

PostScript

LETTER

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On socioeconomic gradients in cancer registry data quality

A study in this journal found evidence of variation in cancer registry data quality according to the residence of the patient.¹ Patients from more affluent areas were more likely to have information on tumour stage and tumour grade recorded than those in less affluent areas. No relation was found among cases registered by death certificate only. The authors surmised that these differences could result from differences in the degree of investigation accorded to patients of different backgrounds, or to some other aspect of the data collection process.
 As patients receiving surgery are more likely to have their tumours staged and graded, and surgery is related to socioeconomic status,^{2,3} we thought that this could

explain the findings. We conducted a logistic regression analysis using data from the New York State Cancer Registry. Cases were limited to malignant primary colorectal and female breast tumours diagnosed between 1998 and 2002 and reported by 1 of 113 New York State hospitals having formal cancer registries (n = 60 393). Each tumour was associated with a single hospital; for tumours with multiple reports, the hospital of record was the one that provided the first course of treatment (where this information was unavailable, the hospital of diagnosis was used). The percentage of households living below the official poverty threshold in the census tract of residence was chosen as the indicator of socioeconomic status (where census tract was unavailable, the poverty rate of the postal code was used).⁴ The data quality indicator (missing stage, missing grade) was the independent variable, with age, sex, race, cancer site, surgery, and socioeconomic status the dependent variables.

We found a small but significantly increased likelihood of having missing stage and missing grade among black people and people living in high poverty areas. After adjusting for whether surgery was performed, these effects were reduced in magnitude and no longer significant (table 1). In a separate model we also adjusted for the reporting hospital. From our experience, we know that substantial differences in data quality are found between different hospitals, a consequence of differences in staffing levels, turnover, and hospital management. While substantial differences were found between different hospitals, these were not closely related to the demographic characteristics of the patients they served. Our findings show that black patients and those living in high poverty areas are less likely to receive surgery

for their cancer, and this seems to contribute to less complete cancer registry records for these groups.

Francis P Boscoe
 New York State Cancer Registry, New York State Department of Health, Albany, USA

Colleen Sherman
 Public Health Representative, New York State Cancer Registry

Correspondence to: Dr F P Boscoe, New York State Cancer Registry, New York State Department of Health, 536 Corning Tower ESP, Albany, NY 12237, USA; fpb01@health.state.ny.us

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References

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Table 1 Relative risks for missing stage and grade at diagnosis by race, poverty, and whether surgery was performed. New York State, 1998-2002, prostate and female breast cancers (n = 60393)

	Number of cases	Percentage not receiving surgery	Missing stage at diagnosis				Missing grade at diagnosis			
			Relative risks (95% CI) Adjusted for age, race, sex, site, SES		Relative risks (95% CI) Additionally adjusted for surgery		Relative risks (95% CI) Adjusted for age, race, sex, site, SES		Relative risks (95% CI) Additionally adjusted for surgery	
Race										
White	49370	8	1.00	reference	1.00	reference	1.00	reference	1.00	reference
Black	7847	14	1.16	(1.05, 1.28)	1.02	(0.92, 1.13)	1.13	(1.06, 1.22)	1.06	(0.99, 1.14)
Asian	1896	9	1.08	(0.90, 1.30)	1.03	(0.85, 1.24)	1.01	(0.89, 1.15)	0.99	(0.87, 1.13)
Unknown	1280	5	1.45	(1.19, 1.77)	1.62	(1.32, 1.99)	1.40	(1.21, 1.60)	1.46	(1.26, 1.68)
Poverty*										
Low	35322	7	1.00	reference	1.00	reference	1.00	reference	1.00	reference
Medium	13775	9	1.00	(0.92, 1.08)	0.95	(0.88, 1.04)	1.05	(1.00, 1.11)	1.03	(0.98, 1.09)
High	11296	12	1.09	(1.00, 1.20)	0.99	(0.90, 1.08)	1.09	(1.03, 1.16)	1.04	(0.98, 1.11)
Surgery										
Yes	55150	-	-	-	1.00	reference	-	-	1.00	reference
No	5084	-	-	-	5.57	(5.16, 6.01)	-	-	2.77	(2.59, 2.96)
Unknown	159	-	-	-	4.57	(3.09, 6.75)	-	-	2.56	(1.80, 3.64)

*Low ≤ 10% of households below poverty line, medium = 10%-19%, high = 20% or more. Source: 2000 Census.