Trends in Follow-up and Preventive Care for Colorectal Cancer Survivors

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BACKGROUND: As cancer patients transition from treatment to survivorship, the responsibility of primary care providers (PCPs) versus oncology specialists is unclear.

OBJECTIVES: To explore (1) physician types (PCPs versus oncology specialists) survivors visit during survivorship year 1, (2) preventive care received, (3) how preventive care receipt relates to physician types visited, and (4) trends in physician types visited and preventive care received over time.

DESIGN: Retrospective cross-sectional study of 5 cohorts of cancer survivors in survivorship year 1.

SUBJECTS: Twenty thousand sixty-eight survivors diagnosed with stage 1–3 colorectal cancer between 1997 and 2001.

MEASUREMENTS: Using the SEER-Medicare database, we assessed the mean number of visits to different physician types, the percentage of survivors receiving preventive services, how receipt of preventive services related to physician types visited, and trends over time in physician visits and preventive care.

RESULTS: There was a trend over time of increased visits to all physician types, which was statistically significant for oncology specialists and other physicians ($p < .001$) but not PCPs. The percentage of survivors receiving preventive services remained relatively stable across the 5 cohorts, except for an increase in bone densitometry ($p < .05$). Survivors who visited both a PCP and oncology specialist were most likely to receive each preventive care service ($p < .05$).

CONCLUSIONS: Oncology specialist follow-up in survivorship year 1 is intensifying over time. Survivors not being followed-up by both PCPs and oncology specialists were less likely to receive preventive care. Clarifying the roles of PCPs and oncology specialists during follow-up can improve the quality of care for survivors.

KEY WORDS: preventive care; cancer survivors; coordination of care.
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BACKGROUND

As an increasing number of patients survive cancer, there is a need to determine the appropriate care to provide to cancer survivors. Over the past decade, survivorship care issues have received increasing attention, and the impact of this focus on the quantity and quality of survivorship care requires study. Critical questions remain regarding the appropriate roles of oncology specialists and primary care providers (PCPs) in providing survivorship care, especially during the initial transition from active treatment to survivorship. This study examines the first year of survivorship to provide initial data on what physician types survivors visit, the preventive care survivors receive, how receipt of preventive care is related to the physician mix visited, and whether there have been changes over time in care for cancer survivors.

A diagnosis of cancer often translates into a period of intensive treatment with oncology specialists, during which they may become cancer patients' dominant providers.¹ After active treatment ends, ongoing surveillance is needed to address treatment sequelae and to monitor for recurrence, in addition to addressing patients' preventive care needs and, in many cases, comorbid conditions. However, the roles of PCPs and oncology specialists in providing preventive and general primary care to cancer survivors are unclear.

Colorectal cancer is the third most common cancer in both men and women.² In 2007, there will be an estimated 153,720 new cases and 52,180 deaths because of colorectal cancer in the US. The 1-year survival rate is 84%, and the 5-year survival rate is 64%. Approximately 67% of colorectal cancer cases occur in adults older than 65, making it a common condition among the Medicare population.³ Colorectal cancer provides a good model for studying the patterns of physician visits and preventive care services during the immediate post treatment phase. Because colorectal cancer is associated with both high survival rates and infrequent long-term disease sequelae, it provides an opportunity to define a survivorship period relatively uncomplicated by ongoing treatment or disease effects.⁴

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Guidelines for follow-up care for cancer patients tend to focus on surveillance for recurrence, and they recommend physician visits at various intervals. Both the National Comprehensive Cancer Network and the American Society of Clinical Oncology Colorectal Cancer Surveillance Guidelines recommend a history and physical every 3 to 6 months for the first 2–3 years for stage 2 and 3 colorectal cancer survivors.^{5–8} These guidelines do not, however, address who should be providing this follow-up care.

A recent study in Canada found that family physicians are able to monitor breast cancer patients for recurrence-related serious clinical events as well as cancer specialists,⁹ suggesting that PCPs can take on the role of monitoring survivors for recurrence while providing ongoing preventive and primary care services. In contrast, whereas medical oncologists may provide some primary care services to patients, particularly during the active treatment phase, they prefer to spend their time on cancer-directed care.¹⁰

Thus, there is a key transition period between the active treatment phase when oncology specialists may be patients' primary care providers in addition to cancer care providers, and the survivorship phase during which care may transition to PCPs. Research is needed to investigate this key transition from oncology specialist care (medical oncology, hematology-oncology, general surgery, colorectal surgery, surgical oncology, and radiation oncology) to PCP care (general practice, internal medicine, family practice, obstetrics/gynecology, geriatrics, and multispecialty group practice). Preventive measures, such as influenza vaccination, cholesterol screening, mammography, and bone densitometry, are important outcomes to assess during the transition period.

This study was undertaken to examine the physician types visited and preventive care received by colorectal cancer survivors during their first year after active treatment.

METHODS

Objectives

This study had 4 objectives: (1) to examine the pattern of physician visits to PCPs and oncology specialists during the first year of survivorship; (2) to examine the preventive care survivors received during the first year of survivorship; (3) to investigate whether receipt of preventive care is related to the mix of physician types visited; and (4) to explore whether there was a change over time in the pattern of physicians visited and preventive care received for patients diagnosed between 1997 and 2001.

Research Design

This was a retrospective, cross-sectional study. It examined the patterns of physician visits and preventive care of colorectal cancer survivors during the first year of survivorship (defined as days 366–730 from diagnosis) for 5 different cohorts of survivors. Each cohort was defined by the year of diagnosis from 1997 to 2001. Stage 1–3 colorectal cancer patients diagnosed in each of these years were followed-up for a 1-year survivorship period. For each cohort, the data were used to determine the number of visits to different physician

Table 1. Survivor Characteristics (N=20,068)

Characteristic	1997 Diagnostic cohort (n=2,602)	1998 Diagnostic cohort (n=2,582)	1999 Diagnostic cohort (n=2,641)	2000 Diagnostic cohort (n=5,963)	2001 Diagnostic cohort (n=6,280)
Age					
Mean (SD)	77.1 (7.0)	76.5 (7.0)	76.5 (6.8)	76.5 (7.0)	76.4 (6.8)
Male, n (%)	1,139 (43.8)	1,084 (42.0)	1,164 (44.1)	2,677 (44.9)	2,872 (45.7)
Race, n (%)					
White	2,217 (85.5)	2,206 (85.6)	2,213 (84.0)	5,198 (87.3)	5,423 (86.4)
Black	174 (6.7)	177 (6.9)	178 (6.8)	390 (6.6)	441 (7.0)
Other	203 (7.8)	194 (7.5)	245 (9.3)	366 (6.1)	409 (6.5)
Stage, n (%)					
Stage 1	203 (7.8)	210 (8.1)	252 (9.5)	565 (9.5)	556 (8.9)
Stage 2	1,469 (56.5)	1,415 (54.8)	1,489 (56.4)	3,385 (56.8)	3,593 (57.2)
Stage 3	930 (35.7)	957 (37.1)	900 (34.1)	2,013 (33.8)	2,131 (33.9)
Comorbidity index					
Mean (SD)	1.8 (1.9)	1.8 (1.8)	1.9 (1.9)	2.0 (2.0)	1.9 (1.9)
SEER registry site, n (%)					
San Francisco	183 (7.0)	185 (7.2)	184 (7.0)	220 (3.7)	211 (3.4)
Connecticut	377 (14.5)	340 (13.2)	351 (13.3)	365 (6.1)	385 (6.1)
Detroit	365 (14.0)	432 (16.7)	422 (16.0)	406 (6.8)	408 (6.5)
Hawaii	91 (3.5)	71 (2.8)	102 (3.9)	92 (1.5)	105 (1.7)
Iowa	479 (18.4)	518 (20.1)	489 (18.5)	531 (8.9)	559 (8.9)
New Mexico	121 (4.7)	98 (3.8)	110 (4.2)	110 (1.8)	149 (2.4)
Seattle	258 (9.9)	223 (8.6)	248 (9.4)	262 (4.4)	280 (4.5)
Utah	110 (4.2)	105 (4.1)	134 (5.1)	137 (2.3)	118 (1.9)
Atlanta	127 (4.9)	116 (4.5)	90 (3.4)	137 (2.3)	164 (2.6)
San Jose	108 (4.2)	93 (3.6)	124 (4.7)	119 (2.0)	123 (2.0)
Los Angeles	366 (14.1)	387 (15.0)	374 (14.2)	373 (6.3)	402 (6.4)
Rural Georgia	17 (0.7)	14 (0.5)	13 (0.5)	12 (0.2)	19 (0.3)
Kentucky	0 (0.0)	0 (0.0)	0 (0.0)	599 (10.1)	607 (9.7)
Louisiana	0 (0.0)	0 (0.0)	0 (0.0)	414 (6.9)	493 (7.9)
New Jersey	0 (0.0)	0 (0.0)	0 (0.0)	1,164 (19.5)	1,217 (19.4)
Greater California	0 (0.0)	0 (0.0)	0 (0.0)	1,022 (17.1)	1,040 (16.6)

Table 2. Observed Mean Number (95% Confidence Interval) of Physician Visits to Each Provider Type in the First Year of Survivorship: By Diagnostic Cohort

	1997 Diagnostic cohort (n=2,602)	1998 Diagnostic cohort (n=2,582)	1999 Diagnostic cohort (n=2,641)	2000 Diagnostic cohort (n=5,963)	2001 Diagnostic cohort (n=6,280)	p value for change over time*	
						Unadjusted	Adjusted†
Primary care provider	4.40 (4.32–4.48)	4.67 (4.59–4.76)	4.64 (4.56–4.72)	4.60 (4.54–4.65)	4.69 (4.64–4.74)	.06	.07
Oncology specialist	1.13 (1.09–1.17)	1.19 (1.15–1.24)	1.29 (1.25–1.34)	1.36 (1.34–1.39)	1.45 (1.42–1.48)	<.001	<.001
Other physician	3.68 (3.61–3.76)	3.53 (3.46–3.60)	3.66 (3.59–3.74)	4.05 (4.00–4.10)	4.22 (4.17–4.27)	<.001	<.001

*p value for differences in the number of visits between diagnostic cohorts.

†Adjusted for age, comorbidity, stage, and race.

types and the percentage of survivors who received preventive services. We also compared the receipt of preventive services based on the physician mix seen: both PCPs and oncology specialists, PCPs only, oncology specialists only, or neither PCPs nor oncology specialists. Finally, we explored whether there was a change over time in physician visits and preventive care for patients diagnosed between 1997 and 2001.

Data Source

The data for this study come from the SEER-Medicare database. This database represents a linkage of the data from the Surveillance, Epidemiology and End Results (SEER) program of cancer registries and Medicare claims for covered health services.¹¹ The SEER data provide clinical information about cancer patients, including their diagnosis, tumor characteristics, initial treatments, and survival. Between 1997 and 1999, there were 13 SEER registries, covering a representative sample of approximately 14% of the U.S. population.¹² Starting in 2000, 4 additional registries were added: Kentucky, Louisiana, New Jersey, and Greater California. The 17 SEER registries cover a representative sample of approximately 26% of the U.S. population.¹²

In the SEER-Medicare database, the SEER data are complemented by the Medicare claims data, which provide longitudinal information on the Medicare-covered health care services received. For this study, the Medicare claims data were used to determine the number of health care visits and to what physician specialties and receipt of covered preventive services. Because the Medicare claims data are available through 2003, the 2001 diagnostic cohort is the most recently available that provides 1 year of survivorship data, assuming that active treatment lasts 1 year.

Study Subjects

Survivors were eligible for this study if they met the following criteria: (1) diagnosis of stage 1–3 colorectal cancer, (2) residing in a SEER region at the time of diagnosis, (3) eligible for Medicare at the time of diagnosis based on age and enrolled continuously in the fee-for-service program (parts A and B) during the period of analysis; (4) survived for 730 days from the time of initial diagnosis with no subsequent malignant diagnoses; (5) did not receive chemotherapy or radiation during the survivorship period (defined as days 366–730 from the date of diagnosis), and (6) did not enroll in hospice. These eligibility criteria were used to minimize the possibility that the patterns of physician visits and preventive care received would be affected by long-term sequelae of the cancer, its treatment, or any recurrence or subsequent diagnoses.

Variables

Colorectal cancer survivors were identified using SEER site codes 15–23 and 25–26. Data from the first year of survivorship were used to describe the cohort in terms of age, sex, race (White, Black, Other), stage of disease, SEER registry site, and comorbidity. The comorbidity index was calculated based on the claims data using the Charlson score¹³ as implemented by Deyo et al.¹⁴ and modified by Klabunde et al.¹⁵

The first year of survivorship was defined as days 366–730 from the time of initial diagnosis. To identify the mix of physician specialties seen each year, we used the physician specialty reported to Medicare. As mentioned above, oncology specialists included medical oncology, hematology–oncology, general surgery, colorectal surgery, surgical oncology, and radiation oncology. PCPs included general practice, internal medicine, family practice, obstetrics/gynecology, geriatrics,

Table 3. Percentage (95% Confidence Interval) of Survivors in Each Diagnostic Cohort Receiving Preventive Care Services in the First Year of Survivorship

	1997 Diagnostic cohort (n=2,602)	1998 Diagnostic cohort (n=2,582)	1999 Diagnostic cohort (n=2,641)	2000 Diagnostic cohort (n=5,963)	2001 Diagnostic cohort (n=6,280)
Influenza vaccination	50.8 (48.9–52.7)	47.9 (46.0–49.8)	50.4 (48.5–52.3)	49.9 (48.6–51.2)	53.2 (52.0–54.4)
Cholesterol screening	31.0 (29.2–32.8)	29.2 (27.4–31.0)	30.7 (28.9–32.5)	33.3 (32.1–34.5)	35.9 (34.7–37.1)
Mammograms <76 yrs*	49.6 (47.7–51.5)	52.1 (50.2–54.0)	52.6 (50.7–54.5)	49.7 (48.4–51.0)	49.3 (48.1–50.5)
Bone densitometry*	7.5 (6.5–8.5)	10.1 (8.9–11.3)	12.4 (11.1–13.7)	11.6 (10.8–12.4)	12.4 (11.6–13.2)

*Percentages based on the number of females only.

Table 4. Mix of Physician Specialties Visited in the First Year of Survivorship for Each Diagnostic Cohort

Percentage (95% confidence interval)	1997 Diagnostic cohort (n=2,602)	1998 Diagnostic cohort (n=2,582)	1999 Diagnostic cohort (n=2,641)	2000 Diagnostic cohort (n=5,963)	2001 Diagnostic cohort (n=6,280)	p value*
Both PCP and oncologist	31.6 (29.8–33.4)	33.4 (31.6–35.2)	36.2 (34.4–38.0)	35.0 (33.8–36.2)	36.4 (35.2–37.6)	<.0001
PCP only	47.3 (45.4–49.2)	46.6 (44.7–48.5)	45.6 (43.7–47.5)	45.7 (44.4–47.0)	45.1 (43.9–46.3)	.05
Oncologist only	6.8 (5.8–7.8)	7.6 (6.6–8.6)	7.0 (6.0–8.0)	7.5 (6.8–8.2)	7.3 (6.7–7.9)	.56
Neither PCP nor oncologist	14.2 (12.9–15.5)	12.4 (11.1–13.7)	11.2 (10.0–12.4)	11.8 (11.0–12.6)	11.2 (10.4–12.0)	.0002

PCP: primary care provider

*p values from logistic regressions modeling each physician specialty separately as a function of time. $p < .01$ is considered statistically significant to account for multiple comparisons because the 4 categories are dependent.

and multispecialty group practice. We examined influenza vaccination, cholesterol screening, mammography, and bone densitometry for each of the 5 diagnostic cohorts. These measures were defined in a similar fashion to Earle et al.⁴ Indicators for colorectal cancer screening and follow-up were not included because this analysis focuses on preventive care services, which are unrelated to the cancer diagnosis, rather than surveillance for recurrence.

Analyses

The cohort characteristics outlined above were summarized using means and standard deviations for continuous measures and frequency distributions for discrete measures. The mean number of visits to each physician type (PCP, oncology specialist, other) was calculated for the first year of survivorship by diagnostic cohort. The statistical significance of the change in the number of visits over time was tested in both unadjusted and adjusted Poisson regression models. The adjusted models also evaluated the impact of age (65–74, 75–84, 85+), stage of disease (1, 2, 3), race (White, Black, Other), and comorbidity (0, 1, 2) on the number of visits to each provider type.

The percentage of survivors receiving each preventive service in each diagnostic cohort was calculated. Based on the patterns of visits to different physician types, survivors were classified into 4 groups: (1) visits to PCPs but not oncology specialists, (2) visits to oncology specialists but not PCPs, (3) visits to both PCPs and oncology specialists, and (4) visits to neither PCPs nor oncology specialists. Logistic regression models for each provider mix category were used to determine whether there were significant changes in the patterns of provider mix seen over time. Because the 4 provider mix categories are dependent, it was necessary to correct for multiple comparisons, so p values $< .01$ are considered statistically significant for this analysis.

Finally, we calculated the proportion of patients receiving each preventive care service based on the mix of physicians seen. To test the association between provider mix seen and receipt of preventive services, we conducted unadjusted analyses using chi-square tests and logistic regression models that controlled for age, race, comorbidity, stage, and diagnostic cohort.

Because 4 registries were added in 2000 and 2001, we also performed the analyses using only the subset of survivors who were from registry sites that were included in all 5 years. The findings from the subset analyses did not affect the conclusions and are not reported.

RESULTS

A total of 20,068 survivors were included in this analysis. Generally, the survivors' characteristics were stable across the 5 years (Table 1). The mean age of the survivors ranged from 76–77 years with 42–46% male, 84–87% White, and 55–57% with stage 2 disease. The addition of the 4 registries in 2000 and 2001 more than doubled the sample size for those diagnostic cohorts compared to the 1997–1999 diagnostic cohorts.

Table 2 presents the observed mean number of PCP, oncology specialist, and other physician visits by diagnostic cohort with 95% Poisson confidence intervals. There was a trend over time of increased visits to all physician types, which was statistically significant before and after adjusting for age, comorbidities, race, and stage of disease for oncology specialists ($p < .001$) and other physicians ($p < .001$), but not for PCPs. Survivors aged 85 and older had more visits to PCPs than those under 85 ($p < .001$), more visits to other providers than those under 74 ($p < .001$), but fewer visits than those under 85 to oncology specialists ($p < .001$). Survivors with more comorbidities had more visits to all 3 provider types ($p < .001$). Survivors with more advanced stage disease had fewer visits

Table 5. Preventive Care Received by Physician Mix Seen in the First Year of Survivorship: 1997–2001 Diagnostic Cohorts Combined

Percentage	Both PCP and oncologist (n=7,016)	PCP only (n=9,198)	Oncologist only (n=1,460)	Neither PCP nor oncologist (n=2,394)	Chi-square p value
Influenza vaccination	58.2	52.5	42.8	28.1	<.001
Cholesterol screening	36.8	34.6	27.5	18.6	<.001
Mammograms <76 yrs*	59.5	47.6	44.9	18.9	<.001
Bone densitometry*	13.7	11.3	6.3	3.8	<.001

PCP: primary care provider

*Percentages based on the number of females only.

to PCPs ($p < 0.001$) and other providers ($p < .001$), but more visits to oncology specialists ($p < .001$). Black survivors had more visits to PCPs than Whites ($p < .001$), but fewer visits to other providers than Whites ($p = .005$) and other races ($p = .05$). Survivors of other races had significantly more visits to PCPs than both Blacks ($p = .002$) and Whites ($p < .001$). There were no significant differences in the frequency of visits to oncology specialists between races.

As shown in Table 3, the percentage of survivors receiving the preventive care services remained relatively stable across the 5 diagnostic cohorts. Between 48% and 53% of survivors received influenza vaccination, 29% to 36% cholesterol screening, 49% to 53% mammograms, and 8% to 12% bone densitometry.

There was a statistically significant change over time in the mix of provider types seen by survivors (Table 4). The odds of a survivor seeing both a PCP and oncology specialist increased over time ($p < .0001$) with 31.6% of survivors diagnosed in 1997 seeing both and 36.4% of survivors diagnosed in 2001 seeing both. The odds of a survivor seeing neither a PCP nor oncology specialist decreased over time ($p = .0002$) with 14.2% of survivors diagnosed in 1997 seeing neither and 11.2% of survivors diagnosed in 2001 seeing neither. As with the number of visits, age, stage, race, and comorbidity had significant effects on the mix of provider types seen (data not shown). Older survivors and non-White survivors were less likely to see both a PCP and oncology specialist, whereas patients with more advanced disease and with more comorbidities were more likely to see both a PCP and oncology specialist.

In the unadjusted chi-square analyses, there were significant differences in receipt of each of the 4 preventive services

by the mix of physician types seen ($p < .001$; Table 5). Survivors who had visits to both a PCP and oncology specialist most frequently received each preventive care service, followed by survivors who saw a PCP only. In the logistic regression analyses that controlled for age, race, stage, comorbidity, and diagnostic cohort, the pattern persisted with survivors seeing both PCPs and oncology specialists most likely to get each preventive care service ($p < .05$) with the exception of survivors seeing a PCP only being equally likely to receive cholesterol screening (Table 6). Survivors who saw a PCP only were more likely to receive each preventive care service compared to survivors who saw an oncology specialist only ($p < .05$), except for mammography where there was not a significant difference. In the main analysis, we limited the mammography indicator to females under the age of 76. When all females were included without an age limit, the pattern was the same.

Several covariates had statistically significant ($p < .05$) influences on the receipt of preventive care (Table 6). Older survivors were more likely to receive influenza vaccinations but less likely to receive cholesterol or bone density screening. Survivors of more advanced disease were less likely to receive each of the 4 preventive services. Having more comorbidities was associated with increased odds of influenza vaccination, cholesterol screening, and mammography (2 comorbidities only). Black survivors were less likely to receive each of the 4 preventive services than Whites, and survivors in the "Other" race category were less likely to receive influenza vaccination and mammograms but more likely to receive cholesterol screening than Whites. Diagnostic cohort had little effect, except for an increase in bone densitometry over time.

Table 6. Adjusted Odds Ratios (Confidence Intervals) for Preventive Care Services

	Influenza vaccination	Cholesterol screening	Mammograms <76 yrs	Bone densitometry
Both	—	—	—	—
PCP only	0.82 (0.76–0.87)*†	1.00 (0.94–1.08)*†	0.61 (0.53–0.70)†	0.85 (0.74–0.97)*†
Oncologist only	0.55 (0.49–0.62)‡	0.67 (0.59–0.76)‡	0.58 (0.46–0.73)‡	0.43 (0.31–0.59)
Neither	0.32 (0.29–0.36)	0.48 (0.43–0.55)	0.16 (0.12–0.22)	0.28 (0.20–0.39)
1997 Diagnostic cohort	—	—	—	—
1998 Diagnostic cohort	0.87 (0.78–0.97)	0.89 (0.79–1.00)	1.10 (0.87–1.39)	1.33 (1.03–1.73)
1999 Diagnostic cohort	0.94 (0.84–1.05)	0.94 (0.83–1.05)	1.09 (0.86–1.38)	1.64 (1.28–2.11)
2000 Diagnostic cohort	0.92 (0.84–1.02)	1.07 (0.97–1.18)	0.96 (0.78–1.17)	1.53 (1.22–1.91)
2001 Diagnostic cohort	1.06 (0.97–1.17)	1.20 (1.08–1.32)	0.93 (0.76–1.14)	1.64 (1.32–2.05)
Age 65–74	—	—	—	—
Age 75–84	1.19 (1.12–1.26)	0.89 (0.84–0.95)	N/A	0.73 (0.65–0.83)
Age 85+	1.13 (1.03–1.23)	0.56 (0.50–0.61)	N/A	0.36 (0.29–0.44)
White	—	—	—	—
Black	0.45 (0.40–0.50)	0.83 (0.73–0.94)	0.71 (0.57–0.88)	0.57 (0.43–0.75)
Other	0.86 (0.77–0.96)	1.23 (1.10–1.38)	0.70 (0.55–0.88)	0.95 (0.75–1.21)
Stage 1	—	—	—	—
Stage 2	0.83 (0.78–0.88)	0.77 (0.72–0.82)	0.69 (0.60–0.80)	0.68 (0.59–0.78)
Stage 3	0.81 (0.75–0.88)	0.67 (0.62–0.74)	0.67 (0.57–0.80)	0.75 (0.63–0.89)
0 Comorbidities	—	—	—	—
1 Comorbidity	1.29 (1.17–1.42)	1.39 (1.25–1.54)	0.93 (0.74–1.15)	0.89 (0.72–1.10)
2 Comorbidities	1.35 (1.25–1.44)	1.58 (1.47–1.71)	1.20 (1.03–1.40)	1.02 (0.88–1.18)

PCP: primary care provider, N/A: not applicable, —: reference category

Italics: $p < .05$ versus reference category

* $p < .05$ PCP Only versus oncology specialist only

† $p < .05$ PCP only versus neither

‡ $p < .05$ oncology specialist only versus neither

DISCUSSION

As cancer survivors complete their active treatment and transition to follow-up care, the roles and responsibilities of their PCPs and oncology specialists are unclear. This study examined the patterns of physician visits and preventive care for 5 cohorts of colorectal cancer survivors during their first year of survivorship.

Patients diagnosed more recently had more visits to oncology specialists and other physicians. The cause for the increase in visits is unclear, but as a result, in the more recently diagnosed cohorts, survivors are more likely to be followed-up by both a PCP and oncology specialist during the first year of survivorship, and fewer survivors are being followed-up by neither a PCP nor oncology specialist. However, the volume of care provided by PCPs is substantially larger and remains so across time.

The increased frequency of physician visits did not translate into increased receipt of preventive care. There were both increases and decreases in the percentage of survivors receiving the preventive care services across the diagnostic cohorts. We should note that in 1998, Medicare began covering mammograms every year rather than every 2 years and began covering osteoporosis screening. Whereas these and other changes in coverage may be related to some of our findings (e.g., the increase in bone densitometry), our study focuses primarily on the relative provision of services by different provider mixes rather than the overall level. However, in general, the rates of preventive care for survivors in our study were similar to a previous study that examined 5-year survivors of colorectal cancer.⁴

Whereas the preventive service indicators used in this analysis are based on validated measures from another study,⁴ some may question the usefulness of certain screening practices in the elderly. In our study, older age was significantly associated with less frequent use of cholesterol screening and bone densitometry and more frequent use of influenza vaccination. More comorbidities were associated with greater use of influenza vaccination, cholesterol screening, and mammograms. Thus, clinicians may be making judgments about the appropriate use of these services based on life expectancy and other factors, although this secondary data analysis does not allow us to determine definitively why services were not provided.

There were several other limitations to this study. Survivors of colon and rectal cancer were analyzed together although the differences in the treatment of the 2 cancers may affect follow-up care during the survivorship period. In addition, only Medicare patients in the fee-for-service program were included in the analysis. Whether the results found in this study would also apply to younger patients and those in a managed care setting is unclear.

In its recent report *From Cancer Patient to Cancer Survivor: Lost in Transition*,¹⁶ the Institute of Medicine emphasized the importance of quality follow-up care for cancer survivors. The first year of survivorship is a key transition period as care shifts from the cancer provider to the patient's previous usual sources of care. In this study, we examined the patterns of physician visits and preventive care among colorectal cancer

survivors in their first year of survivorship. We found that survivors who visited both a PCP and oncology specialist were most likely to receive preventive care services. These results suggest that shared care for cancer survivors can promote quality. However, effective shared care requires appropriately delineating roles and responsibilities for PCPs and specialists and coordination among all providers.

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