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Effect of the Affordable Care Act on breast cancer presentation at a safety net hospital

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ABSTRACT

Introduction: The Affordable Care Act (ACA) mandated the expansion of Medicaid in order to increase access to health care services. We examined the effect of the ACA on breast cancer screening and diagnosis at a Los Angeles safety net hospital.

Methods: We performed a retrospective review of breast cancer patients treated at our institution. We compared two cohorts: patients diagnosed with breast cancer in the years 2011–2012 (pre-ACA) vs. 2015–2016 (post-ACA).

Results: There were no differences in number of screening mammograms performed, age at diagnosis, mammography-detected cancers, or clinical stage at diagnosis. There was a significant decrease in the number of patients who reported as self-pay (34% vs. 6%, $p < 0.0001$).

Conclusion: In the 2-year period following ACA implementation, there was limited impact on breast cancer presentation at a safety-net hospital. Long-term follow-up across different healthcare systems is necessary to fully evaluate the global impact of the ACA on breast cancer care.

Introduction

The Patient Protection and Affordable Care Act (ACA) was signed into law on March 23, 2010, with the intent to increase insurance coverage and expand access to basic health care services for the general population.[1] This was accomplished primarily by expanding Medicaid, or, as it is established in the state of California, Medi-Cal. The ACA also established state health exchanges, which function as marketplaces where patients can choose from participating insurers who comply with the ACA, and were to be operational by January 2014.

The direct results of the ACA are well known. Nationwide, the number of uninsured adults, 19–64 years of age, declined from 37 million in 2010 to 23 million in 2016, with young adults and lower income families benefitting the most.[2] In California, specifically, there was an increase in the number of insured patients, with reduced out of pocket spending for low income adults.[3] Additionally, the ACA appears to have increased healthcare usage, based on the results of population surveys showing a higher probability of any physician visit after implementation compared to years prior.[4,5] However, the indirect effects of the ACA are more difficult to gauge, as increased access and healthcare usage do not necessarily translate to improved outcomes for certain metrics. As an example, the net effect of the ACA on cancer screening and prevention, and long-term impact remains to be determined, although at least several studies have shown increased rates of mammography and colonoscopy following enactment of the ACA.[6–9]

Additionally, the effects of ACA implementation in a safety net county hospital, where nearly all patients are uninsured or covered by Medicaid, remain particularly poorly understood. We sought to specifically characterize the impact of implementation of the ACA on a tertiary care safety net Los Angeles county hospital on breast cancer screening and diagnosis.

Methods

Under IRB approval, we identified patients with a diagnosis of breast cancer at a single Los Angeles county institution between 2011 and 2016. We divided the patients into two cohorts; those that were diagnosed in the two years preceding full implementation of the ACA in 2014, and those diagnosed in the two years after. The Group 1 cohort included patients diagnosed from 2011 to 2012 and

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Group 2 included patients diagnosed from 2015 to 2016. Clinical data, including patient age and stage at the time of diagnosis, method of detection (palpable vs. mammographic abnormality), patient ethnicity, and type of insurance were collected and analyzed for the two cohorts. American Joint Committee on Cancer (AJCC) staging system version 7 was utilized to calculate clinical cancer stage. Those patients that did not have clinical staging were excluded from analysis; these were all patients who were diagnosed at our institution and elected to receive evaluation or treatment elsewhere. Statistical analysis between cohorts was performed using Student's t-test, with comparison of proportions performed using chi-square test.

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Results

There were 310 patients diagnosed with breast cancer in the years 2011–2012 and 203 patients diagnosed in 2015–2016, representing a significant decrease in the annual number of breast cancer diagnoses pre- and post-ACA implementation ($p = 0.008$, Table 1). However, there were no differences in the absolute number of screening mammograms performed. Pre-ACA, there was an average of 2384 mammograms performed annually between 2011 and 2012 compared to 2864 screening mammograms performed per year post-ACA from 2015 to 2016 for Groups 1 and 2, respectively (p NS). Eighteen patients were excluded from analysis in Group 1 and 17 patients from Group 2 as they sought treatment elsewhere. This left 292 patients in Group 1 and 186 patients in Group 2 for analysis.

The average age of the patients in the two groups was not significantly different (53 vs. 54 years). The percentage of women that were Hispanic increased significantly from 42% pre-ACA to 54% post-ACA ($p = 0.01$), while the percentage that were Black/African American decreased from 28% to 17% ($p = 0.005$). There were no differences between the two groups in the method of detection (mammogram, self-detected mass/symptom, provider-detected mass/symptom) (Table 1). Of note, at our hospital, breast cancers predominantly present with a palpable mass, and only about 40% are diagnosed by screening mammogram. Overall clinical stage at diagnosis was not different between the groups (Table 2). The majority of patients, nearly 60%, were diagnosed at clinical stage 2 or higher.

With respect to payer status, there was a significant decrease in the number of patients who were recorded as self-pay or uninsured between Group 1 and Group 2 (34% vs. 6%, $p < 0.0001$, Table 3). There was an increase in the percentage of patients with Medical insurance (3% vs. 21%, $p < 0.0001$), as well as other types of insurance (2% vs. 9%, $p = 0.004$). The proportion of patients with Medicaid and Medicare did not change. In terms of place of diagnosis, there was an increase in the percentage of patients who were diagnosed and received an evaluation at our facility (30% vs. 57%, $p < 0.0001$), as opposed to those patients who were diagnosed elsewhere and then referred to our facility for evaluation (70% vs. 43% $p < 0.0001$). However, the absolute number of patients who were diagnosed at our facility was not very different between groups; rather there was a decrease in number of patients who were referred to our facility for treatment in Group 2. As stated earlier, 18 patients in Group 1 and 17 patients in Group 2 were excluded from analysis as they received treatment elsewhere; this percentage was not significant between groups.

Discussion

In spite of the goal of the ACA to increase access to care, we found that, at a safety net hospital, there was instead a significant decrease in breast cancer cases treated in the years following ACA implementation, with no detectable impact on mammographic screening services. These findings are, perhaps, not unexpected, as we can hypothesize that there may have been an increase in the number of patients who were able to obtain non-Medi-Cal insurance and seek care elsewhere. Expansion of Medi-Cal programs at non-County, non-safety net hospitals may also have allowed or mandated patients to be treated elsewhere. This hypothesis is also supported by the fact that, when looking at absolute numbers, the number of patients diagnosed and treated within our facility stayed

Table 1
Clinical characteristics at diagnosis.

	Group 1 2011-2012	Group 2 2015-2016	p value
Patients diagnosed with breast cancer (n)	310	203	0.008
Total number of patients analyzed	292	186	0.02
Average age at diagnosis	53	54	NS
Ethnicity/Race n (%)			
Hispanic/Latino	123 (42%)	100 (54%)	0.01
Asian/Pacific Islander	46 (16%)	27 (15%)	0.769
South Asian	5 (2%)	2 (1%)	0.398
Black/African-American	83 (28%)	32 (17%)	0.005
White/Non-Hispanic	35 (12%)	25 (13%)	0.747
Method of detection			
Mammography	112 (38%)	72 (39%)	0.827
Patient detected	162 (56%)	105 (56%)	1
Physician detected	10 (3%)	2 (1%)	0.149

Table 2
Clinical stage (CS) at diagnosis.

Clinical Stage (CS) at Diagnosis	Group 1 (n = 292)	Group 2 (n = 186)	p-value
CS 0	38 (13%)	23 (12%)	0.784
CS 1	82 (28%)	56 (30%)	0.638
CS 2	89 (30%)	67 (36%)	0.172
CS 3	47 (16%)	23 (12%)	0.226
CS 4	36 (12%)	17 (9%)	0.304

Table 3
Reported Insurance Status and place of diagnosis.

	Group 1 2011-2012	Group 2 2015-2016	*p* value
Type of Insurance			
Self Pay/Not Insured	98 (34%)	11 (6%)	<0.0001
Medicaid	163 (56%)	102 (55%)	NS
Medical	9 (3%)	39 (21%)	<0.0001
Medicare	16 (5%)	17 (9%)	NS
Other Insurance	6 (2%)	17 (9%)	0.0004
Diagnosed at facility	94 (30%)	115 (57%)	<0.0001
Diagnosed elsewhere	216 (70%)	88 (43%)	<0.0001
Sought treatment elsewhere	18 (6%)	17 (8%)	NS

relatively stable, while the number of patients who were diagnosed elsewhere and treated at our facility decreased dramatically. We inferred from this that these patients were being referred and treated elsewhere, either because they were able to obtain private insurance, or because they were able to obtain some form of Medicaid which empanelled them at other sites.

It was surprising to find that the manner of presentation and stage of diagnosis did not improve, but perhaps this was not unexpected. A disproportionate percentage of our patients present with advanced stage breast cancer when compared to the national average. This is in line with findings from a recent study that found that Medi-Cal patients were significantly more likely to present with advanced disease compared to patients with private insurance.[14] This is due to a multitude of reasons, including access to care with limited resources, cultural perception of cancer, and lack of education and awareness. We remain hopeful that, over time, this trend of advanced stage diagnoses will begin to reverse as access to care increases. One study previously demonstrated that a reduction in Medicaid coverage lead to later stage of diagnosis of breast cancer, with concomitant delays in treatment.[10] It is thus anticipated that Medicaid expansion and elimination of co-pays for preventative screening would lead to increased screening and an earlier stage of diagnosis for different cancers, as well as improved cancer specific survival. The long-term impact remains to be seen.

Lastly, we found it encouraging that more patients post-ACA were recorded as having some form of insurance at our institution, with a dramatic decrease in the number of self-pay patients. This mostly corresponded with an increase in the proportion of Medi-Cal patients. Although Medi-Cal has been available for decades prior to the implementation of the ACA, access has since increased dramatically.[11] Although safety-net hospitals are obligated to care for patients regardless of ability to pay, a substantial portion of Medicaid payments helps to support the operation of these hospitals.[12,13] As such, improvement in the number of Medi-Cal patients over self-pay patients is of paramount benefit.

Our findings are limited by the nature of this study, a single institution study of tumor registry patients. The data analyzed is dependent on the information extracted by the tumor registrars, although quality checks are performed routinely on a subset of cases as required by the Commission on Cancer. Our patient cohorts are also small, and may not have been sufficient to detect change. A database study of safety-net hospitals would be a valuable supplement to further illuminate our experience as a single institution.

Conclusions

Overall, the initial impact of the ACA on a single institution safety net hospital on breast cancer care appears to be small with no significant difference in clinical stage at presentation in breast cancer patients or the number of screening mammograms performed. However, it is promising that the number of insured patients has increased, which may lead better reimbursement and an expanded budget for health care delivery services. The decreased number of breast cancer patients being referred from outside facilities for treatment and the decrease in self-pay patients may be early indicators that the ACA has resulted in insuring more patients in the safety net hospital patient population.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amjsurg.2019.01.009.

References

1. United States., United States. Congress. House. Office of the Legislative Counsel, United States. Congress. House. Committee on Ways and Means., United States. Congress. House. Committee on Energy and Commerce., United States. Congress. House. Committee on Education and Labor. Compilation of Patient Protection and Affordable Care Act : As Amended through November 1, 2010 Including Patient Protection and Affordable Care Act Health-Related Portions of the Health Care and Education Reconciliation Act of 2010. Washington: U.S. Government Printing Office; 2010.
2. Collins SRG, Munira Z, Doty Michelle M, Beutel Sophie. *How the Affordable Care Act Has Improved Americans' Ability to Buy Health Insurance on Their Own*. The Commonwealth Fund; 2017.
3. Golberstein E, Gonzales G, Sommers BD. California's early ACA expansion increased coverage and reduced out-of-pocket spending for the state's low-income population. *Health Aff (Millwood)*. 2015;34(10):1688–1694.
4. Chen J, Vargas-Bustamante A, Mortensen K, Ortega AN. Racial and ethnic disparities in health care access and utilization under the affordable care Act. *Med Care*. 2016;54(2):140–146.
5. Wherry LR, Miller S. Early coverage, access, utilization, and health effects associated with the affordable care Act Medicaid expansions: a quasi-experimental study. *Ann Intern Med*. 2016;164(12):795–803.
6. Cooper GS, Kou TD, Dor A, Koroukian SM, Schluchter MD. Cancer preventive services, socioeconomic status, and the Affordable Care Act. *Cancer*. 2017;123(9):1585–1589.
7. Cooper GS, Kou TD, Schluchter MD, Dor A, Koroukian SM. Changes in receipt of cancer screening in Medicare beneficiaries following the affordable care Act. *J Natl Cancer Inst*. 2016;108(5).
8. Fedewa SA, Goodman M, Flanders WD, et al. Elimination of cost-sharing and receipt of screening for colorectal and breast cancer. *Cancer*. 2015;121(18):3272–3280.
9. Jemal A, Lin CC, Davidoff AJ, Han X. Changes in insurance coverage and stage at diagnosis among nonelderly patients with cancer after the affordable care Act. *J Clin Oncol*. 2017;35(35):3906–3915.
10. Tarazi WW, Bradley CJ, Bear HD, Harless DW, Sabik LM. Impact of Medicaid disenrollment in Tennessee on breast cancer stage at diagnosis and treatment. *Cancer*. 2017;123(17):3312–3319.
11. Research and Analytic Studies Division. *Medi-Cal's Optional Adult ACA Expansion Population - October 2016. Medi-Cal Statistical Brief*. California Department of Health Care Services; March 2017.
12. Fagani L, Tolbert J. *The Dependence of Safety Net Hospitals and Health Systems on the Medicare and Medicaid Disproportionate Share Hospital Payment Programs*. New York: The Commonwealth Fund; November 1999.
13. Cunningham P, Rudowitz R, Young K, Garfield R, et al. *Understanding Medicaid Hospital Payments and the Impact of Recent Policy Changes*. The Kaiser Family Foundation; June 2016. Issue Brief.
14. Parikh-Patel A, Morris CR, Martinsen R, Kizer KW. *Disparities in Stage at Diagnosis, Survival, and Quality of Cancer Care in California by Source of Health Insurance*. Sacramento, CA: California Cancer Reporting and Epidemiologic Surveillance Program, Institute for Population Health Improvement, University of California Davis; 2015.