

# Trends in Healthcare Costs Over a Decade Among Patients with Cancer and Cardiometabolic Comorbidities

Li-Wei Wu<sup>1</sup>, Arianna Fa<sup>2</sup>, Chanhyun Park<sup>1</sup>

<sup>1</sup> College of Pharmacy, The University of Texas at Austin; <sup>2</sup> College of Natural Sciences, The University of Texas at Austin



The University of Texas at Austin  
Division of Health Outcomes  
College of Pharmacy

## BACKGROUND

- In 2025, an estimated nearly 2 million new cancer cases and over 600,000 cancer deaths are projected to occur in the U.S.<sup>1</sup>
- Pre-existing cardiometabolic comorbidities, including hypertension, hyperlipidemia, and diabetes, are common among patients with cancer.<sup>2</sup>
- Cardiometabolic comorbidities complicate cancer care by affecting detection, treatment decisions, and therapy adherence, leading to worsened clinical outcomes and increased healthcare resource utilization.<sup>3</sup>
- Despite extensive documentation of rising costs associated with cancer care and the increasing prevalence of pre-existing cardiometabolic comorbidities, the combined effect of these factors on healthcare spending trends remains unclear.

## OBJECTIVES

- To assess trends in healthcare costs among patients with cancer and pre-existing cardiometabolic conditions, including hypertension, hyperlipidemia, and diabetes.

## METHODS

### Data Source

- The 2011-2021 Merative® MarketScan™ Research Database

### Study Population

#### Patients were included if they:

- Had at least two claims for the same cancer type on different dates within 90 days of the index date (first cancer diagnosis date)
- Were aged 18 years or older at the index date
- Were continuously enrolled in MarketScan during the pre-index period (1 year before the index date) and post-index period (1 year after the index date)
- Had no diagnosis of the index cancer during the pre-index period
- Had no diagnosis of other cancers during the pre-index period and post-index period

### Key Variables

#### Predictor Variables

- Presence and number (0, 1, 2, 3) of pre-existing cardiometabolic comorbidities (hypertension, hyperlipidemia, and diabetes) during the pre-index period

#### Outcome Variables

- Total healthcare costs during the post-index period (including expenses from inpatient visits, emergency room (ER) visits, outpatient visits, and pharmacy costs)

#### Baseline Characteristics

- Baseline characteristics were measured during the pre-index period, including demographic (age, gender, and insurance type) and clinical characteristics (Charlson Comorbidity Index, arrhythmia, angina, stroke, heart failure, myocardial infarction, and cardiomyopathy)

### Statistical Analysis

**Descriptive statistics:** Demographic and clinical characteristics

#### Generalized linear model:

- Unadjusted and adjusted annual healthcare costs
- Mean cost ratios (patients with cardiometabolic comorbidities vs. those without; patients with 1, 2, or 3 types of these comorbidities vs. those without)

**Joinpoint regression:** Annual percentage changes (APCs) in healthcare costs

## RESULTS

Figure 1. Study Design

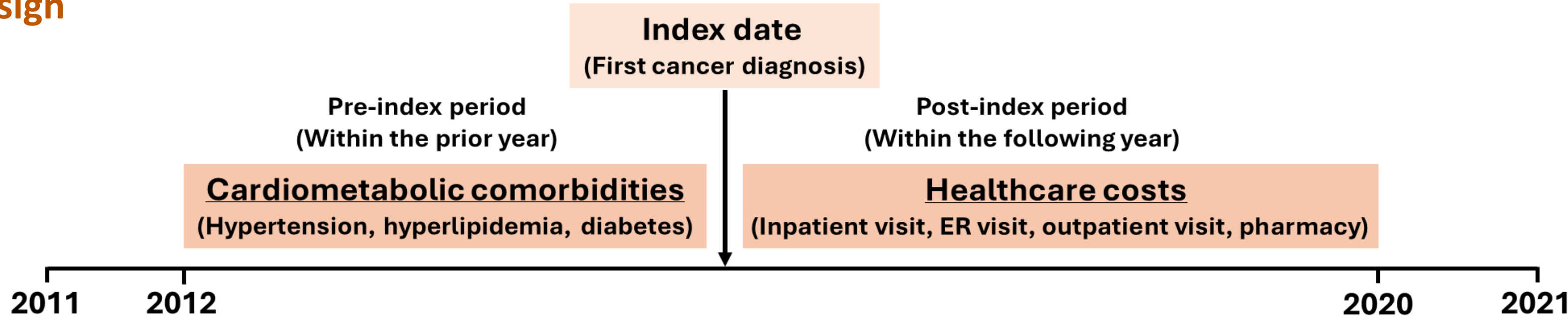


Figure 2. Trends in Adjusted Annual Healthcare Costs. (A) Hypertension (B) Hyperlipidemia (C) Diabetes (D) Number of Comorbidities

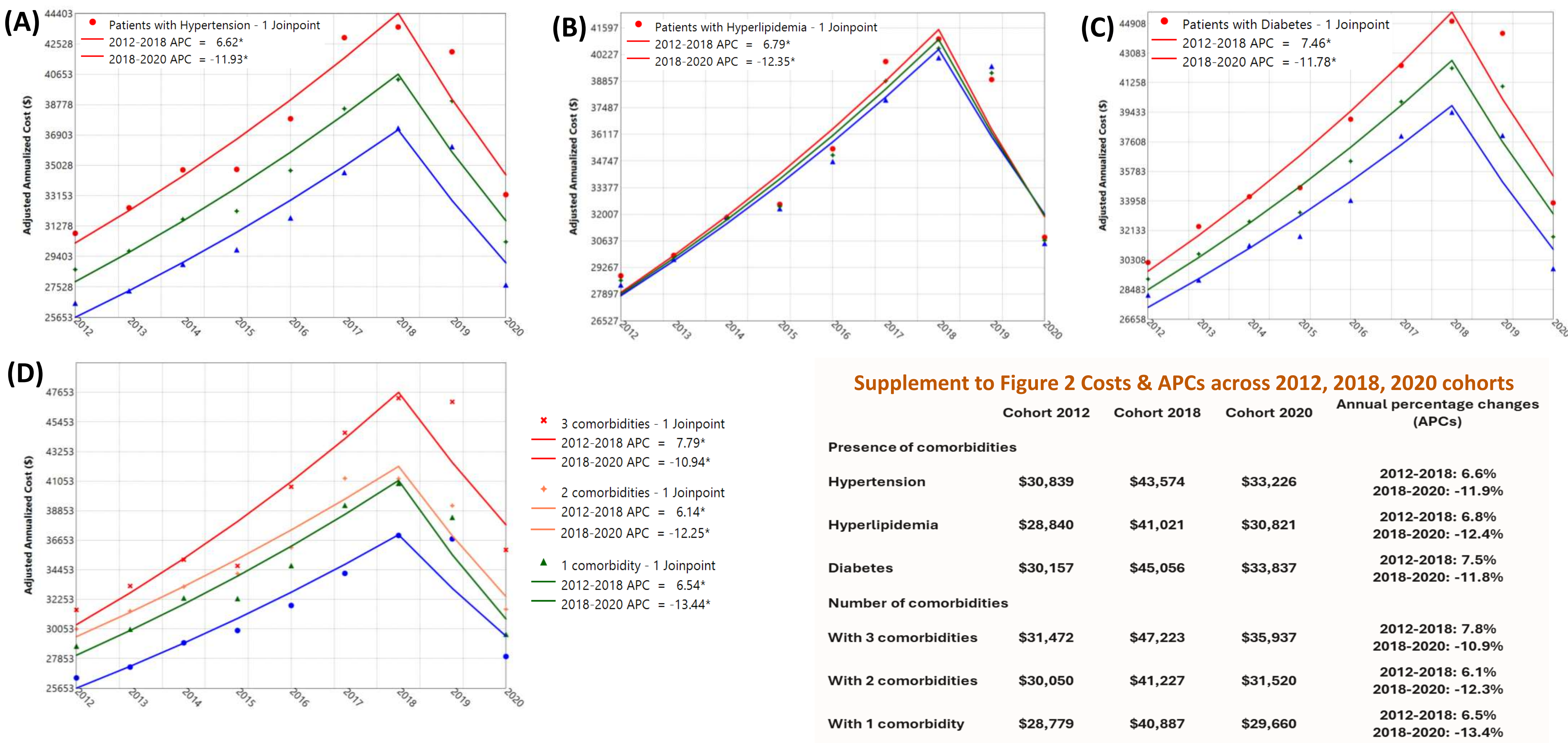


Table 1. Adjusted Mean Ratios of Healthcare Costs, Categorized by Presence and Number of Baseline Comorbidities

	Year of earliest cancer diagnosis									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Presence of comorbidities										
Hypertension (with vs. without)	1.16 (1.15-1.18)	1.19 (1.17-1.21)	1.20 (1.18-1.22)	1.17 (1.15-1.19)	1.19 (1.17-1.22)	1.24 (1.21-1.27)	1.17 (1.14-1.20)	1.16 (1.13-1.19)	1.20 (1.17-1.23)	
Hyperlipidemia (with vs. without)	1.02 (1.00-1.03)	1.01 (0.99-1.02)	1.00 (0.98-1.02)	1.01 (0.99-1.02)	1.02 (1.00-1.04)	1.05 (1.03-1.08)	1.02 (1.00-1.05)	0.98 (0.96-1.01)	1.01 (0.99-1.03)	
Diabetes (with vs. without)	1.07 (1.05-1.09)	1.11 (1.09-1.14)	1.10 (1.07-1.13)	1.09 (1.07-1.12)	1.15 (1.11-1.18)	1.11 (1.07-1.16)	1.14 (1.10-1.19)	1.17 (1.12-1.21)	1.14 (1.10-1.18)	
Number of comorbidities										
With 1 comorbidity vs. none	1.09 (1.07-1.11)	1.10 (1.09-1.12)	1.11 (1.09-1.14)	1.08 (1.06-1.10)	1.09 (1.07-1.12)	1.15 (1.12-1.18)	1.10 (1.08-1.14)	1.04 (1.02-1.07)	1.06 (1.03-1.09)	
With 2 comorbidities vs. none	1.14 (1.12-1.16)	1.15 (1.13-1.18)	1.14 (1.12-1.17)	1.14 (1.12-1.17)	1.14 (1.11-1.17)	1.21 (1.17-1.24)	1.11 (1.08-1.15)	1.07 (1.03-1.10)	1.13 (1.09-1.16)	
With 3 comorbidities vs. none	1.19 (1.16-1.22)	1.22 (1.19-1.26)	1.21 (1.17-1.26)	1.16 (1.12-1.20)	1.28 (1.23-1.33)	1.31 (1.25-1.37)	1.28 (1.22-1.34)	1.28 (1.22-1.34)	1.28 (1.23-1.34)	

Data are presented as mean ratios (95% confidence intervals).

## CONCLUSIONS

### Strengths

- This is the first comprehensive investigation into healthcare costs among cancer survivors with pre-existing cardiometabolic comorbidities.
- Spanning a decade, the study provides insights into cost trends before and after the COVID-19 pandemic, illustrating its impact on healthcare expenditures.
- The additional cost burdens associated with cardiometabolic conditions were quantified, enhancing our understanding of the financial relationship between cancer care and the management of these comorbidities.

### Limitations

- The study period does not cover healthcare costs for ongoing cancer treatment beyond one year after diagnosis; however, this should not affect our analysis of cost trends.
- Our analysis does not account for out-of-pocket or indirect costs, indicating the need for future research to estimate these expenses.
- The findings of this study may not be generalizable to patients with non-private insurance or no insurance.

### Implications

- Our findings highlight the significant financial strain on patients with cancer and cardiometabolic comorbidities and reveal the changes in healthcare costs and potential undertreatment during the COVID-19 pandemic.
- The evidence underscores the necessity of enhanced treatment strategies and policy interventions to alleviate the economic challenges encountered by these populations.

### Conclusion

- Healthcare costs for patients with cancer and pre-existing cardiometabolic conditions have risen significantly since 2012. Although there was a decline after 2019 due to the impact of COVID-19, the overall trend remains concerning.
- Patients with cancer and baseline conditions, including hypertension and diabetes, as well as those with multiple cardiometabolic comorbidities, were associated with higher healthcare expenses.

## REFERENCES

1. Siegel, RL, et al. Cancer statistics, 2025. *CA: A Cancer Journal for Clinicians*. 2025, 75.1: 10.
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