

# The Impact of Medicaid Expansion on Female Breast Cancer Treatment and Survival: A Difference-in-Difference Analysis of the Synthetic California Cancer Registry Data

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## BACKGROUND

- Medicaid expansion under the Affordable Care Act (ACA) has been linked to improved access to cancer care in states with the expansion.
- However, the impact within expansion states has not been explored.
- Objectives:** To assessed the impact of Medicaid in California (**Medi-Cal**) expansion in 2014 on breast cancer treatment, and survival.

## DATA

- The **Synthetic California Breast Cancer** Registry data.
- Study population:**
  - Female patients aged at diagnosis (DX)
  - 20-64 yr
  - DX during the pre-expansion period
    - 2010-2013; N=43,453
  - DX during the post-expansion period
    - 2014-2017; N=44,701
  - Follow-up time  $\geq 1$  yr

## METHODS

- A difference-in-difference (**DID**)
- Outcomes:**
  - Cancer treatment (surgery, chemotherapy, radiation) - Logistic regression models
  - Survival (overall one-year mortality) - Cox regression models.
- Exposure:**
  - Patients' insurance status
    - Medicaid/not insured vs insured
- Covariates:**
  - Demographic (age, race/ethnicity, marital status)
  - Cancer status (stage, grade, laterality),
  - Census-tract-level factors (rurality, social vulnerability index (SVI).

Figure 1. Trend of the proportion of women (20-64 years) with breast cancer who received surgery, chemotherapy, radiation and who died in one year

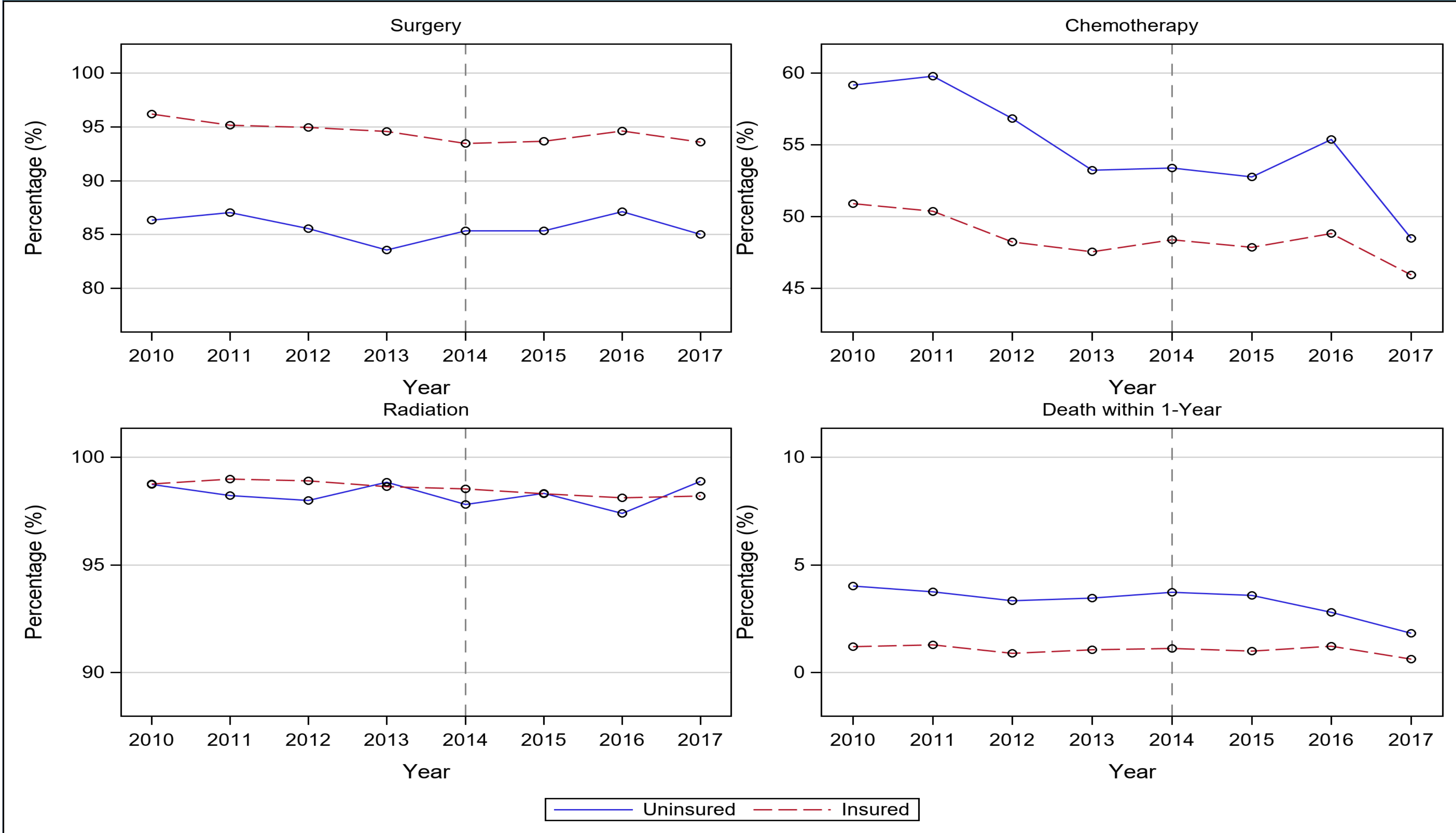


Table 1. Estimated impact of Medi-Cal expansion on surgery, chemotherapy, radiation and one-year mortality among women (20 - 64 years) with breast cancer

Outcome	Insurance status	Pre Medi-Cal expansion	Post Medi-Cal expansion	Estimated difference of probabilities	DID estimates (95% CI)
Surgery	Insured	95.20%	93.84%	1.55%	0.22 (0.08, 0.35)
	Uninsured	85.64%	85.74%		
Chemotherapy	Insured	49.31%	47.86%	-2.97%	-0.10 (-0.18, -0.02)
	Uninsured	57.08%	52.66%		
Radiation	Insured	98.82%	98.28%	0.17%	0.16 (-0.10, 0.43)
	Uninsured	98.45%	98.09%		
One-year mortality	Insured	0.98%	0.94%	-0.24%	0.13 (-0.10, 0.36)
	Uninsured	3.30%	2.83%		

## RESULTS

- The proportion of cancer treatment varied by insurance status between the pre- vs post-Medi-Cal expansion period at different magnitude depending on the specific outcome (**Figure 1 & Table 1**).
- For example, the overall mortality rate in the insured vs uninsured
  - Pre: 0.98% vs 3.30%
  - Post: 0.94% vs 2.83%
- Statistically significant effect of Medi-Cal expansion (**Table 1**) was only found for
  - Surgery**
    - Estimated DID probability= 1.55%, p=0.001)
  - Chemotherapy**
    - Estimated DID probability=-2.97%, p=0.019)
  - Not the other outcomes (p>0.05).

## CONCLUSION

- Within California the expansion had discernable effect among patients with different health insurance status.
- While the expansion increased surgery but decreased chemotherapy treatment among uninsured patients more than among the insured patients, the effect was not seen for radiation or survival.

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