

Ductal Carcinoma In Situ: Trends in Incidence and Treatment

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Background

- In 2015, an estimated 60,290 US women will be diagnosed with breast carcinoma in situ. Approximately 83% of these cases will be ductal carcinoma in situ (DCIS).
- Incidence rates for DCIS increased rapidly following the introduction of mammography as a population screening tool in the US.
- DCIS is viewed as a true (non-obligatory) precursor lesion for invasive cancer; however, data are limited about the proportion of detected DCIS lesions that will progress to invasive cancer without treatment. Questions remain about the optimal management of this condition.
- The purpose of this study is to examine recent trends in DCIS incidence and treatment patterns.

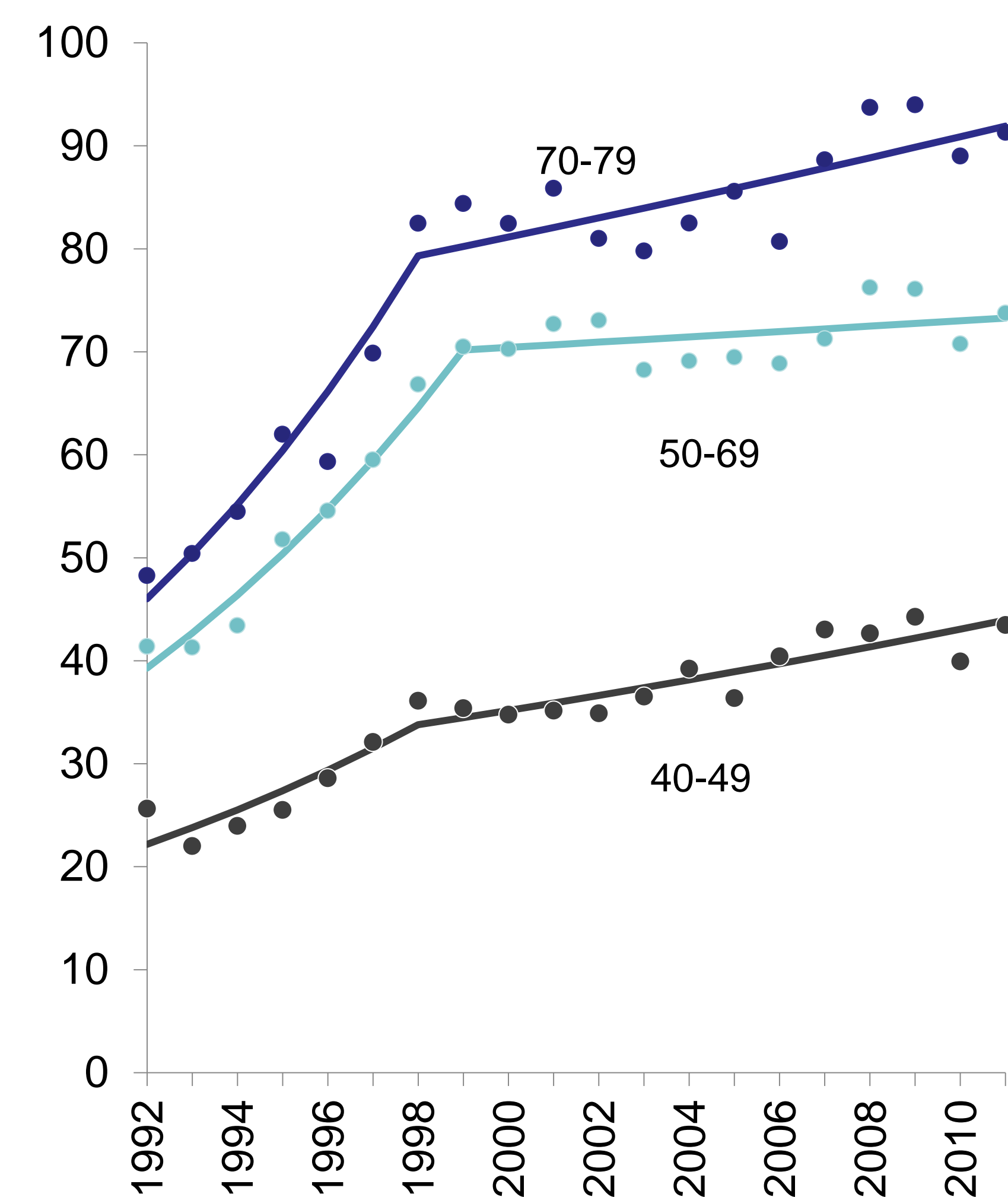
Methods

We used Joinpoint to assess trends in DCIS incidence rates for women in three age groups (40-49, 50-69, 70-79) from 1992-2011 using data from 13 Surveillance, Epidemiology, and End Results (SEER) Registries. Incidence rates were adjusted for reporting delay. DCIS patients were defined using the *International Classification of Diseases for Oncology, Third Edition* codes: 8201,8230,8500-8507,8523.

Data from the 13 SEER Registries were also used to examine trends in treatment patterns. For the analysis of current DCIS treatment patterns (2007-2011), we obtained data from patients in 48 states and the District of Columbia compiled by the North American Association of Central Cancer Registries. Analyses of treatment patterns were based on female patients with first primary microscopically confirmed DCIS. Patients who were reported from nursing home/convalescent center, autopsy or death certificate only were excluded.

Results

Figure 1. Trends in DCIS incidence rates* by age at diagnosis, SEER 13, 1992-2011



Lines represent modeled data and dots represent observed data.
 *Rates are per 100,000, age standardized, and adjusted for reporting delay.

Incidence trends

- Incidence rates for DCIS increased rapidly through the late 1990s for all three age groups, followed by a slower rate of increase for women ages 40-49 (2.0% per year) and 70-79 (1.1% per year) and stable rates for women ages 50-69.

Table 1. Joinpoint trends for DCIS incidence rates* by age at diagnosis, SEER 13, 1992-2011

	Trend 1		Trend 2	
	Years	APC	Years	APC
All ages	1992-1999	7.9*	1999-2011	0.8*
40-49 years	1992-1998	7.3*	1998-2011	2.0*
50-69 years	1992-1999	8.6*	1999-2011	0.4
70-79 years	1992-1998	9.5*	1998-2011	1.1*

APC= Annual Percent Change. *Indicates significant trend (p<0.05).

Results (continued)

Treatment trends

- During 2007-2011, 69% of DCIS patients underwent breast-conserving surgery and 27% underwent mastectomy (Figure 2). Although the proportion of patients undergoing mastectomy for DCIS has remained relatively stable over the last decade, the use of bilateral mastectomy has increased from 2% in 1998 to 8% in 2011 (Figure 3).
- Treatment patterns varied substantially by age (Figure 2). The majority (53%) of patients under age 40 underwent mastectomy, opting for bilateral mastectomy (28%) slightly more often than unilateral mastectomy (25%). In contrast, the majority of DCIS patients aged 40 and older underwent breast-conserving surgery. Use of bilateral mastectomy decreased with age.

Figure 2. Treatment patterns for primary DCIS patients by age at diagnosis, US, 2007-2011

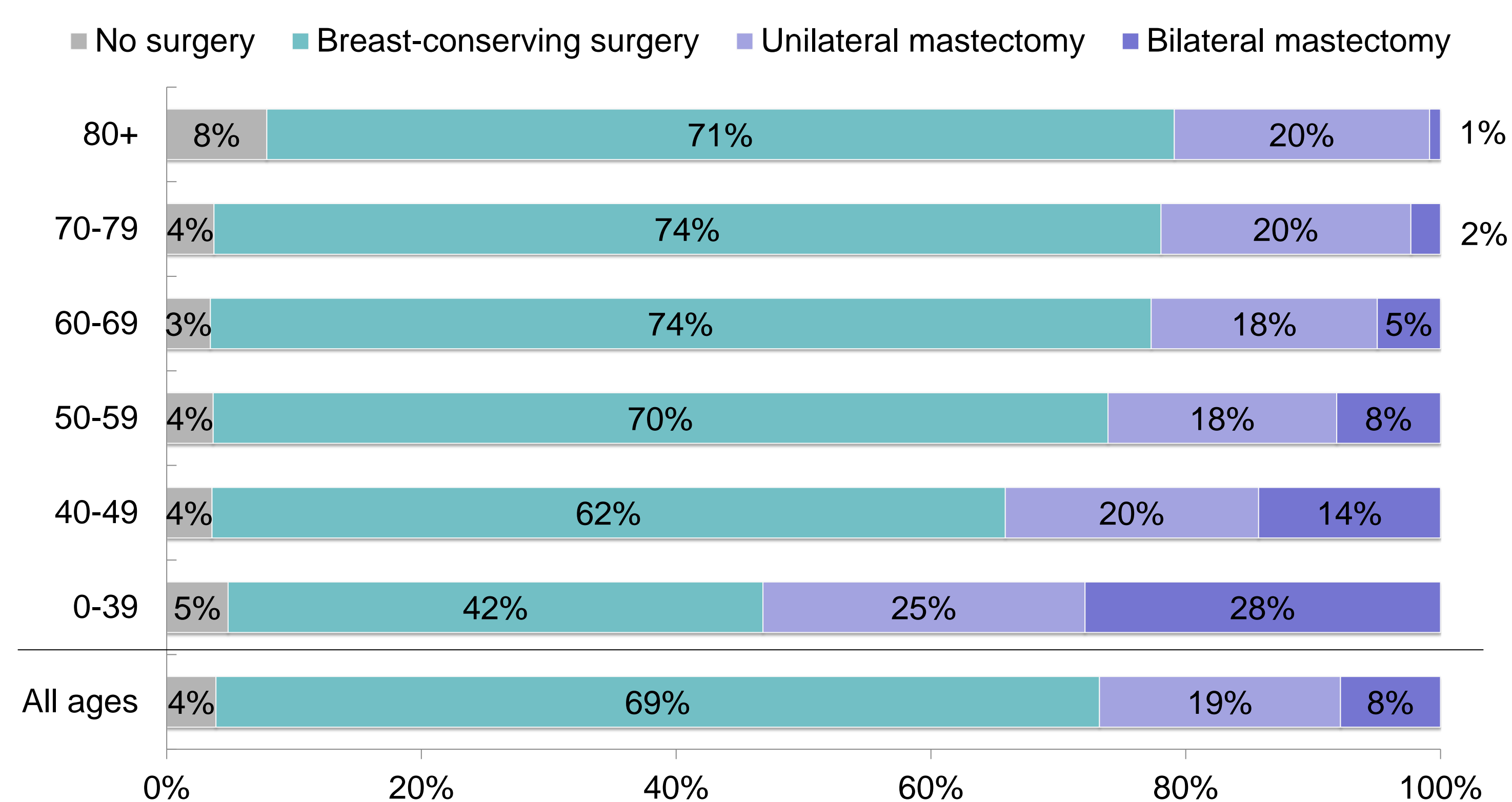
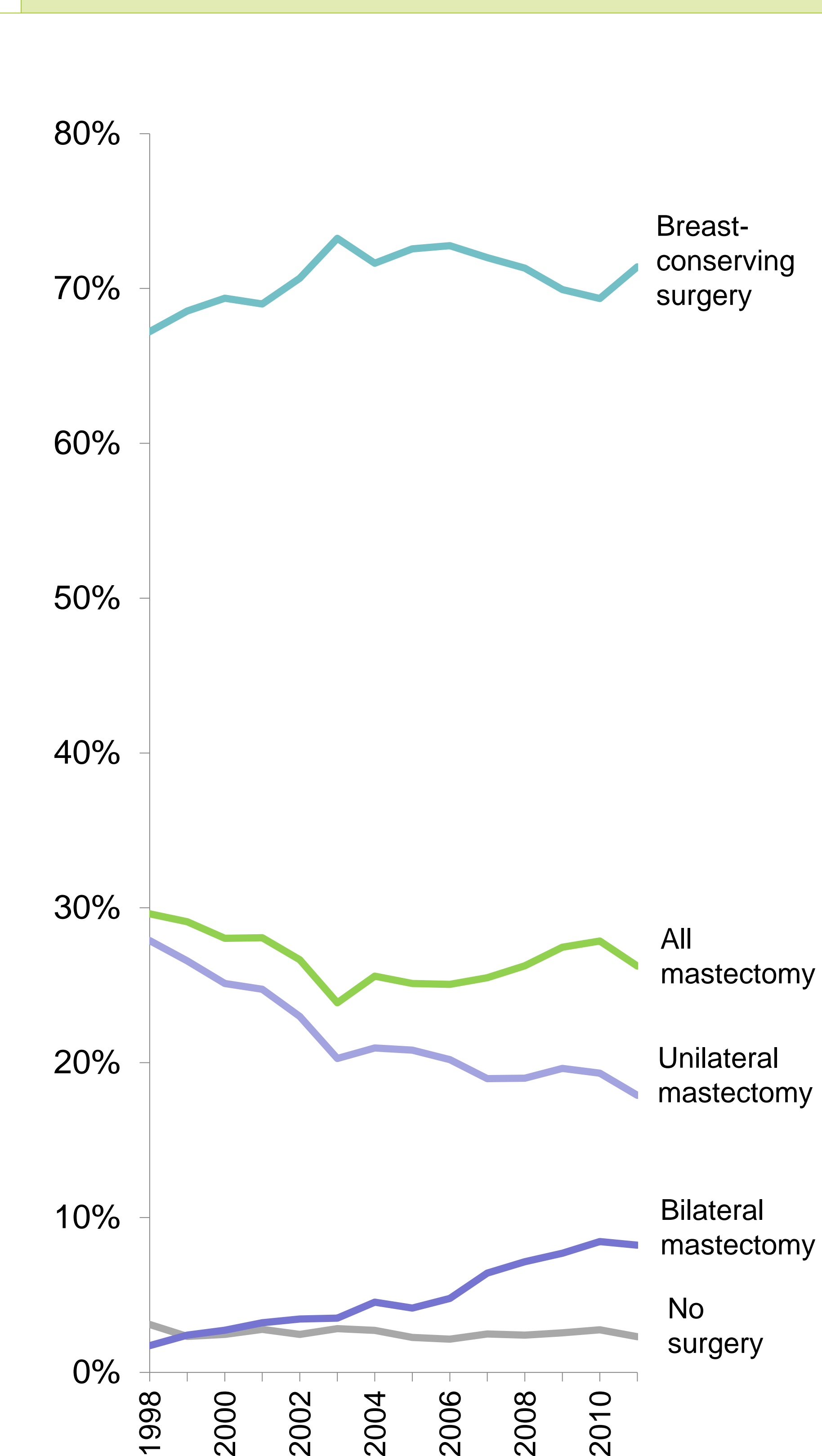


Figure 3. Trends in treatment patterns for primary DCIS patients, SEER 13, 1998-2011



Conclusions

- During 1998 to 2011, the increase in incidence rates for DCIS has slowed for women age 40-49 and age 70-79, and rates have stabilized for women ages 50-69 since 1999. These trends likely reflect the levelling off of mammography screening since the early 2000s.
- Breast-conserving surgery remains the most common treatment for DCIS, but an increasing proportion of women, particularly younger women, elect bilateral mastectomy.
- There is a continued need for better understanding of the clinical heterogeneity of DCIS which will inform efforts to target treatments based on likelihood of progression or recurrence.