 650,000 and United Health had 500,000 HMO enrollees in 2016. Further evidence of the expansion of the integrated model in California is provided by the 200+ medical groups participating in various value-based payment programs stimulated by the State's Integrated Healthcare Association (IHA). In total, 41 percent (N= 67,656) of California physicians practice in medical groups[14] in 2018. Table A2 in Appendix A shows the distribution of physicians by type of practice across the State's 19 Covered California regions. Overall, the percent of physicians working in a foundation owned by a hospital or health system increased from 25% in 2010 to 43% in just eight years (2010-2018). Figure A4 in Appendix A shows the change in percent ownership over this eight-year period.

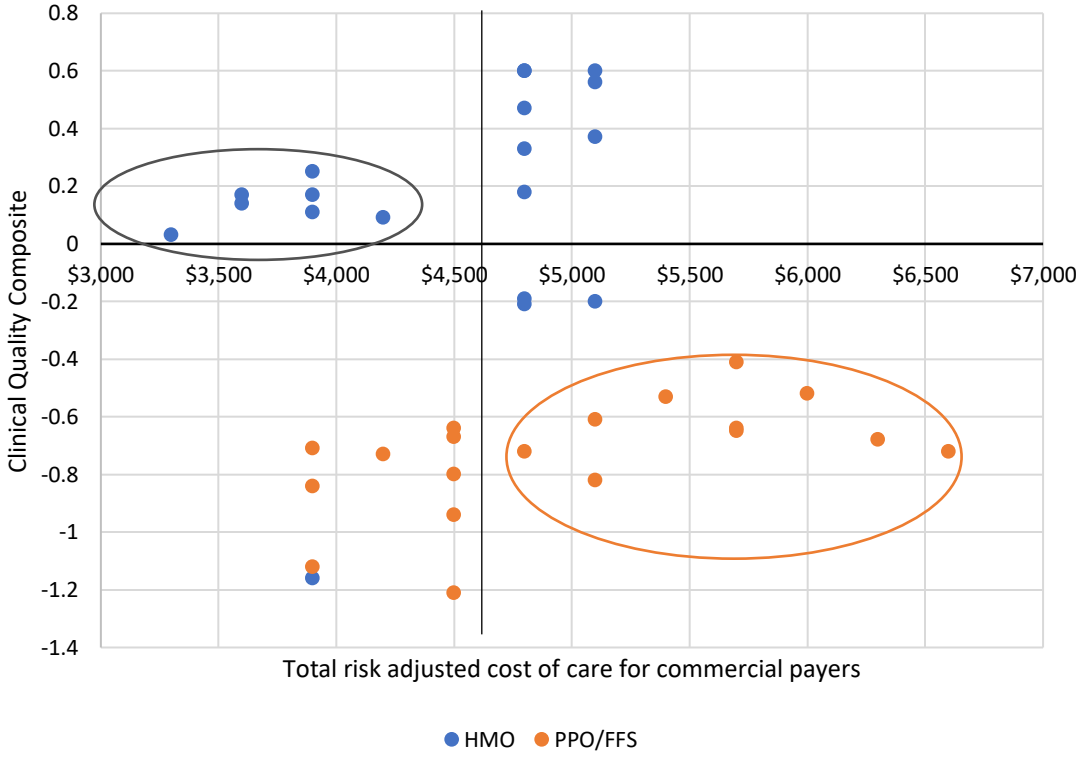
Recent data from the IHA Health Care and Quality Atlas 2.0 show that the more tightly integrated Health Maintenance Organization (HMO) groups have 9 percent lower commercial risk-adjusted costs than the less integrated PPO groups ($4,529 per person for the HMOs versus $4,912 per person for the PPOs). Additionally, PPO members paid an average of $769 more out of pocket costs than HMO members amounting to an additional $3.3 billion out of pocket costs in 2015 compared to HMO members. In regard to quality of care, HMO groups performed better than PPO groups on 9 of 10 clinical quality measures[15]. Figure 18 shows the comparative

[14] The percent of California physicians in independent practice is 39%, where independent practice is defined as the percentage of physicians who are not in a medical group, a practice owned by a hospital, or a practice owned by health system

[15] The ten clinical quality measures are: Breast Cancer Screening, Cervical Cancer Overscreening, Cervical Cancer Underscreening, Colorectal Cancer Screening, Diabetes Care: Blood Sugar Screening,

performance of HMOs and PPOs with respect to total cost of care and clinical quality. The composite quality index is a combined measure of performance across the ten quality measures mentioned above. Total cost of care is measured as the average risk adjusted (by age, gender, and health status) payments by insurers and members for all costs of care provided to a member of a commercial health plan for a year. Majority of HMOs fall in the top left quadrant which denotes lower cost and higher quality as compared to the State average, while a majority of PPO/FFS products are in the lower right quadrant denoting higher costs and lower quality.

Figure 18: Clinical quality by risk adjusted total cost for 19 ACA rating areas in California



Source: Author's analysis of Integrated Healthcare Association's Atlas 2 data

An integrated delivery system incentivizes coordinated care between large multispecialty physician group practices, hospitals, clinics, labs, and other healthcare stakeholders[23, 24].

Diabetes Care: Blood Sugar Control < 8%, Diabetes Care: Poorly Controlled Blood Sugar, Diabetes Care: Kidney Disease Monitoring, Asthma Medication Ratio, Avoidance Of Antibiotic Treatment For Adults With Acute Bronchitis, Appropriate Use Of Imaging Studies For Low Back Pain

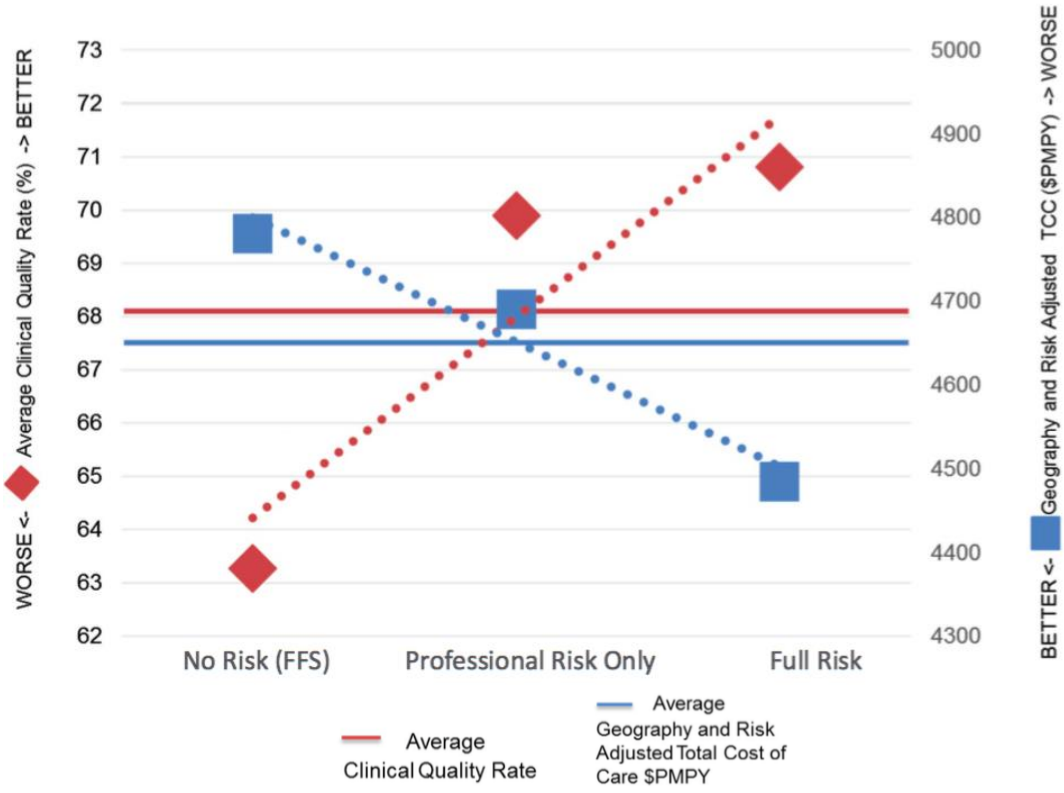
We now examine the impact of financial risk on total cost of care and clinical quality. This analysis does not include Kaiser Permanente. In Figure 19, on the left-hand vertical axis is a measure of average clinical quality[16] and on the right-hand vertical axis is a measure of the average geography and risk adjusted total cost of care[17]. On the horizontal axis there are three risk categories – no risk, professional risk, and full risk[18]. The no risk category includes enrollees cared for by providers that are paid fee-for-service and do not accept any risk for health outcomes. The professional risk only category includes enrollees cared for by providers that are paid a fixed monthly amount per enrollee for providing all needed professional services. The full risk category[19] includes enrollees cared for by providers that are paid a fixed monthly amount per enrollee for both professional services and hospital services. The blue squares in Figure 19 represent the average geography and risk adjusted total cost of care for no risk, professional risk only, and full risk categories. The red diamonds represent the average clinical quality score for these risk categories.

[16] The Average Clinical Quality Rate is the average compliance rate across ten clinical quality measures available in the Integrated Healthcare Association's California Regional Healthcare Cost & Quality Atlas.
[17] Geography and risk adjusted total cost of care is the average total amount paid by plans and enrollees for care received during a calendar year, which has been adjusted to account for the clinical risk of the population and differences in healthcare wages in different geographic locations.
[18] The risk definitions are:

- No risk - fee for service (FFS), no capitation
- Professional risk only – no facility capitation
- Full risk – two types (i) Global Risk–single capitation contract with PO for both professional and facility. Eligible to apply for a DMHC Restricted Knox Keene (plan) license. (ii) Dual Risk–two separate capitation contracts for professional services (with PO) and facility services (with hospital or PO)

[19] Some examples of full-risk non-KP providers are Sharp Health, Healthcare Partners, and Monarch Healthcare.

Figure 19: Cost and Quality Estimates by Risk Sharing Arrangement in California



Source: Integrated Healthcare Association, 2018

As we move along the red dotted line from left to right, the average clinical quality improves from the no risk to the full risk arrangement. Similarly, as we move along the blue dotted line, the geography and risk adjusted total cost of care reduces from no risk to full risk. Thus, financial arrangements with higher levels of risk are associated with better quality and cost of care. In other words, a full risk financial arrangement achieves the best value-based performance – low cost and high quality.

Thus, proposals to encourage more Californians to receive their care from groups providing more integrated care through risk-based capitated payments would likely result in both lower costs and better quality of care.

How is Integrated Care Achieved?

The key to such performances is what medical groups actually do in re-designing care for their patients[25-27]. These include [28, 29]:

1) Stratifying patients by level of severity based on a comprehensive assessment of their risk and needs – including social determinants
2) Pro-active coordinated team-based care emphasizing prevention and keeping people well
3) Use of specially trained nurse care managers to work with complex high need patients to manage their care across settings
4) Actively engage patients in pre-visit planning, mutual goal setting, and shared decision-making
5) Wide use of evidence-based care guidelines and clinical pathways
6) A performance management system with frequent feedback of relevant quality, patient experience, and cost measures to physicians and staff
7) A continuous improvement learning-oriented culture with strong clinical and managerial leadership

All of the integrated care model medical groups accept risk-based payments for a varying percentage of their patients from both Medicare and commercial insurers. Accountable Care Organizations (ACOs)[20] are a type of integrated care model of which there are now over 80 in the State, most of them built on the principles and practices of patient-centered medical homes (PCMH) that have been endorsed by 18 professional societies and associations. These principles include:

1) Having a personal physician in a physician-directed practice
2) Having a whole person orientation
3) Emphasizing coordinated care, integrated across settings
4) Having a Quality and Safety Emphasis
5) Enhanced patient access to care
6) Supported by a payment structure that recognizes services and value

[20] The CMS defines ACOs as "groups of doctors, hospitals, and other health care providers, who come together voluntarily to give coordinated high-quality care to their Medicare patient"

These principles have been operationalized by the National Committee for Quality Assurance (NCQA) in formal recognition criteria that include standards for access and communication, patient tracking and registry use, care management, patient self-management support, electronic prescribing, test tracking, referral tracking, performance reporting and improvement, and advanced electronic communication.

While, as previously noted, approximately 63 percent of Californians are now receiving care from integrated care models of one type or another exhibiting many of the elements discussed above, there is a relative lack of such models (defined as less than 30 percent of the population in integrated systems) in 14 counties. To help address this need the Pacific Business Group on Health (PBGH) working with the California Quality Collaborative (CQC) and with support from CMS is providing technical assistance to over 4,000 physicians practicing in mostly smaller practices serving rural parts of the state[21]. They are providing coaching in developing team-based care using standing orders and daily huddles, care management for patients at highest risk for hospitalization, patient engagement training, effective use of electronic health records, implementing performance feedback systems, and in developing a continuous improvement culture.

Interviews with Participants in the Technical Assistance Program

We conducted interviews with the leaders of five practices; two from large integrated medical groups and the remaining three from smaller practices (see Appendix B for the list of interviewees and questionnaire) to assess their potential for expanding integrated care and their thoughts on key aspects of likely success. All of them emphasized the importance of multi-disciplinary team-based care with several of them embedding pharmacists into the care team in addition to primary care physicians, nurses, medical assistants, and diabetic nurse educators. Each stratified patients based on risk and complexity of management although some had more formal systems than others. Two practices restricted such stratification to Medicare and Medicare Advantage patients. All practices emphasized the importance of patient engagement

[21] Their current CMS federal grant funding ends this coming September. They estimate the need for a commitment of $150 million over 10 years ($15 million per year) to provide the needed scale and depth to work with about 15,000 clinicians (40% of the primary care providers in the state) to improve performance.

strategies through the use of mutual goal-setting and care plans and were expanding initiatives in motivational interviewing, shared decision making and in use of patient reported outcomes (PROs) in areas such as hips, knees, and low back pain. Practice members received fairly consistent feedback on performance through weekly and monthly reports on cost, quality and patient satisfaction, and a few practices built in small percentages (2-4%) of compensation on such measures. Three challenges that were mentioned in common included integrating the behavioral health needs of patients into primary care; screening for the social determinants of health; and learning to use the electronic health record more efficiently. Two of the practices were embedding behavioral health specialists into the practice itself and several were also experimenting with telehealth to meet patient behavioral needs. Others were trying to formalize their relationships with behavioral health specialists in the community. Screening for the social determinants is mostly done by social workers and linkages with community resources were mostly under development. All practices were working on making more efficient use of their EHRs with one using scribes to relieve the primary care physicians of much of the work. When asked what accounted for whatever success they have achieved in integrating care for their patients, all of them mentioned leadership and having a positive patient-centered culture. They also underscored the importance of team-based care. Two mentioned use of the lean management system and one mentioned the incentives provided by risk-based ACO models. When asked about the biggest barriers to spreading integrated care models to other parts of the state, they most frequently mentioned the problem of still too much fee-for-service based payment. They said it was difficult to innovate, and to invest in team-based care by re-allocating resources when they were still paid on a fee-for-service basis. They emphasized the need to move more rapidly to risk-based capitation payment that would create the right alignment of incentives to make the changes that integrated care requires.

Going Forward

Given the above, the full potential of California's integrated care medical groups will be more completely realized with the expansion of risk-based payment models in Medicare, Medicaid, and the commercial sector that include both upside (savings) and downside (losses). This currently exists with capitated payments (fixed amount per member per month) and when covering all patients and all services results, effectively, in a global budget. One example of this

approach is the earlier noted Accountable Care Organization (ACO). Recent evidence from a national study of ACOs found that 40 percent achieved cost savings by the third year of operation achieving a high quality score of 92 out of 100 points[30]. Further, those continuously engaged in patient care planning and management were much more likely to actively monitor performance and provide clinician feedback. They also had advanced capability in clinical care management processes and smooth transitions of care; had integrated behavioral health programs; and established end-of-life care planning. They also reduced preventable hospital admissions, had more clinical training in quality improvement methods, and engaged in more communication across different delivery settings.

As documented, California's experience to date with integrated care systems suggests that expansion of this approach for delivering care is likely to result in substantial savings. The Berkeley Forum for improving California's Healthcare Delivery System produced a detailed roadmap in 2012 that would transform the state's healthcare system primarily by reducing healthcare spending through an expansion of integrated care delivery system and use of global budgets. See Appendix C for more details on the Forum's findings. The integrated model with risk adjustment payments makes the system more affordable and universal coverage achievable. It will require, however, continued support for the spread of such models throughout the state through technical assistance and the development of creative insurer-provider partnerships[22].

[22] One example is the partnership between Blue Shield of California and the California Medical Association (CMA) to provide independent practices with the capabilities they need for clinical integration. These include real time transcription services, assistance in screening for the social determinants of health, and using a health care advocate to help patients navigate the system.

5. Financing Universal Coverage in California

The expansion of the integrated delivery model will help bend the cost curve in California. Already 40% of the Medicare population is in Medicare Advantage plans, 83% of the Medi-Cal population is enrolled in managed care organizations and 68.5% of commercially insured persons are in HMOs or integrated care models, as per Kaiser Family Foundation data. This is a unique characteristic of California's healthcare market. The goal is to have growth in aggregate healthcare spending increase at the same rate as the growth of the California economy, or perhaps less. This goal could be achieved in just a few years given the Berkeley Forum estimates of savings in healthcare spending achievable through the integrated care model. However, there are still 3.55 million Californians who do not have health insurance where the definition of uninsured includes those who "receive only partial Medicaid benefits—such as women who receive only family planning services or unauthorized immigrants who receive only emergency services" in line with the definition used by the Congressional Budget Office [31]. The cost to cover the uninsured in California is estimated to be $17.3 billion yearly (after backing out the annual federal funds received by California as Disproportionate Share Hospital (DSH) payments that are directed towards serving the uninsured), as per our calculations[23]. The $17.3 billion is an estimate assuming private spending with no federal offsets. Another set of estimates assuming a mix of public and private coverage would be roughly half or less[32, 33]. We have also estimated the cost to achieve universal coverage using a public/private approach as shown in Appendix G. In this section we identify three novel sources of funding, which in addition to modest income-related premiums and State General Fund contributions, can finance universal healthcare coverage in California. The estimates that follow are for **illustration purposes only**. Governor Gavin Newsom and the legislature can use these revenue mechanisms as they design the legislation that is needed to implement them. The exact combinations and rates used need to be agreed upon in the required legislation.

[23] The total cost of coverage was obtained by multiplying the total number of uninsured in California – 3.55 million (from UC Berkeley Labor Center and UCLA Center for Health Policy Research Report, 2018) – with the marketplace average benchmark annual premium in California – $5,220 (from Kaiser Family Foundation data, 2019) = 3.55 million * $5,220 = $18.5 billion
We then subtract the $1.2 billion federal Medi-Cal DSH allotment received by California hospitals (from Kasier Family Foundation data, 2017) towards serving the uninsured = $18.5 billion - $1.2 billion = **$17.3 billion**

Healthy San Francisco model's Employer Spending Requirement (ESR) payments

Healthy San Francisco is a healthcare access program created by the Gavin Newsom administration in 2007 with the aim of expanding healthcare access to all San Franciscans, irrespective of employment status. The program currently provides healthcare access to approximately 14,000 uninsured San Francisco residents who are ineligible for other public health plans[24]. This is done through a network of clinics in the city which provide services such as primary, specialty, hospital, and behavioral care, as well as prescription drugs. As per an evaluation by Mathematica in 2011, Healthy San Francisco improved care management and coordination of care, increased access to and use of primary care services, and reduced the number of emergency department visits and avoidable hospitalizations[34]. The main sources of funding for the program are:

- City and County of San Francisco General Fund (74%)
- Employer Spending Requirement (ESR) contributions which account for approximately 14% of total expenditure. These employer contributions are mandated through the City Health Care Security Ordinance (HCSO), which requires all for-profit businesses in San Francisco with 20+ employees and non-profit organizations with 50+ employees to make required healthcare expenditures on behalf of their employees.
- The Health Care Coverage Initiative (HCCI) fund, a 10- county California Medicaid waiver program, which accounts for around 8% of total expenditures from 2007-2010
- Other sources such as participation fees and point of services fees, which account for around 4% of the total expenditure

The ESR financing method used by the Healthy San Francisco program can be scaled up to the entire State to provide universal health coverage to all Californians by creating a statewide ordinance requiring employers to make contributions towards healthcare. Our calculations show that ESR contributions through a statewide employer mandate would generate around **$979 million**, if all businesses with 20+ employees in the state of California were to make ESR contributions at the hourly rates defined under the City HCSO. We assume that each employee works for an average of 30 hours per week. See Appendix D for more details on calculations.

[24] Current running number obtained from the Healthy San Francisco website

Restaurants in San Francisco financed some portion of the ESR payments by levying a 4% surcharge on customers. Colla, Dow & Dube (2016) found that in the context of the Healthy San Francisco program, "*approximately half of the incidence of the mandate in the restaurant sector fell on consumers via surcharges*"[35]. A similar approach could be used by businesses in California to distribute the costs among high-income customers.

Provider and Payer tax

Another source of revenue to fund universal coverage that has been used by other States is the provider tax. It has been successfully implemented in Minnesota. The State currently imposes a two percent tax on providers such as physicians, dentists, psychologists and other licensed and unlicensed healthcare workers, hospitals, surgical centers, and wholesale drug distributors. Tax revenues were used to expand coverage among low income populations and simultaneously reduced unreimbursed care costs in hospitals resulting in savings to the tune of $58.6 million over a 5-year period[36]. Other States including Arizona, Colorado, Indiana, Louisiana, Oregon, and Virginia also levy some form of provider taxes to fund healthcare.

We propose levying a similar provider and payer tax of 3% on revenues of institutional providers (such as hospitals, nursing homes, and home healthcare), pharmaceutical sales, and health plans for commercial payers in California. The provider tax would be in addition to any Medicaid-specific provider fee already in place in California. The tax would raise approximately **$7.2 billion** in revenues which could be used to fund universal coverage. Hospitals will benefit from increased enrollment by having their charity care reduced. All institutions will benefit from an increased demand for their services. For more details on the provider and payer tax, see Appendix E.

Airport Solidarity Tax

The idea of a 'solidarity tax on airplane tickets' was introduced in 2005 by the French president at the World Economic Forum as an additional surcharge levied on civil aviation tax whose proceeds are directed to fund a global health initiative working on ending epidemics across the world. The amount levied varies from €1.13 - €45.07 per ticket depending on destination and class of travel. After France began implementing the tax in 2006, it was adopted by several other countries and is currently levied by nine countries, namely Cameroon, Chile,

Congo, France, Madagascar, Mali, Mauritius, Niger and the Republic of Korea. The list of countries levying this surcharge consist of a mix of traditional donor countries as well as developing countries who can benefit directly from the initiative. The revenues generated are allocated to support UNITAID, an organization that invests in innovations to prevent, diagnose and treat HIV/AIDS, tuberculosis, and malaria. In partnership with the World Health Organization, it also improves access to diagnostics and treatment for HIV co-infections such as hepatitis C and human papillomavirus (HPV). The primary strategy of the organization is to provide short-term grants to health partners who work on solutions with potential to alleviate the burden of these diseases. Almost 70% of the initiative's funds come from the airport tax revenues, which present a sustainable and long-term source of funding as compared to traditional one-time grants or donations.

We propose applying a tax on air tickets for flights taking off and landing in California, where the tax rate would differ based on origin/destination and class of travel. This is a new type of tax and its effects would have to be studied further, however, we believe the impact on California tourism and business travel would be small assuming the price elasticity of international and business class travelers is low. We exclude domestic economy class passengers from this tax in order to ensure that there are no negative effects on local travelers. Further, some portion of the funds generated could be used to offer international travelers insurance that covers any emergency care they receive while in California. The lowest tax rate of $50 per ticket would apply to domestic business class passengers while international economy and international business class passengers would be charged $60 and $250 per ticket. Preliminary calculations suggest that **$2.3 billion annually** could be generated for the purposes of funding universal healthcare coverage. The majority of revenues would come from the five largest airports in California (see Table 3). Additionally, some portion of the funds could also be used to cover any emergency care costs incurred by international travelers. The approximate cost of providing emergency care coverage to international travelers is $281 million.[25]

[25] In 2015, 8.1 million international travelers visited California [CITE 1]. On average, international travelers to the US stay 17.8 nights {Citation: 37. *Survey of International Air Travelers*. 2015, National Travel and Tourism Office.}
In 2016, there were 371 emergency room visits per 1,000 population in California {Citation: 38. *California Health Care Almanac* 2018, California Health Care Foundation.}

Table 3: Estimate of Revenues from an Airport Solidarity Tax in California

City	Number of passengers (annual 2017)	Funds generated
Los Angeles	84,554,436	$1,016 million
San Francisco	55,827,677	$685 million
San Diego	22,030,380	$131 million
Oakland	13,072,245	$76 million
San Jose	12,442,556	$76 million

Source: Authors' analysis of California Department of Transportation's annual air passenger traffic data

For detailed calculations on revenues generated by category at all airports in California, see Appendix F. In case the State Legislature is not favorable towards such a tax, we suggest that the funds raised from this source could be sourced from the State's General Fund. Gov. Gavin Newsom's California Budget proposal released on January 10th, 2019 already includes $260 million, of which $196.5 million is from the State's General Fund, towards the expansion of Medi-Cal eligibility for undocumented young adults (19-26 years).

Income-related Premiums & State General Fund Contribution

The remaining funds required for universal coverage can be generated from a combination of income-related premiums based on a sliding scale similar to the ACA model, and contributions from the State's General Fund. New enrollees will be subject to deductibles and user fees in addition to the premiums. These are generally lower in capitated systems. As per our calculations, **$5.2 billion** can be generated from average monthly premium payments of $123 by

Using these figures, we estimate the number of California emergency room visits by international travelers to be 146,550 ($= \frac{8{,}100{,}000}{1{,}000} \times 371 \times \frac{17.8}{365}$).

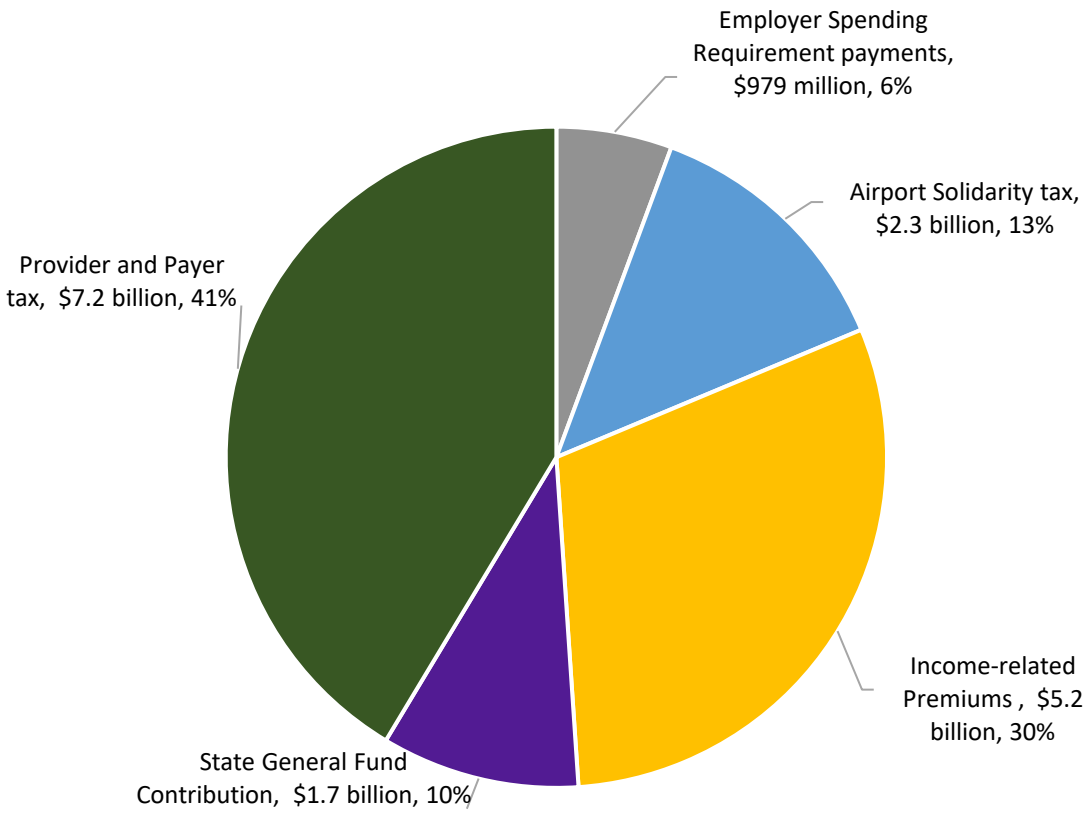
According to the Health Care Cost Institute, the average cost of an outpatient emergency room visit in 2016 was $1,917 {Citation: 39. *Health Care Cost and Utilization Report*. 2016, Health Care Cost Institute.}

Thus, we estimate the cost of California emergency room visits by international travelers to be $281 million (= 146,550 x 1,917).

the approximately 3.55 million uninsured Californians. This is the same rate as the average monthly premium spending by ACA enrollees in Covered California in 2019 [40]. The remaining **$1.7 billion** can be covered through contributions from the State's General Fund.

Thus, the $17.3 billion required to provide universal coverage in California could be raised from ESR payments, provider and payer tax, airport solidarity tax, income-related premiums, and contributions from the State's General Fund[26]. Figure 20 illustrates the distribution of revenues from the sources described above.

Figure 20: Sources of revenue to finance Universal Healthcare Coverage in California ($17.3 billion): An Illustration



Source: Authors' calculations using data from various sources mentioned in this section
Note: Dollar values do not add up to the total of $17.3 billion due to rounding

[26] We are not including individual mandate revenues as an additional source of financing since it has already been proposed in California by Gov. Gavin Newsom

6. Integration and Capitation for All: How Would it Work?

A significant portion of the increase in healthcare costs over the past decade is attributable to higher prices. Prices are 30 percent higher in northern California as compared to southern California even after adjusting for wages and property values. Much of this is correlated with market concentration. Additionally, 3.55 million Californians lack access to healthcare of which low-income and undocumented immigrant communities representing a disproportionately larger share of the uninsured. This calls for a two-pronged approach to address the issues of high costs of healthcare and lack of universal coverage. We propose (1) novel sources to finance universal coverage and (2) the use of integrated care delivery models to contain costs and ensure affordable healthcare to all in the long run.

Monitoring and regulation of prices have the potential to further bend the cost curve in California. Glied and Altman (2017) have suggested that in order to deal with escalating prices, there may be a need to regulate select prices[27] in addition to more aggressive anti-trust enforcement and new legislation to examine and monitor the competitiveness of the healthcare market [41]. George Halvorson at the Institute for InterGroup Understanding suggests a 'Medicare Advantage for All' model using capitated payments and coordinated care delivery[42]. We think that it may be feasible at the federal level but would not be possible at the state level without federal waivers that are unlikely at this time.

Expanding the integrated care system using a risk-adjusted payment model would make California's health system more affordable and high-quality for those currently uninsured [43] [44]. The Berkeley Forum's vision of risk-adjusted capitation plans would expand risk adjustment. Included in this risk-adjustment, in addition to age and sex, would be the underlying health needs of the enrollees as well as measures of race, ethnicity, income, as well as geography to address health disparities in California. To make this work, it would require an individual mandate. Governor Gavin Newsom's healthcare plan proposes reinstating the individual mandate at the state level, with appropriate tax penalties in place for defaulters.

[27] Maryland is currently the only State that operates a hospital rate regulation system. For more details, see https://innovation.cms.gov/initiatives/Maryland-All-Payer-Model/

Higher integration raises the question of its potential adverse market impact in terms of market concentration leading to higher prices and greater barriers to entry for rivals. The integrated model we are proposing focuses on clinical integration and financial risk sharing which can be achieved without consolidation. One possible solution is contracting in lieu of consolidation. For example, a healthcare system could sign a renewable contract for five or ten years with a medical group to integrate. The medical group would have the option of signing contracts with other health systems as well. Covered California, the Attorney General, the Department of Managed Care, and other regulators need to develop policies and regulation to address these issues.

We suggest that the well-functioning Affordable Care Act (ACA) marketplace in California be used to offer these integrated plans. Covered California's 'active purchaser' model enables the exchange to choose plans to offer in the marketplace. This has been an effective strategy and has resulted in lower premiums as compared to other States[45]. Integrated plans that are sufficiently large in size to take risk would be listed in the expanded ACA market. Smaller health plans that are too small to take on financial risk could be pooled and offered through existing insurers in California.

An individual mandate is vital to ensure enrollment of the uninsured in the managed care integrated plans. Income-related premium subsidies will be offered to make these plans affordable and accessible, as is the case in the ACA market. The inclusion of capitated, coordinated care plans in the marketplace will provide consumers a greater variety of plans to choose from based on quality and cost[46]. Covered California would use its active purchaser role to select integrated plans that meet quality and cost criteria. The marketplace will incentivize consumers to opt for high value benchmark plans that are fully funded. Individuals who would like to opt for PPO plans will be required to pay for the difference in premiums as an out of pocket expense.

Let's Get Healthy California's estimates found that 63% of California's population received care through an integrated delivery model in 2016. Medi-Cal and Medicare in California are moving towards this model with 83% of Medi-Cal enrollees in managed care capitated systems, and 40% of the Medicare population enrolled in Medicare Advantage. The commercially insured population has around 68.5% of enrollees in HMOs or integrated care delivery models. Thus, the movement to integrated care models is already very strong in

California. Tax incentives could be used for health plans to expand integrated care networks into parts of the state that are not currently adequately served[28].

However, moving towards universal coverage will still require additional revenue sources. We have identified three novel sources – a provider and payer tax, an employer spending mandate, and an airport solidarity tax, in addition to revenues from income-related premiums paid by enrollees and contributions from the State's General Fund. The impact of an integrated system and risk-based capitated plans will produce high value healthcare at an affordable cost for all Californians. The California dream of universal coverage that is affordable, high quality and accessible to all is achievable with this plan.

[28] The Department of Managed Health Care has established detailed network adequacy standards in Medi-Cal and CHIP Managed Care for providers. Some flexibility in these rules may be required to allow expansion of integrated care networks into rural areas.

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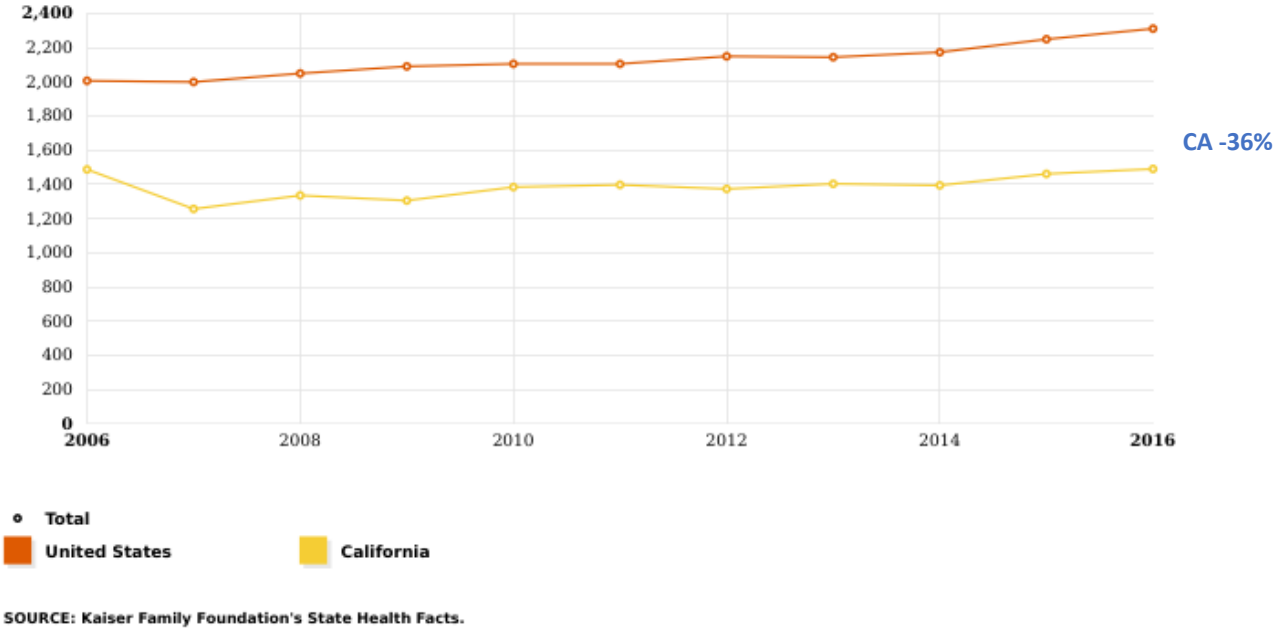
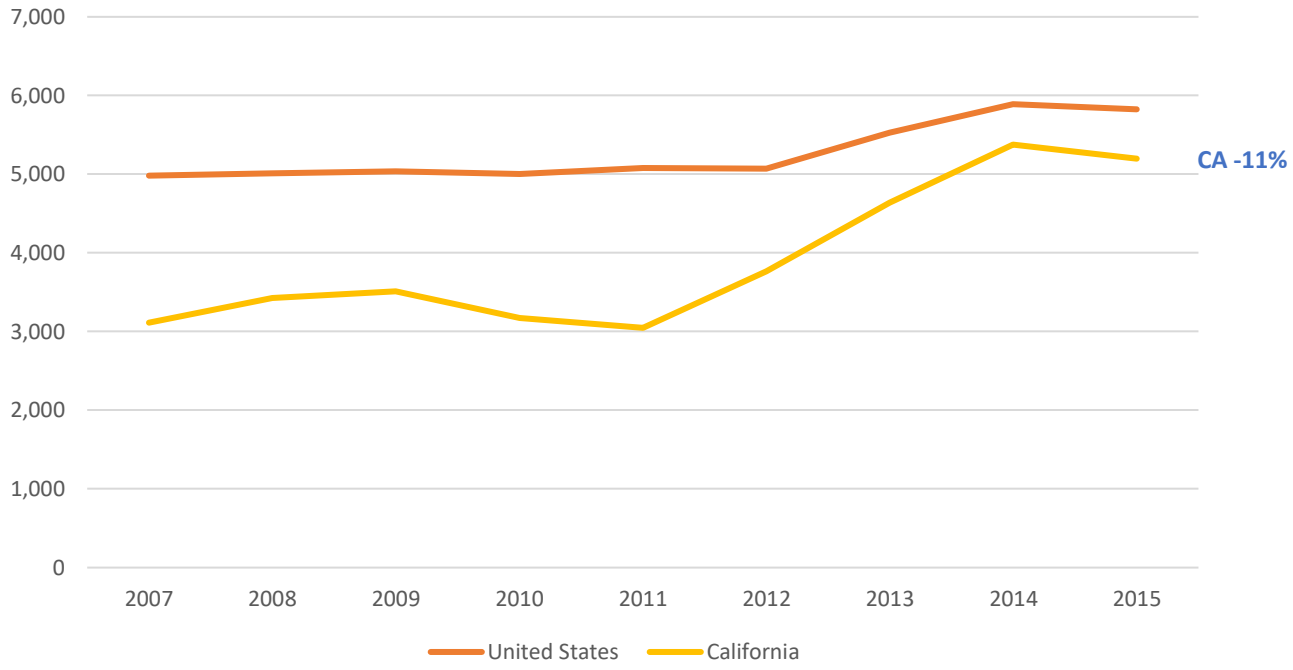
APPENDIX A

Figure A1. Hospital Outpatient Visits per 1,000 population, 2006-2016



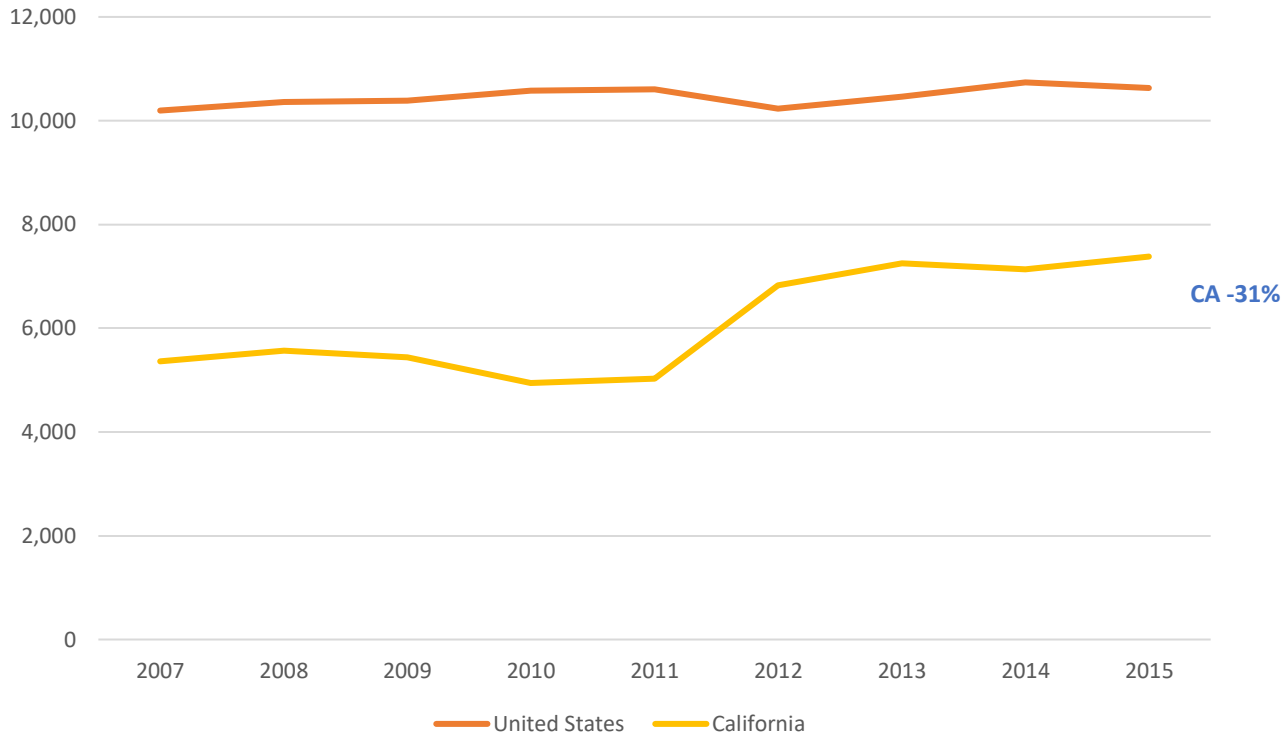
SOURCE: Kaiser Family Foundation's State Health Facts.

Figure A2. Office-Based Outpatient Visits per 1,000 population, 2007-2015



Source: Authors' analysis of data from the Medical Expenditure Panel Survey (MEPS)

Figure A3. Prescription Fills and Refills per 1,000 population, 2007-2015



Source: Authors' analysis of data from the Medical Expenditure Panel Survey (MEPS).

Map A1: Map of California State by County

Table A1: Academic studies on the impact of market concentration on prices, premiums, and quality

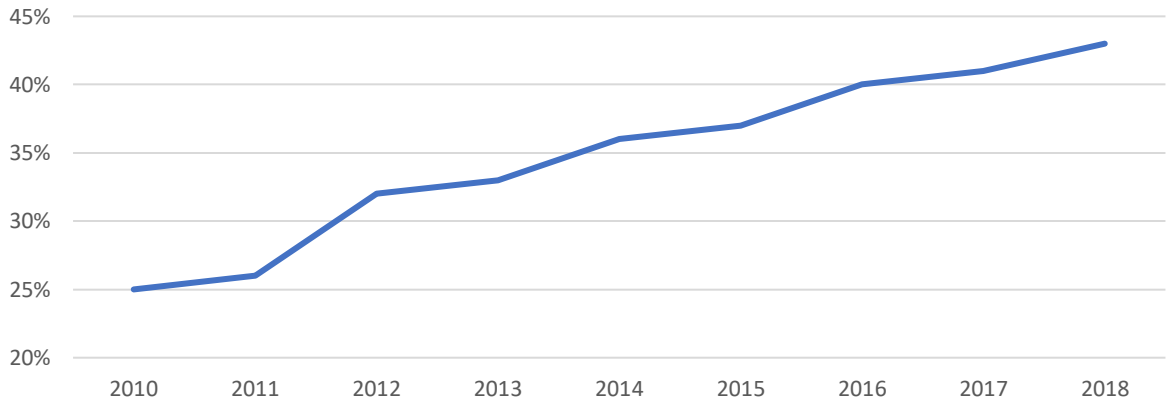
Authors	Publication	Findings
Scheffler, Arnold, and Whaley (2018)	Health Affairs	Increases in vertical integration in California are associated with a **12% increase in Marketplace premiums, 9% increase in specialist prices, and 5% increase in primary care prices**
Dafny, Ho, and Lee (2016)	NBER Working Paper No. 22106	Hospitals gaining system members in-state (but not in the same geographic market) experience **price increases of 7-10%** relative to control hospitals
Cooper, Stuart, Gaynor, and Van Reenan (2015)	NBER Working Paper No. 21815	**Hospital prices in monopoly markets are 15% higher** than those in markets with four or more hospitals
Sun and Baker (2015)	Health Affairs	Moving from the bottom quartile of concentration to the top is associated with a **7% increase** in fees (Orthopedics)
Dunn and Shapiro (2014)	The Journal of Law and Economics	Physicians in the 90th percentile of concentration charge **14-30% higher fees** than those in the 10th percentile (Cardiology and Orthopedics)
Martin Gaynor (2007)	Foundations and Trends® in Microeconomics	**Competition increases quality and improves consumer welfare when prices are regulated**
Cooper, Gibbons, Jones and McGuire (2011)	The Economic Journal	Hospital quality in the NHS (measured using mortality from acute myocardial infarction) **improved more quickly in more competitive markets**
Propper, Burgess, and Gossage (2007)	The Economic Journal	The relationship between competition and hospital quality under the NHS, measured using AMI mortality, is negative. **Competition reduced waiting times**.

Table A2: Distribution of Office-Based Physicians by California ACA Rating Areas, 2018

ACA Rating Area	% Independent*	% Medical Group	% Hospital	% Health System	TOTAL FTE Physicians
1 – Northern Counties	40	34	13	30	2,327
2 – North Bay Counties	35	52	9	45	2,459
3 – Greater Sacramento	24	68	22	60	3,948
4 – San Francisco County	29	25	41	58	3,413
5 – Contra Costa County	34	52	8	46	1,875
6 – Alameda County	31	52	13	52	2,844
7 – Santa Clara County	32	38	17	58	4,495
8 – San Mateo County	35	49	9	48	1,552
9 – Central Coast – North	43	45	10	29	1,185
10 – Central Valley – North	43	46	7	31	1,882
11 – Greater Fresno Area	30	56	12	16	1,709
12 – Central Coast – South	49	38	11	17	2,425
13 – Eastern Region	50	22	28	0	144
14 – Kern County	53	32	10	19	714
15 – Los Angeles – East	51	34	12	23	7,179
16 – Los Angeles – West	44	34	18	40	14,765
17 – Inland Empire	47	36	17	17	2,438
18 – Orange County	45	36	7	39	6,069
19 – San Diego County	28	51	10	49	6,236
California	**39**	**41**	**15**	**40**	**67,656**

Source: Authors' analysis of April 2018 snapshot of SK&A's Office-Based Physicians Database provided by QuintilesIMS (now IQVIA).
Notes: *% Independent is defined as the percentage of physicians who are not in a medical group, a practice owned by a hospital, or a practice owned by health system. Physicians can be in more than one category (e.g. part of a medical group and a practice owned by a health system). Thus, the sum of the percentages in a row do not necessarily equal 100%.

Figure A4. Percent of Physicians in Practices Owned by a Hospital/Health System, 2010-2018



Source: Authors' analysis of April 2018 snapshot of SK&A's Office-Based Physicians Database provided by QuintilesIMS (now IQVIA).

APPENDIX B: Medical Group Interviewees and Questionnaire

Table A3: Interviewee Details

S. No.	Organization	Interviewee
1	Palo Alto Medical Foundation	Elizabeth Vilardo, M.D. President and CEO of Bay Area Medical Foundation; Palo Alto Medical Foundation, Sutter East Bay Medical Foundation
2	Sharp Rees-Stealy Medical Group – San Diego	i. Dr. Steven Green, M.D. ii. Dr. Parag Agnihotri, M.D.
3	St. Joseph Heritage Medical Group	i. Veronica Perez, Practice Coach ii. Kristin Bramow, Project Manager
4	Allied Pacific IPA	Jo Espino, RN
5	AppleCare Medical Group	Cheryl Marks, Practice Transformation Advisor

Questionnaire: MEDICAL GROUP PRACTICE INTERVIEW QUESTIONS

1. Do you have a formal system for identifying and stratifying patients with multiple chronic illnesses by the amount of care they will need?
2. For these patients, please describe how you organize your primary care team and specialists to care for them.
3. What is your process for coordinating/managing the care of complex, high need patients after they are hospitalized?
4. Describe the extent to which and how you integrate the behavioral health needs of patients into your primary care practices.
5. In what ways do you assess your patients' social needs and how do you coordinate services with housing, transportation, and community services?
6. What do you do to engage patients in their own care?
7. Describe the types and frequency of information that your physicians receive on their performance on quality, cost, and patient experience measures.
8. Describe your physicians experience with using electronic health records in providing care to their patients
9. Do patients use a patient portal to access their medical record? Are they able to add their own notes to the record?
10. To what extent does your medical group make use of telehealth?

11. Are you designated as a patient-centered medical home?
12. Suppose you learned that you were rated among the top 10 medical group/practices in all of California based on the quality, cost, and patient satisfaction with the care that you provide. What would you attribute this to?
13. What suggestions do you have for increasing the number of Californians who receive their care from integrated care models? What are the biggest barriers and how might they best be addressed?

APPENDIX C: Bending the Cost Curve in California

The Berkeley Forum for Improving California's Healthcare Delivery System[29], a year-long collaborative effort involving policy experts from the University of California, Berkeley, CEOs of major health insurers and healthcare delivery systems, and leaders from California's public sector produced a detailed roadmap in 2012 that would transform the state's healthcare system and improve care and outcomes while saving billions of dollars in the process.

The Berkeley Forum Vision called for a rapid shift towards integrated systems that coordinate care for patients across conditions, providers, settings and time, along with risk-adjusted global budgets that encompass the vast majority of an individual's healthcare expenditures. Global budgets are defined as a set amount of revenue received by providers to manage patient care. There are a variety of ways of setting global budgets through capitated payments to providers. Two forms of full-risk capitation are (i) global capitation, where the provider receives a budgeted amount from the plan for the care of the full population, and (ii) dual capitation, where the plan provides a budget to providers separately for ambulatory and facilities care that together cover the full population. The Forum's report, released in 2012, documented that implementing seven initiatives – global budgets/integrated care systems, patient centered medical homes, palliative care, physical activity promotion and obesity prevention, increased use of nurse practitioners and physician assistants in primary care services, reducing healthcare associated infections, and expanding pre-natal care and education – would lead to estimated reductions in healthcare expenditures of up to $110 billion over a period of ten years (2013-2022)[1].

Estimates of these projected reductions in spending were updated by researchers at the Petris Center[47], specifically with respect to three Berkeley Forum initiatives from 2018 to 2022: 1) global budgets/integrated care systems, 2) patient-centered medical homes, and 3) palliative care. Table A4 shows that in total, the initiatives are estimated to reduce health expenditures by $47.5 billion cumulatively over this period. In 2022 alone, the estimated reduction is $15.4 billion, or 2.8% of projected health spending in California.

[29] The Berkeley Forum included the CEOs of six of California's leading health systems, three health insurers and two large physician organizations, along with the California Secretary of Health and Human Services, the U.S. Department of Health and Human Services Region IX Director and California insurance regulators. The University of California, Berkeley School of Public Health served as a neutral facilitator for discussions and as the analytic staff for this effort. For a full list of participants, see http://berkeleyhealthcareforum.berkeley.edu/wp-content/uploads/A-New-Vision-for-California%E2%80%99s-Healthcare-System.pdf

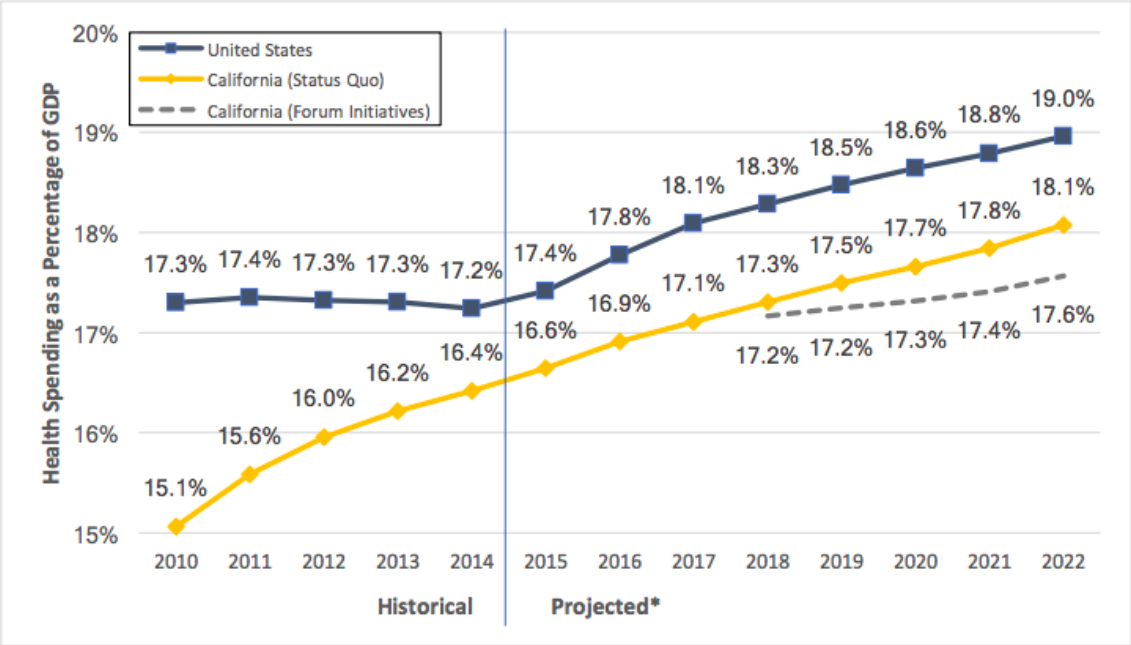
Table A4. Estimated Health Expenditure Reductions from Berkeley Forum Initiatives ($billions)

Initiative	Description	2018	2019	2020	2021	2022	Total
Global Budgets, Integrated Care Systems	Increase the number of people who receive care from integrated care systems that operate under risk-adjusted global budgets, which encompass primary care, specialty care, post-acute care and pharmaceuticals	$3.35	$5.60	$7.84	$10.08	$12.32	$39.19
Patient-Centered Medical Home	Increase use of patient-centered medical homes to more effectively manage care for patients with chronic diseases and to reduce their avoidable / non-urgent emergency department and inpatient visits	$0.12	$0.62	$1.13	$1.64	$2.15	$5.66
Palliative Care	Increase use of concurrent curative and community-based palliative care for seriously ill patients, including advanced care planning and physical, emotional and social support	$0.09	$0.31	$0.53	$0.74	$0.96	$2.64
Total Berkeley Forum Initiatives' Health Spending Reductions		$3.56	$6.53	$9.50	$12.46	$15.43	$47.49

Source: Scheffler et al (2018) "Financing Universal Coverage In California: A Berkeley Forum Roadmap", Health Affairs blog

Figure A5 shows historical and projected health spending as a percentage of GDP for the United States and California from 2010 to 2022, including the impact of the three Berkeley Forum initiatives in reducing projected health expenditures.

Figure A5. Historical and Projected Health Expenditures as a Percentage of Gross Domestic Product, United States and California from 2010 to 2022



Source: Scheffler et al (2018) "Financing Universal Coverage In California: A Berkeley Forum Roadmap", Health Affairs blog

APPENDIX D: Healthy San Francisco program model

Healthy San Francisco is a healthcare access program created by the Gavin Newsom administration in 2007 with the aim of expanding healthcare access to all San Franciscans, irrespective of employment status. The distribution of revenue sources for the program to date is provided in Table A5. A large portion of the revenues are obtained from a city level Health Care Security Ordinance (HCSO) which requires all for-profit employers with over 20 employees and non-profit employers with over 50 employees to make healthcare contributions on behalf of their employees. Preliminary calculations to scale up this mandate at the state level are presented in Table A6. We assume that each employee works an average of 30 hours/week.

As per Table A6, $979 million in revenues can be generated from a statewide ordinance requiring ESR payments from all businesses with more than 20 employees. Some restaurant businesses in San Francisco financed their ESR payments by levying a 4% surcharge on customers (median amount that around 27%[30] of restaurants in San Francisco charge their customers as a 'health fee'). A similar approach could be adopted by businesses in California to spread out costs among high-income payers.

[30] Colla, Carrie H., William H. Dow, and Arindrajit Dube, "How Do Employers React to a Pay-or Pay Mandate? Early Evidence from San Francisco." Forum for Health Economics and Policy 14, no. 2 (July 2011). http://www.nber.org/papers/w17198.pdf.

Table A5: Healthy San Francisco Revenues

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Total	% of SFDPH
REVENUE (in US$ million)													
General Fund	4.9	0	0	0	0	0	0	0	0	0	0	4.9	1.9%
Health Care Coverage Initiative	-	8.1	19.2	22.9	27.4	0	0	0	0	0	0	77.6	29.7%
Participation Fees and SFDPH POS	-	0.8	3.2	5	5.8	8.1	7.5	5.2	2.5	1.9	2.1	42.1	16.1%
ESR	**-**	**4.2**	**18.2**	**14**	**13**	**15.6**	**16.8**	**23.6**	**16.1**	**15.1**	**2.7**	**139.3**	**53.3%**
(Reserve for Unearned Rev)	-	-1	-4.6	-1.6	0	0	0	0	0	0	0	-7.2	-2.7%
Transfer of Unused SF MRA Funds	-	-	-	-	3.6	0	0	0	0	0	0	3.6	1.4%
Philanthropic Grants (Evaluation)	-	-	0.5	0.1	0.2	0.1	0	0	0	0	0	0.9	0.3%
TOTAL REVENUE	4.9	12.1	36.5	40.4	50	27.8	24.3	28.8	18.6	17	4.8	261.2	100.0%
Total participant months		130,114	420,878	596,647	656,361	549,525	612,462	537,045	230,568	170,455	162,201		
Estimated DPH per participant per month expenditure		$354	$296	$235	$228	$184	$198	$208	$373	$259	$266		
DPH per participant per month revenue		$93	$87	$68	$76	$43	$40	$54	$81	$100	$30		
Per participant general fund subsidy per month		($261)	($209)	($167)	($152)	($141)	($158)	($154)	($292)	($159)	($236)		

Source: Healthy San Francisco Annual Reports 2007-2017 to the San Francisco Health Commission

Table A6: Estimated Revenues from a Statewide Employer Mandate

Size of Business	Number of Employees (as of 2018 Q1)	ESR payments (assuming 30 hours per employee)
20-49	2,794,302	$163,466,667.00
50-99	2,416,904	$141,388,884.00
100-249	2,662,643	$234,046,319.70
250-499	1,470,982	$129,299,317.80
500-999	1,102,903	$96,945,173.70
1000+	2,431,422	$213,721,993.80
TOTAL	**12,879,156**	**$978,868,356.00**

Source: California Employment Development Department's Labor Market Information; Includes author calculations based on ESR rates below

ESR Rates applied:

Employer Size	Number of Employees	2019 Expenditure Rate
Large	All employers w/ 100+ employees	$ 2.93 per hour payable
Medium	Businesses w/ 20-99 employees Nonprofits w/ 50-99 employees	$1.95 per hour payable
Small	Businesses w/ 0-19 employees Nonprofits w/ 0-49 employees	Exempt

Source: San Francisco Health Care Security Ordinance

APPENDIX E: Provider and Payer Tax

The state of Minnesota imposes a series of provider taxes on gross revenues derived by providers from patient services such as diagnostic and therapeutic services, and bed and board. The tax was introduced in 1992 and is set to expire in 2019, with the possibility of renewal. The two percent tax is imposed on the following categories of healthcare providers:

i. Physicians, dentists, nurses, psychologists, and other licensed and unlicensed healthcare staff,
ii. Hospitals
iii. Surgical centers
iv. Wholesale drug distributors

Revenues from the tax are directed to a Health Care Access Fund where they are used to provide subsidized healthcare to low income populations. The increase in enrollment due to expanded coverage in Minnesota resulted in substantial savings for providers, specifically in terms of reduced uncompensated care in hospitals to the tune of $58.6 million over a 5-year period [36]. Many other States also levy provider taxes, mostly in the form of hospital taxes, to fund expansion of coverage to uninsured populations. States that are tapping into some form of provider tax revenue include Arizona, Colorado, Indiana, Louisiana, Oregon, and Virginia.

If California imposed a similar tax of 3% on institutional provider revenues, pharmaceutical sales, and health plan revenues for commercial payers, it would raise approximately $7.17 billion annually (see Table A7). The institutional providers that the tax would apply to include hospitals, nursing homes, and home health care services. Additionally, pharmaceutical companies and health insurers will also be taxed. The tax will not be applicable on Medicare and Medicaid payments. Further, only retail sales for drug prescriptions by commercial payers will be taxed. This will help distribute the burden of costs among the higher income population and also help providers gain increased patient revenues due to greater enrollment. Overall, the tax revenue could be used to fund universal coverage for Californians. Additionally, hospitals will benefit by having their charity care reduced and all institutions will benefit from an increased demand for their services.

Table A7: Tax revenue estimates from provider and payer tax in California, 2017 (in millions $)

	Institutional Healthcare Expenditure[31] (Commercial)	Pharmaceutical Retail Sales (Commercial)	Health Insurer Revenues (Commercial Enrollment)
Expenditures/Sales	$62,561[32]	$14,069	$162,500[33]
Tax Revenues (at 3%)	$1,877	$422	$4,875
Total Tax Revenue	$7.17 billion		

Source: Personal healthcare expenditure data from State Health Expenditures by State of Residence, 2014, Centers for Medicare & Medicaid Services; includes author calculation
Pharmaceutical retail sales data from IQVIA on special data request by Kaiser Family Foundation; includes author calculation
Health insurer revenue data from Health Plan Financial Summary data 2015, Department of Managed Health Care (DMHC)

[31] This figure is 52% of the total personal healthcare expenditure ($120 billion) and includes expenditure on Hospital Care, Nursing Home Care, Home Health Care, and Other Health Care
[32] Projected figure for 2017 using 2014 CMS data and applying an annual growth rate of 5%
[33] Total insurer revenues from commercial enrollment in 2015 as per CHCF

APPENDIX F: Airport Solidarity Tax

Table A8: Estimates of revenue generated from an airport solidarity tax in California

Airport[1]	Number of passengers (2017)	Domestic	International		TOTAL
		Business	Economy	Business	
Arcata (AVC)	132,659	$663,295	$-	$-	$663,295
Chico Municipal (CIC)[4]	None reported	$-	$-	$-	$-
Fresno Yosemite International (FAT)	1,534,806	$6,632,454	$11,249,023	$5,207,881	$23,089,357
Hollywood Burbank (BUR)	4,738,459	$23,692,270	$266	$123	$23,692,659
Imperial County (IPL)	11,812	$59,060	$-	$-	$59,060
Inyokern (IYK)[4]	820	$4,100	$-	$-	$4,100
Jack McNamara Field (CEC)	14,561	$72,805	$-	$-	$72,805
John Wayne (SNA)	10,423,578	$50,863,782	$13,544,362	$6,270,538	$70,678,683
Long Beach (LGB)	3,719,589	$18,597,935	$110	$51	$18,598,095
Los Angeles International (LAX)	84,554,436	$382,660,596	$433,205,105	$200,557,919	$1,016,423,620
Mammoth Yosemite (MMH)	44,615	$223,075	$-	$-	$223,075
McClellan-Palomar (CRQ)	11,296	$56,480	$-	$-	$56,480
Meadows Field, Bakersfield (BFL)	204,774	$1,023,870	$-	$-	$1,023,870
Merced Municipal (MCE)	16,746	$83,730	$-	$-	$83,730
Metropolitan Oakland International (OAK)	13,072,245	$64,633,038	$7,864,415	$3,640,933	$76,138,387
Modesto City-County (MOD)[4]	None reported	$-	$-	$-	$-
Monterey Peninsula (MRY)	405,891	$2,029,455	$-	$-	$2,029,455
Ontario International (ONT)	4,552,225	$22,049,592	$7,684,561	$3,557,667	$33,291,819
Oxnard (OXR)	None reported	$-	$-	$-	$-
Palm Springs International (PSP)	2,093,891	$8,585,457	$20,347,183	$9,419,992	$38,352,631
Palmdale (PMD)	None reported	$-	$-	$-	$-
Redding Municipal (RDD)	85,154	$425,770	$-	$-	$425,770
Sacramento International (SMF)	10,912,079	$54,538,253	$239,133	$110,710	$54,888,096

Sacramento Mather (MHR)	None reported	$-	$-	$-	$-
San Diego International (SAN)	22,030,380	$108,723,221	$15,429,737	$7,143,397	$131,296,354
San Francisco International (SFO)	55,827,677	$251,691,954	$296,421,455	$137,232,155	$685,345,564
San Jose International (SJC)	12,442,556	$61,264,312	$10,243,456	$4,742,341	$76,250,109
San Luis Obispo (SBP)	407,646	$2,038,230	$-	$-	$2,038,230
Santa Barbara International (SBA)	710,614	$3,553,050	$217	$101	$3,553,368
Santa Maria Public (SMX)	46,499	$232,495	$-	$-	$232,495
Sonoma County, Charles M. Schulz (STS)	393,893	$1,969,465	$-	$-	$1,969,465
Southern California Logistics (VCV)	63,908	$319,540	$-	$-	$319,540
Stockton Metropolitan (SCK)	190,568	$952,840	$-	$-	$952,840
Visalia Municipal (VIS)	None reported	$-	$-	$-	$-
Total:	**228,643,377**	$1,067,640,124	$816,229,023	$377,883,807	$2,261,752,953
%total		47.20%	36.09%	16.71%	100%

Source: California Department of Transportation's annual air passenger traffic data, 2017 http://www.dot.ca.gov/hq/planning/aeronaut/documents/statistics/2017_PAX.pdf
Percentage of domestic and international flights by airport obtained from the US DoT's Bureau of Transport Statistics database https://www.transtats.bts.gov/Data_Elements.aspx?Data=1

Notes:

- Tax rates applied:

	Economy Class	Business or First Class
Origin/Destination within US	$ --	$50.00
Origin/Destination outside US	$60.00	$250.00

- 10% of seats in all flights are assumed to be business or first class

APPENDIX G: Cost and financing of UHC in California using a public-private approach

The Seven Percent Solution: Costing and Financing Universal Health Coverage in California

Richard M. Scheffler[34] and Stephen M. Shortell[35]

As of 2017, California's uninsured rate stands at just over 7 percent.[36] Moving towards universal health coverage in California for the 3.72 million projected to be uninsured in 2020, of which about 1.5 million are undocumented, is a significant challenge but has considerable benefits. A healthier workforce will be more productive and absenteeism will decline.[37] Moreover, taxes collected from these healthier workers will increase. All Californians will have their risk of disease lowered. Universal coverage will allow all Californians to have improved access to care so they can prevent and treat illnesses that can be passed on to others. Children will have a better start to life and there will be less absenteeism in schools. In addition, the expensive treatment in emergency rooms would surely decline. Beyond these benefits for all Californians, it is the right thing to do. Most Californians support universal coverage, but have reservations about the cost of doing so.[38]

This Report starts with the current data available on who in California is not covered in a private or public plan. We then estimate the cost of providing coverage which is roughly $6 billion annually. To cover these costs, we suggest scaling the employer mandate used in the Healthy San Francisco program and imposing provider and payer taxes that have been used is other States to generate the required revenue. At each step along the way we explain the logic behind our estimates and the judgements we made. It is likely that others will have different views. Our plan can be revised to accommodate alternative views and will likely change as more precise data is available.

At the end of the day the plan we present cannot guarantee universal coverage. Since it is a public / private plan, there will be some who fall between the cracks or do not sign up for coverage or the subsidies that we finance in this plan. True universal coverage can happen if the Government passes a law on universal coverage for all Californians. But even in this case there

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[36] https://californiahealthline.org/news/uninsured-rate-declines-in-california-remains-unchanged-nationally/
[37] https://www.cdcfoundation.org/businesspulse/healthy-workforce-infographic
[38] https://www.ppic.org/wp-content/uploads/ppic-statewide-survey-californians-and-their-government-december-2018.pdf

is a role for the private sector in offering plans that extend coverage to services not included in government plans or in covering cost sharing requirements of a public plan.[39]

I. The Cost of Universal Coverage

A recent report by the UCLA Center for Health Policy Research and the UC Berkeley Labor Center estimates there will be 4.02 million uninsured Californians in 2020.[40] The report considers partial coverage Medi-Cal enrollees uninsured and assumes a phase out of the individual mandate starting in 2019. We retain the definition of partial coverage Medi-Cal enrollees as uninsured. Since Governor Newsom's recently released health care plan would restore the individual mandate in California,[41] we drop the assumption of no individual mandate. Dropping this assumption would reduce the number of uninsured by 300,000, according to the UCLA/UC Berkeley report.[42] Of the remaining 3.72 million uninsured, 1,480,000 would be undocumented, 730,000 would be eligible for Medi-Cal coverage, 350,000 would be eligible for subsidized ACA exchange coverage, 410,000 would be eligible for non-subsidized ACA exchange coverage, and 750,000 would be eligible for employer coverage (see Figure 1).

The costs we estimate in what follows are costs to the state for covering insurance premiums. We have not included the cost of any program that would be used to lower the out-of-pocket spending of enrollees.[43] We do not allocate any cost to Californians eligible for employer coverage or eligible for non-subsidized ACA exchange coverage.[44] We estimate the cost of covering the undocumented to be $2.7 billion. According to data from the Department of Health Care Services, roughly 1 million undocumented adults are already enrolled in restricted-scope Medi-Cal coverage, which covers emergency and pregnancy related services.[45] A recent report by the California Legislative Analyst's Office estimates the total state cost of providing full-scope Medi-Cal coverage to 1.276 million undocumented to be $2.34 billion.[46] Scaling up this

[39] A more detailed report on this subject titled "California Dreamin': Integrating Health Care, Containing Costs, and Financing Universal Coverage" is available here
[40] http://laborcenter.berkeley.edu/pdf/2018/CA-Coverage-Gains-To-Erode-Without-Further-State-Action.pdf
[41] https://www.sacbee.com/news/politics-government/capitol-alert/article224037840.html
[42] The report also provides a range of 150,000 to 450,000 additional uninsured in 2020 as a result of the phase out of the individual mandate.
[43] Covered California released a report in February 2019 which presents various options to enhance affordability and coverage for uninsured Californians. Specifically, Option 2 in their recommendations eliminates the tax-credit cliff, significantly expands cost-sharing subsidies, and adds the individual mandate penalty. See https://hbex.coveredca.com/data-research/library/CoveredCA_Options_To_Improve_Affordability.pdf for details.
[44] An individual mandate will likely increase take up for this group, but the rate of take up will depend on the strength of the mandate (i.e. level of penalties). Thus, our plan is a path to universal coverage.
[45] https://lao.ca.gov/Publications/Report/3827
[46] https://lao.ca.gov/reports/2019/3935/medi-cal-021319.pdf

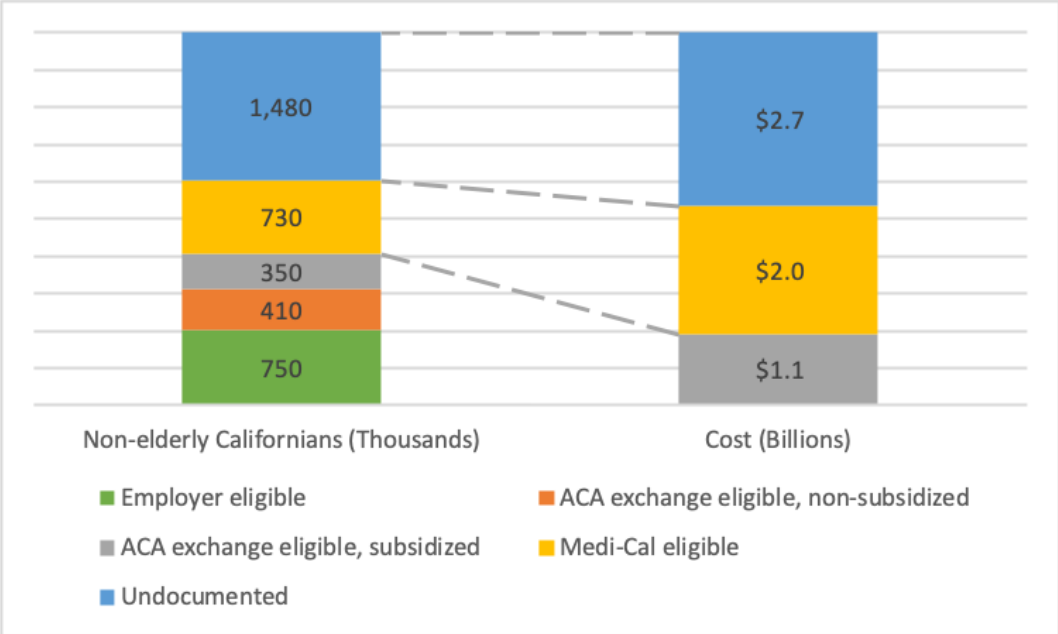
figure to 1,480,000 undocumented[47] and accounting for inflation results in a cost of $2.7 billion in 2020.[48]

We estimate the cost to the state of covering the 730,000 Medi-Cal eligibles to be $2.0 billion. Average Medi-Cal per enrollee spending was $5,368 in 2014. Assuming a 3.4% annual growth rate for Medi-Cal per enrollee spending,[49] Medi-Cal spending per enrollee will be $6,560 in 2020. Multiplying 730,000 by $6,560 and 41% (the amount of Medi-Cal covered by the state)[50] results in an estimate of $2.0 billion. It is worth noting that the state government is already liable for this amount towards covering Medi-Cal eligibles as an existing entitlement. Subsequently, although this $2.0 billion is already a part of the total funds that must be allocated to existing state funding sources, we include it in our estimates as an incremental cost to ensure coverage for unenrolled Medi-Cal eligibles.

Finally, a lack of affordability has been cited as one of the primary reasons for why the ACA exchange eligible uninsured have chosen not to sign up for coverage. As a way of increasing the affordability of ACA exchange coverage, we propose California further subsidize the premiums of ACA exchange enrollees who are already eligible for federal premium subsidies. This group currently pays $123 per month on average in premiums. We estimate it would cost the state $1.1 billion to cut the average per month premium of this group in half.[51] This additional California-funded subsidy would apply to the roughly 1.1 million subsidized current enrollees[52] and the 350,000 ACA subsidy-eligible uninsured. A recent study commissioned by Covered California proposes an alternative subsidy support program which leads to cost to the state of roughly $2 billion.[53] Overall, we estimate the total cost of covering the uninsured in California to be $5.8 billion (see Figure 1).

[47] In order to cover all undocumented immigrants under Medi-Cal rather than just those estimated to be income-eligible.
[48] This assumes the proportion of the undocumented with restricted-scope Medi-Cal (80%) remains the same in 2020.
[49] 3.4% 5-year average annual growth rate for Medi-Cal per enrollee spending. See https://www.chcf.org/publication/california-health-care-spending/ for details.
[50] https://www.kff.org/medicaid/state-indicator/federalstate-share-of-spending/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D
[51] Assuming a growth rate of 4.4% (the 5-year average growth rate) in average subsidized ACA exchange premiums, premiums will be $128 per month on average in 2020. (1,100,000 currently subsidized enrollees + 350,000 ACA exchange eligible uninsured) x $64 per month x 12 months = $1.11 billion
[52] https://www.coveredca.com/newsroom/PDFs/CoveredCA_2019_Plans_and_Rates.pdf
[53] The plan focuses on eliminating the tax-credit cliff and expanding cost-sharing subsidies and reinsurance. See https://hbex.coveredca.com/dataresearch/library/CoveredCA_Options_To_Improve_Affordability.pdf for details.

Figure 1. Number of Uninsured (3.72 million) and the State's Cost of Coverage ($5.8 billion) in California



Source: Authors' analysis of data from multiple sources

II. Financing Universal Coverage

The cost to the state to cover the uninsured in California is estimated to be $5.8 billion annually. We propose two sources of public financing – (i) a provider and payer tax, and (ii) a state-wide employer mandate to raise these funds. Additionally, we briefly describe two novel potential sources of revenue – (i) an airport landing fee, and (ii) a rental car tax, to fund universal coverage in the state. These estimates are intended to provide a sense of the magnitude of what these taxes would produce in revenues.

Provider and Payer Tax

Provider taxes have been successfully implemented in various states such as Arizona, Colorado, Indiana, Louisiana, Minnesota, Oregon, and Virginia. As an example, Minnesota currently imposes a two percent tax on providers such as physicians, dentists, psychologists and other licensed and unlicensed healthcare workers, hospitals, surgical centers, and wholesale drug distributors[54]. The tax was introduced in 1992 and is set to expire in 2019, with the possibility of renewal. The two percent tax in Minnesota is imposed on the following categories of healthcare providers:

i. Physicians, dentists, nurses, psychologists, and other licensed and unlicensed healthcare staff,
ii. Hospitals

[54] https://www.house.leg.state.mn.us/hrd/pubs/ss/ssmcpt.pdf

iii. Surgical centers
iv. Wholesale drug distributors

Revenues from the tax are directed to a Health Care Access Fund where they are used to provide subsidized healthcare to low income populations. The increase in enrollment due to expanded coverage in Minnesota resulted in substantial savings for providers, specifically in terms of reduced uncompensated care in hospitals to the tune of $58.6 million over a 5-year period.[55] Many other states also levy provider taxes, mostly in the form of hospital taxes, to fund expansion of coverage to uninsured populations.

We propose levying a similar provider and payer tax of one percent on commercial revenues of the following categories of healthcare providers and payers in California:

i. Institutional providers (such as hospitals, nursing homes, and home healthcare services),
ii. Large medical groups with over 25 physicians[56],
iii. Pharmaceutical sales, and
iv. Health plans for commercial payers in California

The provider tax would be in addition to any Medicaid-specific provider fee already in place in California. The tax will not be applicable on Medicare and Medicaid payments. It would raise approximately $2.5 billion in revenues which could be used to fund universal coverage (see Table 1). Hospitals will benefit from increased enrollment by having their charity care reduced. All institutions will benefit from an increased demand for their services.

Table 1. Estimated revenue from provider and payer tax in California, 2017 (in millions $)

	Institutional Healthcare Expenditure[57] (Commercial)	Pharmaceutical Retail Sales (Commercial)	Health Insurer Revenues (Commercial Enrollment)	Physician Gross Revenues
Expenditures/Sales	$62,561[58]	$14,069	$162,500[59]	$12,957
Tax Revenues (at 1.0%)	$626	$141	$1,625	$130
Total Tax Revenue	$2.5 billion			

Source: Personal healthcare expenditure data from State Health Expenditures by State of Residence, 2014, Centers for Medicare & Medicaid Services; includes author calculation
Pharmaceutical retail sales data from IQVIA on special data request by Kaiser Family Foundation; includes author calculation

[55] Blewett, Lynn A., Gestur Davidson, Margaret E. Brown, and Roland Maude-Griffin. "Hospital provision of uncompensated care and public program enrollment." Medical care research and review 60, no. 4 (2003): 509-527
[56] Large dental practices could also be considered for inclusion in this provider tax. However, we have not included these calculations in our current estimates.
[57] This represents 52% of the total personal healthcare expenditure ($120 billion) and includes expenditure on Hospital Care, Nursing Home Care, Home Health Care, and Other Health Care
[58] Projected figure for 2017 using 2014 CMS data and applying an annual growth rate of 5%
[59] Total insurer revenues from commercial enrollment in 2015 as per CHCF

Health insurer revenue data from Health Plan Financial Summary data 2015, Department of Managed Health Care (DMHC)
Physician gross revenue data from Medscape's Physician Compensation Report 2018 and SK&A data; includes author calculations

Employer Mandate

Healthy San Francisco is a healthcare access program created by the Gavin Newsom administration in 2007 with the aim of expanding healthcare access to all San Franciscans, irrespective of employment status. A large portion of the revenues for the program are obtained from Employer Spending Requirement (ESR) payments by employers in compliance with a city-level Health Care Security Ordinance (HCSO)[60]. The HCSO requires all for-profit employers with over 20 employees and non-profit employers with over 50 employees to make healthcare contributions on behalf of their employees. Preliminary calculations to scale up this mandate at the state level are presented in Table 2.

As per Table 2, around $3.3 billion can be generated annually from a state-wide ordinance requiring ESR payments from all businesses with more than 20 employees. Some restaurant businesses in San Francisco financed their ESR payments by levying a 4% surcharge on customers (median amount that around 27% of restaurants in San Francisco charge their customers as a 'health fee'[61]). A similar approach could be adopted by businesses in California to spread out costs among high-income payers.

Table 2. Estimated Revenue from a State-wide Employer Mandate, 2017

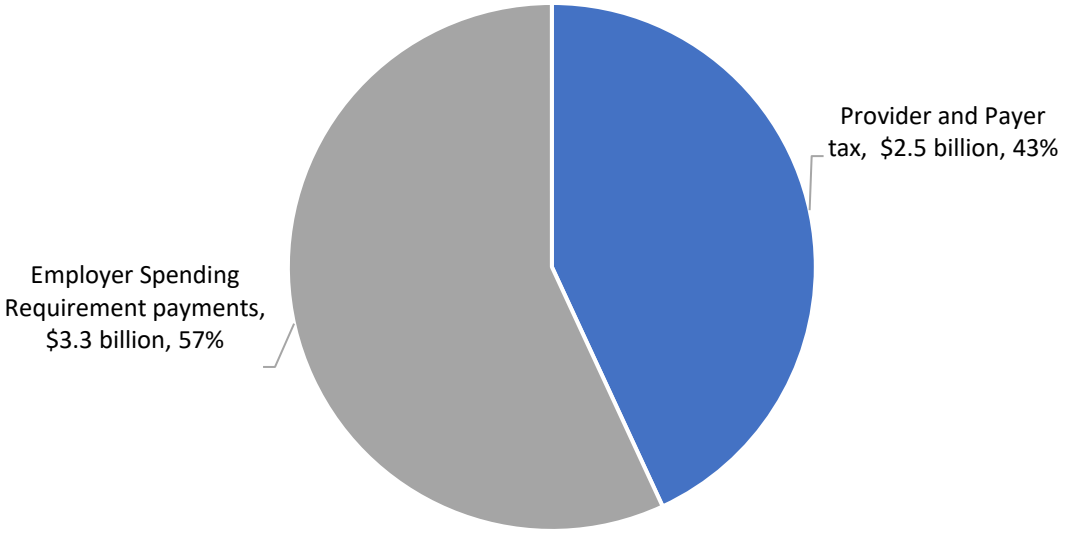
Number of Employees in Firms with 20+ employees in California	12,852,737
Number of Employees in Firms with 20+ employees in San Francisco	551,851
City Option Revenue in San Francisco	$ 143.2 million
Estimated Revenue from employer payments in California[62]	=($143.2 million) X (12,852,737/551,851) **= $ 3.3 billion**

Source: Number of employees from California Employment Development Department's Labor Market Information; City Option Revenue from Healthy San Francisco Annual Report 2016-17

[60] https://sfgov.org/olse/health-care-security-ordinance-hcso
[61] Colla, Carrie H., William H. Dow, and Arindrajit Dube, "How Do Employers React to a Pay-or Pay Mandate? Early Evidence from San Francisco." Forum for Health Economics and Policy 14, no. 2 (July 2011). http://www.nber.org/papers/w17198.pdf
[62] This is a conservative estimate given that the percent of adults who do not receive the offer of health benefits from their employer is higher in California (20.4%; with a 95% Confidence Interval of 18.6%-22.1%) as compared to San Francisco (6.5%; with a 95% Confidence Interval of 1.9%-11.1%). Thus, employer payments are likely to be higher than this estimate when scaled up to the state-level.
Source: AskCHIS

In sum, the annual amount of $5.8 billion required to cover all uninsured Californians can be raised through a combination of provider and payer taxes, and a state-wide employer mandate. Figure 2 illustrates the distribution of revenues generated from the sources described above.

Figure 2. Sources of public financing to achieve Universal Healthcare Coverage in California ($5.8 billion)



Source: Authors' calculations from multiple sources

Additional Revenue Sources

Airport Landing Fee

A novel source of financing coverage for the uninsured is revenues from an airport landing fee on all flights in California. The idea of a 'solidarity tax on airplane tickets' was introduced in 2005 by the French president at the World Economic Forum as an additional surcharge levied on civil aviation tax whose proceeds are directed to fund a global health initiative working on ending epidemics across the world[63]. The amount levied varies from €1.13 - €45.07 per ticket depending on destination and class of travel. After France began implementing the tax in 2006, it was adopted by several other countries and is currently levied by nine countries, namely Cameroon, Chile, Congo, France, Madagascar, Mali, Mauritius, Niger and the Republic of Korea[64]. The list of countries levying this surcharge consist of a mix of traditional donor countries as well as developing countries who can benefit directly from the initiative. The revenues generated are allocated to support UNITAID, an organization that invests in innovations to prevent, diagnose and treat HIV/AIDS, tuberculosis, and malaria.

[63] http://leadinggroup.org/rubrique177.html
[64] http://www.fondationchirac.eu/en/2013/09/the-fondation-chirac-applauds-the-increase-in-the-solidarity-contribution-on-airline-tickets/

Almost 70% of the initiative's funds come from the airport tax revenues, which present a sustainable and long-term source of funding as compared to traditional one-time grants or donations.[65]

We propose applying a similar landing fee on all flights landing in California. Preliminary calculations suggest that if we apply a rate of $1000-$2000 on each flight landing in California, it could raise $0.95 billion - $1.90 billion annually.[66] Further, these rates could be varied based on the size of the airplane with larger airplanes being charged a higher landing fee since they have higher administrative costs.

The legality of this fee requires additional study. It falls under Sections 40116(c) and (e)(2) of the US Code Title 49 on transportation that would potentially allow the state to impose "landing fees" on airplanes that terminate at California airports without distinguishing between in-state, out-of-state, and foreign flights.[67]

Rental Car Tax

Over 40 states impose a tax or fee on rental cars, with the revenues being used for a variety of purposes. Some states direct the revenues into transportation related funds while others direct them into the state general fund to be used at the discretion of the state legislature for purposes such as construction of stadiums. [68] As an example, the state of New York imposes a tax of 6 percent on rental cars in addition to regular state and local sales taxes. This tax on auto rentals generated an annual revenue of over $48 million in FY 2017. [69] Similarly, Texas imposes a 10 percent tax on gross receipts from rentals up to 30 days, and a tax rate of 6.25 percent on gross rental receipts from rentals exceeding 30 days but no longer than 180 days. [70] This generated revenue worth around $300 million in FY 2018. [71] California does not currently impose any charges on auto rentals, presenting a viable option for funding universal coverage in the state. If the state were to impose a tax on rental cars at rates similar to the state of Texas, it could potentially raise revenues to the tune of $600-800 million annually.

The additional funds generated from these two sources could be used towards covering out of pocket expenses, such as co-payments, deductibles, and co-insurance amounts for new and low-income enrollees.

[65] https://www.who.int/immunization/programmes_systems/financing/analyses/Brief_18_Airline_Ticket_Tax.pdf
[66] As per data from the US Bureau of Transportation Statistics, around 950,000 airplanes landed in California airports in 2017; https://www.transtats.bts.gov/
[67] https://www.law.cornell.edu/uscode/text/49
[68] http://www.ncsl.org/research/fiscal-policy/rental-car-taxes.aspx
[69] https://www.tax.ny.gov/pdf/2016-17_collections/2016_17_Collections_Report.pdf
[70] https://comptroller.texas.gov/taxes/motor-vehicle/gross-rental.php
[71] https://comptroller.texas.gov/transparency/revenue/docs/96-571.pdf

III. Conclusion

We believe that our cost estimate for universal coverage of $5.8 billion is within reach of what California can reasonably afford. Using a shared public and private mix of funding, this plan is based on things that have worked in California before and new approaches that have worked in other States. More work on how to implement and enforce the individual mandate is needed. We call on the legislature and governor's office to move California forward to achieve universal coverage.