

Improving Survival and Increasing Disease Burden in Chronic Myelomonocytic Leukemia: Population-Based Trends and Projections from SEER, 2000–2022

A. Syal and D. Tremblay

¹Department of Internal Medicine, Mount Sinai Morningside and West, Icahn School of Medicine at Mount Sinai, 1000 10th Ave, New York, NY 10019, United States of America

²Division of Hematology and Medical Oncology, Tisch Cancer Institute, Icahn School of Medicine at Mount Sinai, 1470 Madison Avenue, New York, NY 10029, United States of America



Introduction

- Chronic myelomonocytic leukemia (CMML) is a rare myeloid malignancy associated with limited survival and substantial early mortality.
- Contemporary population-level data describing changes in CMML incidence, treatment patterns, and outcomes remain limited.

Aims

- To characterize national trends in CMML incidence, treatment, and survival and project the future burden of CMML in the United States.

Methods

- Patients diagnosed with CMML from 2000–2022 were identified in the Surveillance, Epidemiology, and End Results (SEER) database.
- Age-adjusted incidence rates were calculated by year of diagnosis.
- Overall survival was estimated using the Kaplan–Meier method; temporal trends in median survival, 90-day mortality, and recorded chemotherapy were evaluated across diagnosis periods.
- A linear model of annual incidence rates was combined with projected U.S. population estimates to forecast annual CMML cases in 2040 and 2060.

Results

- CMML incidence increased modestly from 2000–2022.
- Median OS increased from 13 to 22 months.
- Ninety-day mortality declined from 24.3% to 16.9%.
- Annual cases are projected to reach ~3,500 by 2060.

Table 1. Baseline demographic, clinical, and treatment characteristics of patients with chronic myelomonocytic leukemia

Characteristic	Overall (N = 8,875)
Age, median (IQR), years	75 (65–80)
Age ≥65 years, n (%)	7,495 (84.5%)
Sex, n (%)	
Male	5,648 (63.6%)
Female	3,227 (36.4%)
Race, n (%)	
White	7,705 (86.8%)
Black	547 (6.2%)
Asian or Pacific Islander	544 (6.1%)
American Indian/Alaska Native	39 (0.4%)
Unknown	40 (0.5%)
Ethnicity, n (%)	
Hispanic or Latino	693 (7.8%)
Non-Hispanic or Latino	8,182 (92.2%)
Year of diagnosis, n (%)	
2000–2002	653 (7.4%)
2003–2005	836 (9.4%)
2006–2008	922 (10.4%)
2009–2011	1,098 (12.4%)
2012–2014	1,188 (13.4%)
2015–2017	1,380 (15.5%)
2018–2020	1,619 (18.2%)
2021–2022	1,179 (13.3%)
Recorded chemotherapy, n (%)	
Yes	3,404 (38.4%)
No/unknown	5,471 (61.6%)

Figure 1. Overall survival, 90-day mortality, and recorded chemotherapy among patients with chronic myelomonocytic leukemia by year of diagnosis.

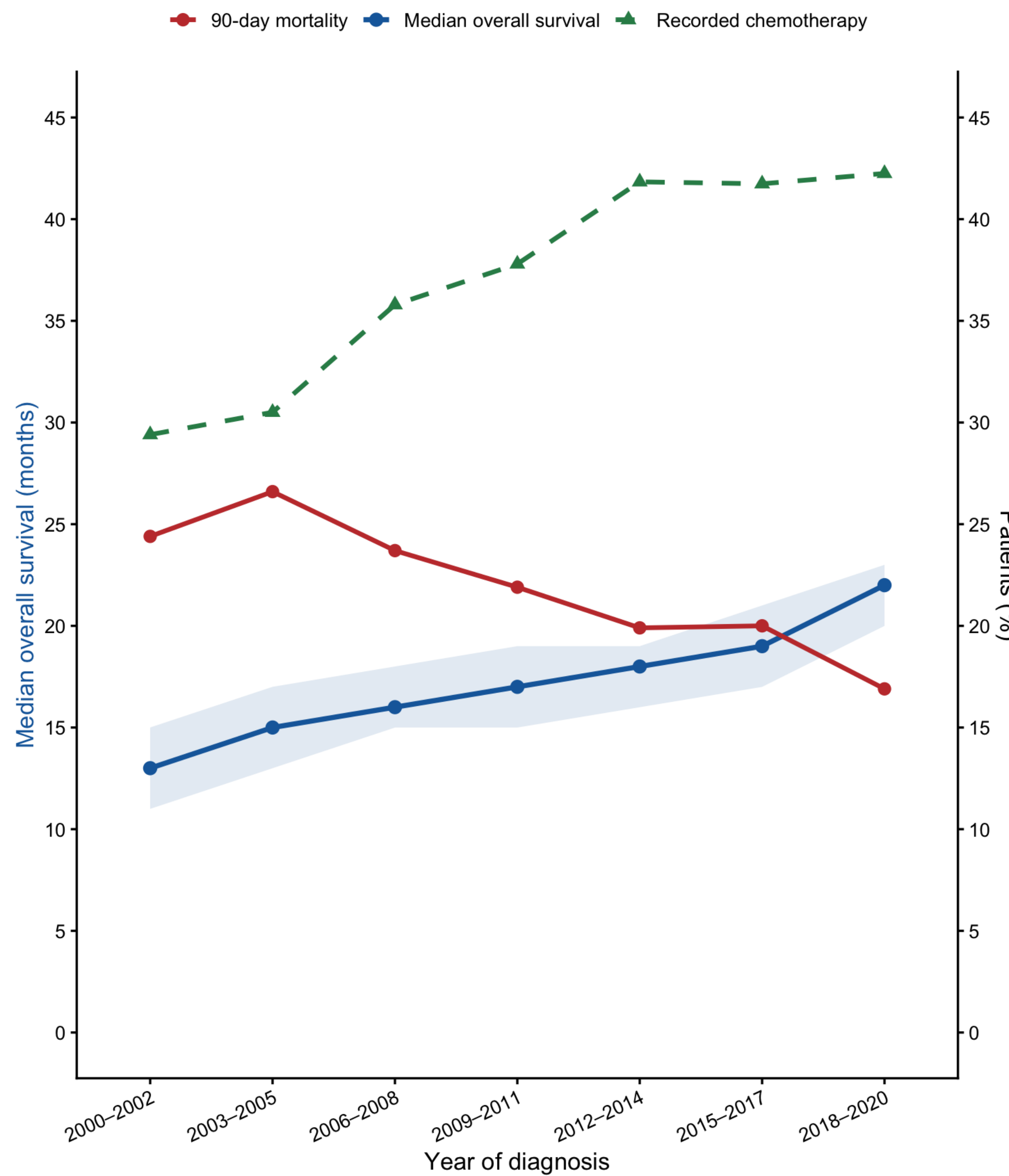
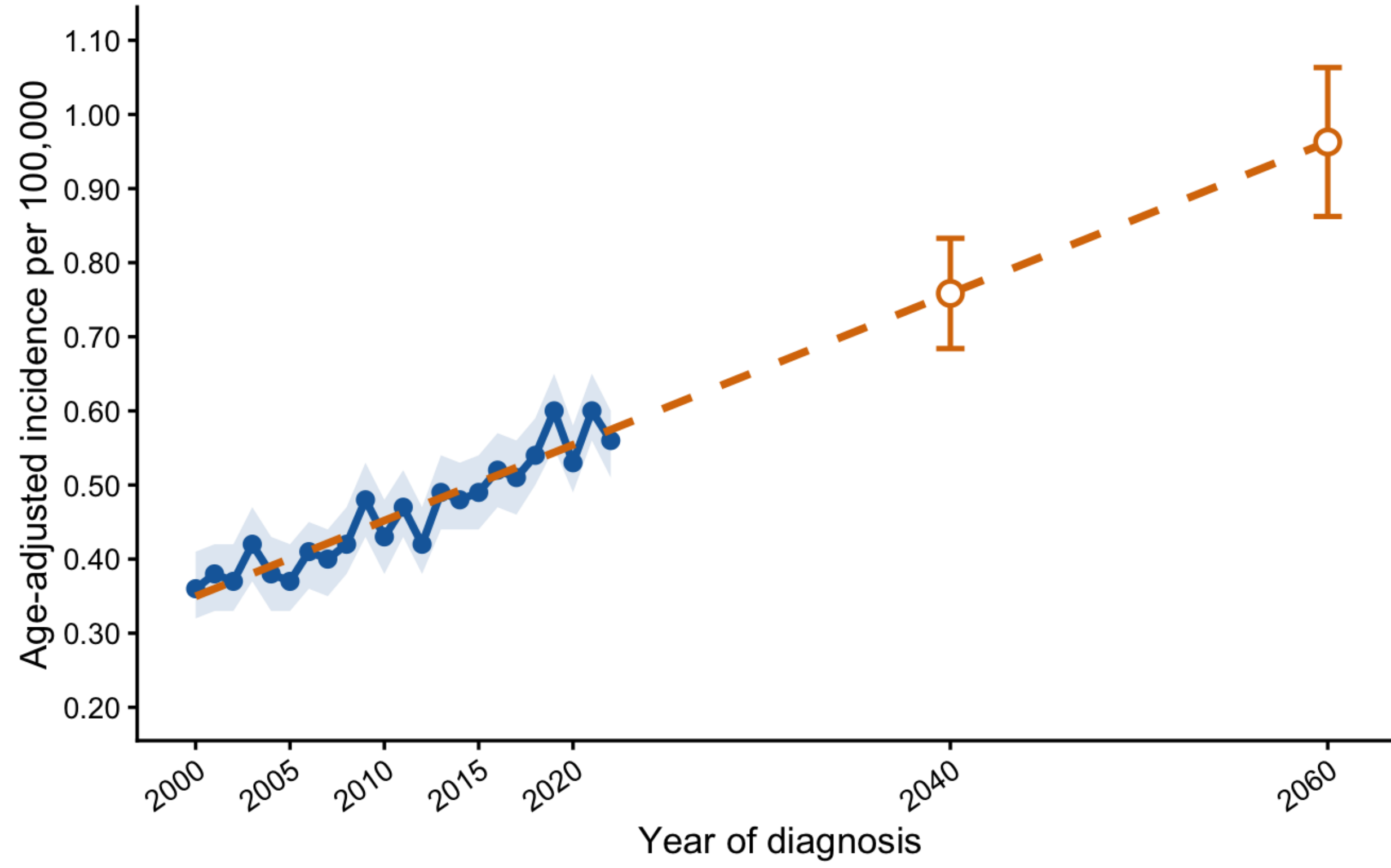


Figure 2. Observed and projected age-adjusted incidence of chronic myelomonocytic leukemia in the United States, 2000–2060.



The solid line represents observed incidence, the dashed line represents model-based projections, and the shaded area represents the 95% prediction interval.

Conclusions

- CMML incidence increased modestly from 2000–2022, while median overall survival improved and 90-day mortality declined.
- Recorded chemotherapy use increased over time, although these descriptive trends do not establish causality.
- Despite improving outcomes, the annual number of CMML cases is projected to rise substantially.
- Continued therapeutic development and healthcare planning will be needed to address the growing burden of CMML in an aging population.

Contact Information

Presenting Author: arjun.syal@mountsinai.org

Senior Author: douglas.tremblay@mssm.edu

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