

Final Progress Report for Research Projects Funded by Health Research Grants

Instructions: Please complete all of the items as instructed. Do not delete instructions. Do not leave any items blank; responses must be provided for all items. If your response to an item is “None”, please specify “None” as your response. “Not applicable” is not an acceptable response for any of the items. There is no limit to the length of your response to any question. Responses should be single-spaced, no smaller than 12-point type. The report **must be completed using MS Word**. Submitted reports must be Word documents; they should not be converted to pdf format. Questions? Contact Health Research Program staff at 717-231-2825.

1. **Grantee Institution:** American College of Radiology
2. **Reporting Period (start and end date of grant award period):** 1/1/2011-12/31/2014
3. **Grant Contact Person (First Name, M.I., Last Name, Degrees):** Stephen M. Marcus, M.S.
4. **Grant Contact Person’s Telephone Number:** 267-940-9403
5. **Grant SAP Number:** 4100054841
6. **Project Number and Title of Research Project:** 1 - Socio-demographic Factors, Workup, and Treatment for Cancer Patients in an Enhanced National Survey
7. **Start and End Date of Research Project:** 1/1/11 – 7/2/12
8. **Name of Principal Investigator for the Research Project:** Jean Owen, PhD
9. **Research Project Expenses.**

9(A) Please provide the total amount of health research grant funds spent on this project for the entire duration of the grant, including indirect costs and any interest earned that was spent:

\$ \$109,979.34

9(B) Provide the last names (include first initial if multiple individuals with the same last name are listed) of **all** persons who worked on this research project and were supported with health research funds. Include position titles (Principal Investigator, Graduate Assistant, Post-doctoral Fellow, etc.), percent of effort on project and total health research funds expended for the position. For multiple year projects, if percent of effort varied from year to year, report in the % of Effort column the effort by year 1, 2, 3, etc. of the project (x% Yr 1; z% Yr 2-3).

| Last Name, First Name | Position Title | % of Effort on Project | Cost |
|-----------------------|-------------------|------------------------|-------------|
| Owen | Sr Director, QRRO | 1% Yrs 1-2 | \$2,872.94 |
| Ho | Statistician | 31% Yr 1; 27% Yr 2 | \$69,421.87 |

9(C) Provide the names of **all** persons who worked on this research project, but who *were not* supported with health research funds. Include position titles (Research Assistant, Administrative Assistant, etc.) and percent of effort on project. For multiple year projects, if percent of effort varied from year to year, report in the % of Effort column the effort by year 1, 2, 3, etc. of the project (x% Yr 1; z% Yr 2-3).

| Last Name, First Name | Position Title | % of Effort on Project |
|-----------------------|----------------|------------------------|
| None | | |

9(D) Provide a list of **all** scientific equipment purchased as part of this research grant, a short description of the value (benefit) derived by the institution from this equipment, and the cost of the equipment.

| Type of Scientific Equipment | Value Derived | Cost |
|------------------------------|---------------|------|
| None | | |

10. Co-funding of Research Project during Health Research Grant Award Period. Did this research project receive funding from any other source during the project period when it was supported by the health research grant?

Yes _____ No X

If yes, please indicate the source and amount of other funds:

11. Leveraging of Additional Funds

11(A) As a result of the health research funds provided for this research project, were you able to apply for and/or obtain funding from other sources to continue or expand the research?

Yes _____ No X

If yes, please list the applications submitted (column A), the funding agency (National Institutes of Health—NIH, or other source in column B), the month and year when the application was submitted (column C), and the amount of funds requested (column D). If you have received a notice that the grant will be funded, please indicate the amount of funds to be awarded (column E). If the grant was not funded, insert “not funded” in column E.

Do not include funding from your own institution or from CURE (tobacco settlement funds). Do not include grants submitted prior to the start date of the grant as shown in Question 2. If you list grants submitted within 1-6 months of the start date of this grant, add a statement below the table indicating how the data/results from this project were used to secure that grant.

| A. Title of research project on grant application | B. Funding agency (check those that apply) | C. Month and Year Submitted | D. Amount of funds requested: | E. Amount of funds awarded: |
|---|--|-----------------------------|-------------------------------|-----------------------------|
| None | <input type="checkbox"/> NIH <input type="checkbox"/> Other federal (specify: _____) <input type="checkbox"/> Nonfederal source (specify: _) | | \$ | \$ |

11(B) Are you planning to apply for additional funding in the future to continue or expand the research?

Yes _____ No X

If yes, please describe your plans:

12. Future of Research Project. What are the future plans for this research project?
 One additional manuscript is planned for submission to a scientific journal.

None

13. New Investigator Training and Development. Did students participate in project supported internships or graduate or post-graduate training for at least one semester or one summer?

Yes _____ No X

If yes, how many students? Please specify in the tables below:

| | Undergraduate | Masters | Pre-doc | Post-doc |
|--------------|---------------|---------|---------|----------|
| Male | | | | |
| Female | | | | |
| Unknown | | | | |
| Total | | | | |

| | Undergraduate | Masters | Pre-doc | Post-doc |
|--------------|---------------|---------|---------|----------|
| Hispanic | | | | |
| Non-Hispanic | | | | |
| Unknown | | | | |
| Total | | | | |

| | Undergraduate | Masters | Pre-doc | Post-doc |
|--------------|---------------|---------|---------|----------|
| White | | | | |
| Black | | | | |
| Asian | | | | |
| Other | | | | |
| Unknown | | | | |
| Total | | | | |

14. Recruitment of Out-of-State Researchers. Did you bring researchers into Pennsylvania to carry out this research project?

Yes _____ No X

If yes, please list the name and degree of each researcher and his/her previous affiliation:

15. Impact on Research Capacity and Quality. Did the health research project enhance the quality and/or capacity of research at your institution?

Yes _____ No X

If yes, describe how improvements in infrastructure, the addition of new investigators, and other resources have led to more and better research.

16. Collaboration, business and community involvement.

16(A) Did the health research funds lead to collaboration with research partners outside of your institution (e.g., entire university, entire hospital system)?

Yes _____ No X

If yes, please describe the collaborations:

16(B) Did the research project result in commercial development of any research products?

Yes _____ No X

If yes, please describe commercial development activities that resulted from the research project:

16(C) Did the research lead to new involvement with the community?

Yes _____ No X

If yes, please describe involvement with community groups that resulted from the research project:

17. Progress in Achieving Research Goals, Objectives and Aims.

List the project goals, objectives and specific aims (as contained in the grant agreement). Summarize the progress made in achieving these goals, objectives and aims for the period that the project was funded (i.e., from project start date through end date). Indicate whether or not each goal/objective/aim was achieved; if something was not achieved, note the reasons why. Describe the methods used. If changes were made to the research goals/objectives/aims, methods, design or timeline since the original grant application was submitted, please describe the changes. Provide detailed results of the project. Include evidence of the data that was generated and analyzed, and provide tables, graphs, and figures of the data. List published abstracts, poster presentations and scientific meeting presentations at the end of the summary of progress; peer-reviewed publications should be listed under item 20.

This response should be a DETAILED report of the methods and findings. It is not sufficient to state that the work was completed. Insufficient information may result in an unfavorable performance review, which may jeopardize future funding. If research findings are pending publication you must still include enough detail for the expert peer reviewers to evaluate the progress during the course of the project.

Health research grants funded under the Tobacco Settlement Act will be evaluated via a performance review by an expert panel of researchers and clinicians who will assess project work using this Final Progress Report, all project Annual Reports and the project's strategic plan. After the final performance review of each project is complete, approximately 12-16 months after the end of the grant, this Final Progress Report, as well as the Final Performance Review Report containing the comments of the expert review panel, and the grantee's written response to the Final Performance Review Report, will be posted on the CURE Web site.

There is no limit to the length of your response. Responses must be single-spaced below, no smaller than 12-point type. If you cut and paste text from a publication, be sure symbols print properly, e.g., the Greek symbol for alpha (α) and beta (β) should not print as boxes (□) and include the appropriate citation(s). DO NOT DELETE THESE INSTRUCTIONS.

The objective of this project is to test hypotheses regarding the relationship between quality of

care and differences in socio-demographic factors for cancer patients treated with radiation therapy.

The Specific Aims:

1. To create an enhanced dataset by linking national survey data with census data based on the patient's zip code and to describe the distribution of socio-demographic characteristics in patients diagnosed with cancer of the breast, cervix, stomach, lung and prostate.
2. To test hypotheses that the quality of care received by patients treated for these cancers varies by socio-demographic factors. For each disease site at least four detailed clinical performance measures (CPM) will be calculated to assess quality of care. Hypotheses will test whether compliance with these CPMs is different for groups of patients based on measures of socio-demographic factors.
3. To test hypotheses that patterns of use and sequence of treatment modalities, including surgery, radiation therapy, chemotherapy, and hormonal therapy are different for patients with different socio-demographic factors. The particular patterns to be tested will be those that may represent over-treatment or under-treatment as compared to appropriate treatment for the diseases.

As you can see in the following abstracts, including the abstract of the published manuscript, and Tables 1-5 in this report, we were able to create an enhanced dataset by linking national survey data with census data based on the patient's zip code and describe the distribution of socio-demographic characteristics in patients with cancer of the breast, cervix, stomach, lung and prostate (Aim 1). We also analyzed CPMs for each disease site and demonstrated that compliance with the CPMs (Aim 2) and patterns of use and sequence of treatment modalities (Aim 3) sometimes varied by socio-demographic factors, as shown in Tables 6-10 and the abstracts.

The investigators identified key data fields in census data at the zip code level data, downloaded data, and merged with patient level data from the survey for each of the five disease sites to create analytic files. They computed basic descriptive statistics for key data elements and conducted detailed analyses for all disease sites. Two abstracts were accepted and presented at the 2012 Annual Scientific Meeting of the American Society for Radiation Oncology:

1. Currey, A. D., Ho, A., Owen, J., Khalid, N., Tao, M., White, J. and Wilson, J. F.: Impact of Sociodemographic Factors on Management of Breast Cancer: Results of QRRO Survey. Proc Amer Soc Thera Rad Onc (ASTRO), Boston, MA, *Int J Radiat Oncol Biol Phys*, [84] pg. S230, Abs #2032, 2012.
2. Owen, J., Ho, A., Kachnic, L., Minsky, B., Goodman, K., Khalid, N., Wilson, J. F. and Thomas Jr., C.: Sociodemographic Factors Associated with Management of Gastric Cancer: QRRO / C.U.R.E. Survey Results. Proc Amer Soc Thera Rad Onc (ASTRO), Boston, MA, *Int J Radiat Oncol Biol Phys*, [84] pg. S316, Abs #2259, 2012.

The first abstract focuses on breast cancer. Four sociodemographic variables based on data from the 2000 U.S. census were investigated. These include patients living in urban vs. rural settings (U/R); median household income (HI), percent female unemployment (U) and percent female

college education (CE). U/R had three categories – 100% urban, 100% rural or any urban/rural mix. The other three variables were defined as above or below the medians for this sample. Patients were linked to census data values based on their home ZIP code. Eleven patients could not be linked and were excluded from the analysis. National estimates were based on weighted averages. Findings included: Of the 431 cases, 69.5% were Stage T1, 20.8% T2, 3.3% T3 and 6.4% had neoadjuvant chemotherapy or were otherwise unknown stage; 71.6% were node negative or IHC positive only, 28.3% were node positive. Median age was 60 years. Surgical treatment was 84.4% Breast Conservation Surgery (BCS) and 15.6% mastectomy (M); 80.5% had sentinel lymph node biopsy (SLNB). Of those with M, 16.3% had reconstruction. Accelerated partial breast irradiation (APBI) was done in 5.8%, whole breast radiation therapy (RT) in 78.1%, post-mastectomy RT in 15.6%. MRI was used in workup in 22.1%. There was no difference in pathologic stage, age, use of systemic therapy, IMRT, or CT based treatment planning across the sociodemographic variables. Patients in areas with higher median income (30.6% vs. 15.0% p=0.01), urban centers (28.3% vs. 11.2% rural, 21.0% U/R mixed, p=0.02) and college educated (28.7% vs. 16.4%, p=0.02) were more likely to undergo breast MRI. Patients living in lower HI areas were more likely to get APBI (11.9% vs. 4.4%, p=0.02). Of those in rural areas, 19.2% got APBI versus 8.2% for U/R mix and 5.2% for urban settings (p=0.21). Patients living in areas with more CE had SLNB 84.7% compared to 76.8% in areas with less CE (p<0.1).

The second abstract focuses on gastric cancer. Five sociodemographic variables based on 2000 US Census data were analyzed for association with clinical factors: patients living in urban vs. rural settings (U/R), median household income (HI), % below poverty level (POV), % unemployed (U) and % with college education (CE). U/R had three categories: 100% urban, 100% rural or urban/rural mix. HI, POV, U, CE were defined as above or below the median values of this sample. Patients were linked to census data values by home ZIP code. Six patients did not link and were excluded from the analysis. National estimates used weighted averages. Findings included: Of the 244 cases 96.2% had adenocarcinoma; 13.7% were Stage 1b, 27.4% II, 30.1% IIIA, 9.2% IIIB, 13.5% IV, 6.0% unknown. Primary location was 35.0% antrum, 14.0% corpus, 11.7% cardia, 32.9% GE junction, 6.5% unknown. Median age was 63 yrs; 64.7% were male; 17.3% were African American; 14.3% were Hispanic. Median radiation therapy (RT) dose was 45 Gy; median RT duration was 36 days. 14.7% had AP/PA technique, 14.2% had 3-field, 45.9% had 4-field, 19.8% had >4 fields. Gastrointestinal bleeding and transfusion use (T) varied by U/R (20.8% no T, 16.4% T in urban; 7.2% No T, 13.8% T U/R mixed; 9.9% No T, 2.7% T rural; p=0.03). Endoscopy was performed in >95% of cases in each area. Use of endoscopic ultrasound varied by U/R (16.7% in urban, 36.8% U/R mixed, 22.6% rural; p=0.03). Chest CT was done more often in lower U (85.2% vs. 63.8%; p=0.02), PET more often in lower POV (58.0% vs. 38.0%; p=0.02) and lower U areas (58.3% vs. 37.8%; p=0.02), MRI more often in lower POV and U (both 11.4% vs. 1.7%; p=0.03). Surgical resection was done less often in lower POV (71.7% vs. 87.8%; p=0.02). External beam technique varied by U/R with AP/PA more common in rural and >=4-field more common in urban areas (p=0.02). IMRT use varied by U/R (27.6% urban, 12.5% U/R mixed, 0% rural; p<0.01).

One manuscript reporting results of this study has been published in a scientific journal:

Rengan, R., Ho, A., Owen, J., Khalid, N., Wilson, J.F., Movsas, B.: Impact of

Sociodemographic Factors on the Radiotherapeutic Management of Lung Cancer: Results of a Quality Research in Radiation Oncology (QRRO) Survey. *Practical Radiation Oncology*, 4:e167-e179, 2014.

The abstract summarized the findings as follows:

Purpose/Objective:

The objective of this study is to describe the impact of sociodemographic (SOC) factors on the management of lung cancer patients treated at radiotherapy facilities participating in the Quality Research in Radiation Oncology (QRRO) survey.

Methods:

A two-stage stratified random sample of lung cancer patients treated in 2006-7 at 45 facilities yielded 340 stage I-III NSCLC and 144 LS-SCLC cases. Five SOC variables based on data from the 2000 US Census were analyzed for association with clinical factors: patients (pts) living in urban vs. rural settings (U/R), median household income (AHI), % below poverty level (PPV), % unemployed (PUE) and % with college education (PCE).

Results:

The 340 NSCLC patients were: stage I: 16%; stage II: 11%; stage III: 62%; stage unknown 11%. Histologic subtypes was: adenocarcinoma: 31.8%; squamous cell carcinoma: 35.3%, large cell carcinoma 3.2%; NSCLC NOS 27.7%. The median age was 66. Median KPS was 80. The 144 LS-SCLC had a median age of 63; 73 were male (50.7%). Median KPS was 80.

SBRT and modern imaging utilization was associated with treatment at facilities located in higher SOC regions. SBRT was employed in 46.8% stage I NSCLC patients treated in centers where %PUE was below median vs 14.8% in centers where %PUE was above median ($p=0.02$). 4D-CT was utilized in 14.2% of patients treated in centers located in regions with %PPV below median vs 3.7% in centers located in regions with %PPV above median ($p<0.01$).

SCLC patients were more likely to receive all of their planned RT when treated at centers located in regions with lower PPV (95.0% vs 79.1%; $p=0.04$).

Conclusions

SOC factors may impact use of modern treatment planning and delivery and multidisciplinary management of NSCLC and SCLC. These results may suggest an impact of these SOC factors on access to healthcare.

More detailed results and data are available in the manuscript, a copy of which is attached to this report.

Basic descriptive statistical analyses were performed for all disease sites. Tables 1-5 show the results by disease site for patient and facility characteristics by each of the sociodemographic variables. Tables 6-10 show the results for important clinical performance measures (CPM) for each of the disease sites by sociodemographic variables. These results form part of the basis for an additional manuscript planned to report key results for the disease sites other than lung cancer.

Table 1: Percent of College Education (PCE) by Patient and Facility Characteristics and Cancer Site

| | Breast | | Cervix | | Prostate | |
|--------------------------------------|-----------------------------------|--------------------|----------------------|--------------------|----------------------|--------------------|
| | PCE \leq m* | PCE>m | PCE \leq m | PCE>m | PCE \leq m | PCE>m |
| Total [†] | | | | | | |
| N _{uw} | 216 | 215 | 115 | 116 | 199 | 200 |
| % _{uw} | 50.1 | 49.9 | 49.8 | 50.2 | 49.9 | 50.1 |
| % _w | 53.1 | 46.9 | 48.5 | 51.5 | 44.4 | 55.6 |
| Age (year) | p _t =0.01 [‡] | | p _t =0.08 | | p _t =0.28 | |
| Mean | 62.1 | 58.5 | 52.8 | 57.2 | 69.3 | 68.2 |
| Range | 27-91 | 25-92 | 26-86 | 16-95 | 46-85 | 49-89 |
| | (% _{wc}) [¶] | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) |
| Gender | | | | | | |
| Male | --- | --- | --- | --- | 100.0 | 100.0 |
| Female | 100.0 | 100.0 | 100.0 | 100.0 | --- | --- |
| Race-Ethnicity | p _c =0.82 [§] | | p _c =0.18 | | p _c =0.95 | |
| Non-Hispanic White | 73.5 | 76.3 | 58.8 | 59.3 | 73.0 | 71.0 |
| Non-Hispanic Black | 14.9 | 14.1 | 23.2 | 14.2 | 18.0 | 19.1 |
| Hispanic/Others | 11.6 | 9.6 | 18.0 | 26.5 | 9.0 | 9.9 |
| Marital Status | p _c =0.60 | | p _c =0.23 | | p _c =0.13 | |
| Married/Partner | 57.0 | 61.6 | 43.7 | 35.1 | 69.3 | 75.8 |
| Single/Living Alone | 30.5 | 25.2 | 35.6 | 48.6 | 14.6 | 16.9 |
| Unknown | 12.5 | 13.2 | 20.7 | 16.3 | 16.1 | 7.3 |
| Medical Coverage | p _c =0.04 | | p _c =0.03 | | p _c =0.01 | |
| Medicare Alone | 13.4 | 9.2 | 2.5 | 11.9 | 29.8 | 21.6 |
| Medicare+Supplement | 28.7 | 17.3 | 13.3 | 21.4 | 39.9 | 30.5 |
| Private/HMO/Tricare/Others | 52.2 | 68.1 | 59.0 | 50.3 | 26.8 | 46.6 |
| Medicaid /No insurance ^{**} | 5.7 | 5.4 | 25.2 | 16.4 | 3.5 | 1.3 |
| US Census Region | p _c <0.01 | | p _c <0.01 | | p _c =0.01 | |
| Northeast | 19.1 | 10.6 | 21.5 | 6.0 | 14.7 | 18.6 |
| Midwest | 24.8 | 17.3 | 24.7 | 23.7 | 28.7 | 14.7 |
| South | 40.8 | 39.0 | 41.3 | 40.8 | 41.8 | 36.9 |
| West | 15.3 | 33.1 | 12.5 | 29.5 | 14.8 | 29.8 |
| Stratum | p _c =0.29 | | p _c <0.01 | | p _c =0.03 | |
| Academic | 7.0 | 9.1 | 21.1 | 22.3 | 11.3 | 6.9 |
| Large Non-Academic | 16.3 | 21.3 | 36.0 | 27.0 | 17.4 | 15.3 |
| Medium Non-Academic | 29.5 | 23.5 | 34.4 | 12.6 | 29.3 | 18.5 |
| Small Non-Academic | 47.2 | 46.1 | 8.5 | 38.1 | 42.0 | 59.3 |

(*) median of the % of population with college education

(†) N_{uw}=unweighted sample size; %_{uw}=unweighted row % patients; %_w=weighted row % patients

(‡) p_t=p-value (t-test to compare mean age between 2 median categories of % college education)

(§) p_c=p-value (Chi-square test to measure of association between patient's characteristics and college education)

(¶) %_{wc} = Weighted column percentages based on weighted number of patients

(**) No insurance included self-pay and unknown insurance information

Table 1: Percent of College Education (PCE) by Patient and Facility Characteristics and Cancer Site (Continued)

| | Gastric | | Lung (NSC) | | Lung (SC) | |
|--------------------------------------|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|
| | PCE \leq m | PCE $>$ m | PCE \leq m | PCE $>$ m | PCE \leq m | PCE $>$ m |
| Total [†] | | | | | | |
| N _{uw} | 117 | 127 | 162 | 165 | 70 | 67 |
| % _{uw} | 48.0 | 52.0 | 49.5 | 50.5 | 51.1 | 48.9 |
| % _w | 51.5 | 48.5 | 51.6 | 48.4 | 56.3 | 43.7 |
| Age (year) | p _t =0.46 | | p _t =0.74 | | p _t =0.03 | |
| Mean | 63.3 | 61.5 | 67.4 | 66.9 | 64.1 | 60.7 |
| Range | 34-94 | 33-93 | 42-91 | 37-90 | 43-83 | 28-82 |
| | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) |
| Gender | p _c =0.69 | | p _c =0.87 | | p _c =0.50 | |
| Male | 62.3 | 65.8 | 50.5 | 49.5 | 44.6 | 51.8 |
| Female | 37.7 | 34.2 | 49.5 | 50.5 | 55.4 | 48.2 |
| Race-Ethnicity | p _c =0.26 | | p _c =0.63 | | p _c =0.07 | |
| Non-Hispanic White | 64.0 | 60.5 | 73.3 | 78.4 | 84.7 | 79.7 |
| Non-Hispanic Black | 19.7 | 13.1 | 17.9 | 14.6 | 6.9 | 19.3 |
| Hispanic/Others | 16.3 | 26.4 | 8.8 | 7.0 | 8.4 | 1.0 |
| Marital Status | p _c =0.28 | | p _c =0.12 | | p _c <0.01 | |
| Married/Partner | 62.0 | 74.4 | 56.9 | 45.4 | 52.4 | 66.5 |
| Single/Living Alone | 26.9 | 16.7 | 32.5 | 37.5 | 45.5 | 18.6 |
| Unknown | 11.1 | 8.9 | 10.6 | 17.1 | 2.1 | 14.9 |
| Medical Coverage | p _c =0.23 | | p _c =0.87 | | p _c =0.15 | |
| Medicare Alone | 17.7 | 7.7 | 18.0 | 19.4 | 20.6 | 9.5 |
| Medicare+Supplement | 23.7 | 30.8 | 37.6 | 33.3 | 24.7 | 12.4 |
| Private/HMO/Tricare/Others | 46.4 | 53.2 | 35.7 | 36.4 | 45.5 | 65.3 |
| Medicaid /No insurance ^{**} | 12.2 | 8.3 | 8.7 | 10.9 | 9.2 | 12.8 |
| US Census Region | p _c =0.04 | | p _c =0.03 | | p _c =0.03 | |
| Northeast | 26.7 | 8.9 | 18.7 | 13.2 | 20.3 | 3.5 |
| Midwest | 17.0 | 16.2 | 31.1 | 20.2 | 30.5 | 33.8 |
| South | 45.0 | 53.0 | 34.5 | 38.2 | 32.8 | 25.7 |
| West | 11.3 | 21.9 | 15.7 | 28.4 | 16.4 | 37.0 |
| Stratum | p _c =0.09 | | p _c =0.10 | | p _c =0.05 | |
| Academic | 10.0 | 12.6 | 15.9 | 17.5 | 11.0 | 13.0 |
| Large Non-Academic | 20.9 | 27.2 | 18.8 | 24.0 | 13.5 | 25.2 |
| Medium Non-Academic | 38.4 | 18.3 | 37.3 | 21.7 | 50.9 | 23.1 |
| Small Non-Academic | 30.7 | 41.9 | 28.0 | 36.8 | 24.6 | 38.7 |

(*) median of the % of population with college education

(†) N_{uw}=unweighted sample size; %_{uw}=unweighted row % patients; %_w=weighted row % patients

(‡) p_t=p-value (t-test to compare mean age between 2 median categories of % college education)

(§) p_c=p-value (Chi-square test to measure of association between patient's characteristics and college education)

(¶) %_{wc} = Weighted column percentages based on weighted number of patients

(**) No insurance included self-pay and unknown insurance information

Table 2: Annual Household Income (AHI) by Patient and Facility Characteristics and Cancer Site

| | Breast | | Cervix | | Prostate | |
|----------------------------|------------------------|--------------------|----------------------|--------------------|----------------------|--------------------|
| | AHI≤m* | AHI>m | AHI≤m | AHI>m | AHI≤m | AHI>m |
| Total† | | | | | | |
| N _{uw} | 216 | 215 | 121 | 120 | 200 | 199 |
| % _{uw} | 50.1 | 49.9 | 50.2 | 49.8 | 50.1 | 49.9 |
| % _w | 54.5 | 45.5 | 41.4 | 58.6 | 49.3 | 50.7 |
| Age (year) | p _t =0.01 ‡ | | p _t =0.07 | | p _t =0.37 | |
| Mean | 62.2 | 58.3 | 52.2 | 56.8 | 69.1 | 68.2 |
| Range | 27-90 | 25-92 | 16-87 | 26-95 | 46-85 | 49-89 |
| | (% _{wc}) ¶ | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) |
| Gender | | | | | | |
| Male | --- | --- | --- | --- | 100.0 | 100.0 |
| Female | 100.0 | 100.0 | 100.0 | 100.0 | --- | --- |
| Race-Ethnicity | p _c =0.14§ | | p _c =0.33 | | p _c =0.26 | |
| Non-Hispanic White | 77.1 | 72.2 | 55.7 | 60.4 | 69.3 | 74.3 |
| Non-Hispanic Black | 15.5 | 13.4 | 24.4 | 15.9 | 22.8 | 14.5 |
| Hispanic/Others | 7.4 | 14.4 | 19.9 | 23.7 | 7.9 | 11.2 |
| Marital Status | p _c =0.34 | | p _c =0.72 | | p _c =0.04 | |
| Married/Partner | 55.5 | 63.4 | 36.9 | 41.0 | 66.8 | 78.8 |
| Single/Living Alone | 31.4 | 24.0 | 42.2 | 42.6 | 16.7 | 15.1 |
| Unknown | 13.1 | 12.6 | 20.9 | 16.4 | 16.5 | 6.1 |
| Medical Coverage | p _c <0.01 | | p _c =0.03 | | p _c <0.01 | |
| Medicare Alone | 11.5 | 11.3 | 2.9 | 10.9 | 24.4 | 26.0 |
| Medicare+Supplement | 31.1 | 14.2 | 17.5 | 17.2 | 44.7 | 24.9 |
| Private/HMO/Tricare/Others | 51.2 | 69.7 | 51.3 | 57.0 | 27.4 | 48.0 |
| Medicaid /No insurance** | 6.2 | 4.8 | 28.3 | 14.9 | 3.5 | 1.1 |
| US Census Region | p _c =0.05 | | p _c <0.01 | | p _c <0.01 | |
| Northeast | 10.0 | 21.3 | 4.9 | 19.2 | 4.0 | 29.5 |
| Midwest | 22.0 | 20.4 | 21.7 | 25.1 | 23.8 | 18.0 |
| South | 43.9 | 35.2 | 51.5 | 35.7 | 50.1 | 28.4 |
| West | 24.1 | 23.1 | 21.9 | 20.0 | 22.1 | 24.1 |
| Stratum | p _c =0.02 | | p _c <0.01 | | p _c =0.67 | |
| Academic | 6.2 | 10.2 | 34.5 | 15.3 | 8.8 | 8.9 |
| Large Non-Academic | 16.7 | 21.0 | 34.8 | 27.9 | 16.8 | 15.8 |
| Medium Non-Academic | 31.8 | 20.4 | 30.7 | 17.1 | 26.4 | 20.2 |
| Small Non-Academic | 45.3 | 48.4 | 0.0 | 39.7 | 48.0 | 55.1 |

(*) median of annual household income

(†) N_{uw}=unweighted sample size; %_{uw}= unweighted row % patients; %_w=weighted row % patients

(‡) p_t=p-value (t-test to compare mean age between 2 median categories of annual household income)

(§) p_c=p-value (Chi-square test to measure of association between patient's characteristics and annual household income)

(¶) %_{wc} = Weighted column percentages based on weighted number of patients

(**) No insurance included self-pay and unknown insurance information

Table 2: Annual Household Income (AHI) by Patient and Facility Characteristics and Cancer Site (Continued)

| | Gastric | | Lung (NSC) | | Lung (SC) | |
|--------------------------------------|----------------------|--------------------|----------------------|--------------------|----------------------|-------|
| | AHI \leq m | AHI>m | AHI \leq m | AHI>m | AHI \leq m | AHI>m |
| Total [†] | | | | | | |
| N _{uw} | 122 | 122 | 165 | 162 | 69 | 68 |
| % _{uw} | 50.0 | 50.0 | 50.5 | 49.5 | 50.4 | 49.6 |
| % _w | 53.2 | 46.8 | 50.8 | 49.2 | 58.7 | 41.3 |
| Age (year) | p _t =0.22 | | p _t =0.64 | | p _t =0.03 | |
| Mean | 63.8 | 60.9 | 67.5 | 66.8 | 64.1 | 60.5 |
| Range | 34-94 | 33-90 | 37-91 | 39-90 | 35-82 | 28-83 |
| | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | | |
| Gender | p _c =0.46 | | p _c =0.28 | | p _c =0.84 | |
| Male | 67.0 | 60.6 | 53.5 | 46.6 | 46.8 | 49.1 |
| Female | 33.0 | 39.4 | 46.5 | 53.4 | 53.2 | 50.9 |
| Race-Ethnicity | p _c =0.82 | | p _c =0.93 | | p _c =0.37 | |
| Non-Hispanic White | 63.3 | 61.2 | 75.9 | 75.7 | 82.7 | 82.3 |
| Non-Hispanic Black | 14.8 | 18.5 | 16.7 | 15.8 | 10.0 | 15.6 |
| Hispanic/Others | 21.9 | 20.3 | 7.4 | 8.5 | 7.3 | 2.1 |
| Marital Status | p _c =0.72 | | p _c =0.37 | | p _c =0.41 | |
| Married/Partner | 65.2 | 71.2 | 47.1 | 55.8 | 55.5 | 63.0 |
| Single/Living Alone | 22.9 | 20.9 | 38.4 | 31.2 | 38.9 | 26.4 |
| Unknown | 11.9 | 7.9 | 14.5 | 13.0 | 5.6 | 10.6 |
| Medical Coverage | p _c =0.35 | | p _c =0.73 | | p _c =0.38 | |
| Medicare Alone | 13.0 | 12.7 | 20.4 | 17.0 | 18.7 | 11.6 |
| Medicare+Supplement | 28.8 | 25.3 | 35.9 | 35.0 | 23.3 | 13.7 |
| Private/HMO/Tricare/Others | 44.3 | 55.8 | 35.6 | 36.5 | 46.6 | 64.8 |
| Medicaid /No insurance ^{**} | 13.9 | 6.2 | 8.1 | 11.5 | 11.4 | 9.9 |
| US Census Region | p _c =0.68 | | p _c =0.01 | | p _c =0.02 | |
| Northeast | 15.4 | 21.1 | 10.1 | 22.2 | 8.1 | 19.8 |
| Midwest | 19.1 | 13.7 | 22.4 | 29.3 | 33.7 | 29.5 |
| South | 49.5 | 48.2 | 42.2 | 30.2 | 39.9 | 15.2 |
| West | 16.0 | 17.0 | 25.3 | 18.3 | 18.3 | 35.5 |
| Stratum | p _c =0.15 | | p _c =0.95 | | p _c =0.04 | |
| Academic | 10.2 | 12.3 | 16.4 | 17.0 | 9.3 | 15.5 |
| Large Non-Academic | 20.8 | 27.6 | 20.8 | 21.9 | 13.0 | 26.6 |
| Medium Non-Academic | 37.2 | 19.0 | 28.7 | 30.8 | 48.9 | 24.5 |
| Small Non-Academic | 31.8 | 41.1 | 34.1 | 30.3 | 28.8 | 33.4 |

(*) median of annual household income

(†) N_{uw}=unweighted sample size; %_{uw}= unweighted row % patients; %_w=weighted row % patients

(‡) p_t=p-value (t-test to compare mean age between 2 median categories of annual household income)

(§) p_c=p-value (Chi-square test to measure of association between patient's characteristics and annual household income)

(¶) %_{wc} = Weighted column percentages based on weighted number of patients

(**) No insurance included self-pay and unknown insurance information

Table 3: Percent below Poverty Level (PPV) by Patient and Facility Characteristics and Cancer Site

| | Breast | | Cervix | | Prostate | |
|--------------------------------------|-----------------------------------|--------------------|----------------------|--------------------|----------------------|--------------------|
| | PPV \leq m* | PPV $>$ m | PPV \leq m | PPV $>$ m | PPV \leq m | PPV $>$ m |
| Total [†] | | | | | | |
| N _{uw} | 215 | 216 | 114 | 117 | 200 | 199 |
| % _{uw} | 49.9 | 50.1 | 49.4 | 50.6 | 50.1 | 49.9 |
| % _w | 50.9 | 49.1 | 57.4 | 42.6 | 52.5 | 47.5 |
| Age (year) | p _t =0.19 [‡] | | p _t =0.04 | | p _t =0.85 | |
| Mean | 59.4 | 61.4 | 57.3 | 52.1 | 68.6 | 68.8 |
| Range | 25-92 | 27-90 | 26-95 | 16-87 | 49-85 | 46-89 |
| | (% _{wc}) [¶] | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) |
| Gender | | | | | | |
| Male | --- | --- | --- | --- | 100.0 | 100.0 |
| Female | 100.0 | 100.0 | 100.0 | 100.0 | --- | --- |
| Race-Ethnicity | p _c =0.07 [§] | | p _c =0.52 | | p _c =0.54 | |
| Non-Hispanic White | 80.2 | 69.3 | 60.1 | 57.6 | 75.1 | 68.3 |
| Non-Hispanic Black | 10.3 | 18.9 | 15.9 | 22.2 | 16.1 | 21.4 |
| Hispanic/Others | 9.5 | 11.8 | 24.0 | 20.2 | 8.8 | 10.3 |
| Marital Status | p _c =0.64 | | p _c =0.72 | | p _c <0.01 | |
| Married/Partner | 61.8 | 56.3 | 40.6 | 37.5 | 79.5 | 65.6 |
| Single/Living Alone | 26.1 | 30.0 | 43.0 | 41.3 | 15.6 | 16.2 |
| Unknown | 12.1 | 13.7 | 16.4 | 21.2 | 4.9 | 18.2 |
| Medical Coverage | p _c =0.30 | | p _c =0.02 | | p _c =0.02 | |
| Medicare Alone | 10.7 | 12.1 | 11.3 | 1.9 | 26.4 | 23.9 |
| Medicare+Supplement | 19.0 | 27.9 | 19.3 | 15.0 | 26.4 | 43.8 |
| Private/HMO/Tricare/Others | 64.0 | 55.1 | 54.5 | 54.6 | 45.5 | 29.3 |
| Medicaid /No insurance ^{**} | 6.3 | 4.9 | 14.9 | 28.5 | 1.7 | 3.0 |
| US Census Region | p _c <0.01 | | p _c =0.01 | | p _c <0.01 | |
| Northeast | 25.6 | 4.4 | 20.0 | 4.9 | 29.7 | 2.8 |
| Midwest | 24.5 | 18.0 | 20.6 | 29.0 | 17.9 | 24.2 |
| South | 32.4 | 47.7 | 38.6 | 44.3 | 30.5 | 48.5 |
| West | 17.5 | 29.9 | 20.8 | 21.8 | 21.9 | 24.5 |
| Stratum | p _c =0.80 | | p _c <0.01 | | p _c =0.58 | |
| Academic | 8.0 | 8.1 | 16.0 | 29.4 | 8.3 | 9.5 |
| Large Non-Academic | 17.0 | 20.4 | 24.9 | 40.1 | 15.5 | 17.1 |
| Medium Non-Academic | 26.6 | 26.7 | 17.7 | 30.5 | 20.2 | 26.7 |
| Small Non-Academic | 48.4 | 44.8 | 41.4 | 0.0 | 56.0 | 46.7 |

(*) median of the % of population below poverty level

(†) N_{uw}=unweighted sample size; %_{uw}= unweighted row % patients; %_w=weighted row % patients

(‡) p_t=p-value (t-test to compare mean age between 2 median categories of poverty level)

(§) p_c=p-value (Chi-square test to measure of association between patient's characteristics and poverty level)

(¶) %_{wc} = Weighted column percentages based on weighted number of patients

(**) No insurance included self-pay and unknown insurance information

Table 3: Percent below Poverty Level (PPV) by Patient and Facility Characteristics and Cancer Site (Continued)

| | Gastric | | Lung (NSC) | | Lung (SC) | |
|--------------------------------------|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|
| | PPV \leq m | PPV $>$ m | PPV \leq m | PPV $>$ m | PPV \leq m | PPV $>$ m |
| Total [†] | | | | | | |
| N _{uw} | 122 | 122 | 164 | 163 | 68 | 69 |
| % _{uw} | 50.0 | 50.0 | 50.2 | 49.8 | 49.6 | 50.4 |
| % _w | 50.0 | 50.0 | 50.4 | 49.6 | 46.8 | 53.2 |
| Age (year) | p _t =0.15 | | p _t =0.23 | | p _t =0.16 | |
| Mean | 64.2 | 60.7 | 68.0 | 66.3 | 61.3 | 63.7 |
| Range | 33-90 | 34-94 | 39-90 | 37-91 | 28-83 | 35-82 |
| | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) |
| Gender | p _c =0.44 | | p _c =0.47 | | p _c =0.81 | |
| Male | 67.4 | 60.7 | 47.8 | 52.4 | 46.4 | 49.0 |
| Female | 32.6 | 39.3 | 52.2 | 47.6 | 53.6 | 51.0 |
| Race-Ethnicity | p _c =0.04 | | p _c <0.01 | | p _c =0.96 | |
| Non-Hispanic White | 72.7 | 51.9 | 85.2 | 66.3 | 82.7 | 82.4 |
| Non-Hispanic Black | 13.1 | 19.9 | 8.6 | 24.1 | 12.8 | 11.9 |
| Hispanic/Others | 14.2 | 28.2 | 6.2 | 9.6 | 4.5 | 5.7 |
| Marital Status | p _c =0.12 | | p _c =0.05 | | p _c =0.48 | |
| Married/Partner | 74.5 | 61.5 | 58.9 | 43.7 | 64.7 | 53.1 |
| Single/Living Alone | 21.0 | 23.0 | 29.1 | 40.7 | 26.9 | 39.8 |
| Unknown | 4.5 | 15.5 | 12.0 | 15.6 | 8.4 | 7.1 |
| Medical Coverage | p _c =0.19 | | p _c =0.57 | | p _c =0.40 | |
| Medicare Alone | 15.0 | 10.6 | 21.8 | 15.5 | 10.6 | 20.3 |
| Medicare+Supplement | 33.4 | 20.9 | 35.6 | 35.3 | 18.4 | 20.1 |
| Private/HMO/Tricare/Others | 44.8 | 54.7 | 33.4 | 38.8 | 63.2 | 46.2 |
| Medicaid /No insurance ^{**} | 6.8 | 13.8 | 9.2 | 10.4 | 7.8 | 13.4 |
| US Census Region | p _c <0.01 | | p _c <0.01 | | p _c =0.02 | |
| Northeast | 28.3 | 7.8 | 23.8 | 8.2 | 22.3 | 4.7 |
| Midwest | 19.6 | 13.6 | 28.8 | 22.8 | 32.4 | 31.5 |
| South | 40.2 | 57.6 | 29.9 | 42.8 | 16.6 | 41.2 |
| West | 11.9 | 21.0 | 17.5 | 26.2 | 28.7 | 22.6 |
| Stratum | p _c =0.41 | | p _c =0.40 | | p _c =0.82 | |
| Academic | 11.3 | 11.1 | 16.0 | 17.4 | 12.7 | 11.2 |
| Large Non-Academic | 24.0 | 23.9 | 21.4 | 21.3 | 21.7 | 15.9 |
| Medium Non-Academic | 21.8 | 35.6 | 25.4 | 34.1 | 36.1 | 41.2 |
| Small Non-Academic | 42.9 | 29.4 | 37.2 | 27.2 | 29.5 | 31.7 |

(*) median of the % of population below poverty level

(†) N_{uw}=unweighted sample size; %_{uw}= unweighted row % patients; %_w=weighted row % patients

(‡) p_t=p-value (t-test to compare mean age between 2 median categories of poverty level)

(§) p_c=p-value (Chi-square test to measure of association between patient's characteristics and poverty level)

(¶) %_{wc} = Weighted column percentages based on weighted number of patients

(**) No insurance included self-pay and unknown insurance information

Table 4: Percent Unemployment (PUE) by Patient and Facility Characteristics and Cancer Site

| | Breast | | Cervix | | Prostate | |
|--------------------------------------|-----------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | PUE _{≤m} [*] | PUE _{>m} | PUE _{≤m} | PUE _{>m} | PUE _{≤m} | PUE _{>m} |
| Total [†] | | | | | | |
| N _{uw} | 217 | 214 | 121 | 110 | 198 | 201 |
| % _{uw} | 50.4 | 49.6 | 52.4 | 47.6 | 49.6 | 50.4 |
| % _w | 50.1 | 49.9 | 60.9 | 39.1 | 54.5 | 45.5 |
| Age (year) | p _t =0.30 [‡] | | p _t =0.03 | | p _t =0.46 | |
| Mean | 61.2 | 59.7 | 57.2 | 51.8 | 68.3 | 69.1 |
| Range | 25-91 | 27-92 | 16-95 | 20-89 | 49-85 | 46-89 |
| | (% _{wc}) [¶] | (% _{wc}) |
| Gender | | | | | | |
| Male | --- | --- | --- | --- | 100.0 | 100.0 |
| Female | 100.0 | 100.0 | 100.0 | 100.0 | --- | --- |
| Race-Ethnicity | p _c =0.12 [§] | | p _c =0.02 | | p _c =0.33 | |
| Non-Hispanic White | 79.9 | 69.8 | 66.8 | 47.0 | 76.1 | 66.8 |
| Non-Hispanic Black | 11.1 | 18.0 | 12.3 | 28.3 | 15.4 | 22.4 |
| Hispanic/Others | 9.0 | 12.2 | 20.9 | 24.7 | 8.5 | 10.8 |
| Marital Status | p _c =0.45 | | p _c =0.18 | | p _c =0.11 | |
| Married/Partner | 62.4 | 55.8 | 38.4 | 40.6 | 77.9 | 66.8 |
| Single/Living Alone | 24.8 | 31.2 | 46.8 | 35.3 | 14.6 | 17.5 |
| Unknown | 12.8 | 13.0 | 14.8 | 24.1 | 7.5 | 15.7 |
| Medical Coverage | p _c =0.76 | | p _c =0.16 | | p _c =0.18 | |
| Medicare Alone | 13.0 | 9.7 | 9.7 | 3.6 | 24.4 | 26.3 |
| Medicare+Supplement | 23.6 | 23.2 | 20.3 | 13.1 | 29.7 | 40.5 |
| Private/HMO/Tricare/Others | 57.2 | 62.1 | 51.8 | 58.7 | 44.0 | 30.5 |
| Medicaid /No insurance ^{**} | 6.2 | 5.0 | 18.2 | 24.6 | 1.9 | 2.7 |
| US Census Region | p _c =0.07 | | p _c =0.02 | | p _c <0.01 | |
| Northeast | 20.2 | 10.0 | 18.8 | 5.3 | 26.6 | 5.4 |
| Midwest | 22.3 | 20.3 | 22.9 | 26.3 | 14.6 | 28.4 |
| South | 37.5 | 42.4 | 36.5 | 48.2 | 36.3 | 42.3 |
| West | 20.0 | 27.3 | 21.8 | 20.2 | 22.5 | 23.9 |
| Stratum | p _c =0.43 | | p _c <0.01 | | p _c =0.02 | |
| Academic | 8.8 | 7.3 | 15.4 | 31.4 | 7.6 | 10.4 |
| Large Non-Academic | 16.7 | 20.6 | 26.1 | 39.6 | 14.9 | 17.8 |
| Medium Non-Academic | 26.2 | 27.1 | 22.8 | 23.7 | 17.0 | 30.9 |
| Small Non-Academic | 48.3 | 45.0 | 35.7 | 5.3 | 60.5 | 40.9 |

(*) median of the % of population with unemployment

(†) N_{uw}=unweighted sample size; %_{uw}=unweighted row % patients; %_w=weighted row % patients

(‡) p_t=p-value (t-test to compare mean age between 2 median categories of % unemployment)

(§) p_c=p-value (Chi-square test to measure of association between patient's characteristics and % unemployment)

(¶) %_{wc} = Weighted column percentages based on weighted number of patients

(**) No insurance included self-pay and unknown insurance information

Table 4: Percent Unemployment (PUE) by Patient and Facility Characteristics and Cancer Site (Continued)

| | Gastric | | Lung (NSC) | | Lung (SC) | |
|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | PUE _{≤m} | PUE _{>m} | PUE _{≤m} | PUE _{>m} | PUE _{≤m} | PUE _{>m} |
| Total [†] | | | | | | |
| N _{uw} | 120 | 124 | 165 | 162 | 71 | 66 |
| % _{uw} | 49.2 | 50.8 | 50.5 | 49.5 | 51.8 | 48.2 |
| % _w | 49.0 | 51.0 | 51.3 | 48.7 | 45.0 | 55.0 |
| Age (year) | p _t =0.56 | | p _t =0.22 | | p _t =0.22 | |
| Mean | 63.2 | 61.8 | 68.0 | 66.3 | 61.5 | 63.6 |
| Range | 33-93 | 34-94 | 39-90 | 37-91 | 28-83 | 43-78 |
| | (% _{wc}) |
| Gender | p _c =0.99 | | p _c =0.04 | | p _c =0.50 | |
| Male | 64.0 | 64.0 | 43.6 | 56.8 | 51.8 | 44.5 |
| Female | 36.0 | 36.0 | 56.4 | 43.2 | 48.2 | 55.5 |
| Race-Ethnicity | p _c <0.01 | | p _c <0.01 | | p _c =0.07 | |
| Non-Hispanic White | 73.6 | 51.4 | 85.5 | 65.6 | 90.2 | 76.2 |
| Non-Hispanic Black | 8.0 | 24.7 | 8.5 | 24.4 | 9.8 | 14.4 |
| Hispanic/Others | 18.4 | 23.9 | 6.0 | 10.0 | 0.0 | 9.4 |
| Marital Status | p _c =0.77 | | p _c =0.16 | | p _c =0.28 | |
| Married/Partner | 70.9 | 65.2 | 57.1 | 45.3 | 54.6 | 61.8 |
| Single/Living Alone | 20.7 | 23.2 | 31.1 | 38.9 | 32.4 | 34.9 |
| Unknown | 8.4 | 11.6 | 11.8 | 15.8 | 13.0 | 3.3 |
| Medical Coverage | p _c =0.44 | | p _c =0.44 | | p _c =0.50 | |
| Medicare Alone | 15.5 | 10.3 | 19.7 | 17.6 | 12.6 | 18.3 |
| Medicare+Supplement | 30.3 | 24.0 | 39.4 | 31.4 | 21.0 | 17.9 |
| Private/HMO/Tricare/Others | 47.0 | 52.4 | 32.5 | 39.8 | 60.1 | 49.3 |
| Medicaid /No insurance ^{**} | 7.2 | 13.3 | 8.4 | 11.2 | 6.3 | 14.5 |
| US Census Region | p _c <0.01 | | p _c <0.01 | | p _c =0.23 | |
| Northeast | 29.6 | 7.0 | 22.3 | 9.5 | 21.4 | 6.0 |
| Midwest | 13.8 | 19.3 | 28.2 | 23.3 | 30.9 | 32.8 |
| South | 43.8 | 53.8 | 36.5 | 36.0 | 23.6 | 34.7 |
| West | 12.8 | 19.9 | 13.0 | 31.2 | 24.1 | 26.5 |
| Stratum | p _c =0.09 | | p _c =0.75 | | p _c =0.22 | |
| Academic | 11.3 | 11.1 | 15.1 | 18.4 | 14.8 | 9.5 |
| Large Non-Academic | 24.4 | 23.5 | 22.3 | 20.3 | 24.5 | 13.8 |
| Medium Non-Academic | 18.2 | 38.8 | 30.7 | 28.7 | 30.0 | 46.0 |
| Small Non-Academic | 46.1 | 26.6 | 31.9 | 32.6 | 30.7 | 30.7 |

(*) median of the % of population with unemployment

(†) N_{uw}=unweighted sample size; %_{uw}= unweighted row % patients; %_w=weighted row % patients

(‡) p_t=p-value (t-test to compare mean age between 2 median categories of % unemployment)

(§) p_c=p-value (Chi-square test to measure of association between patient's characteristics and % unemployment)

(¶) %_{wc} = Weighted column percentages based on weighted number of patients

(**) No insurance included self-pay and unknown insurance information

Table 5: Urban/Rural Area by Patient and Facility Characteristics and Cancer Site

| | Breast | | | Cervix | | |
|-------------------------------------|-----------------------------------|--------------------|--------------------|----------------------|--------------------|--------------------|
| | Urban | Rural | Mix | Urban | Rural | Mix |
| Total* | | | | | | |
| N _{uw} | 177 | 37 | 217 | 200 | 0 | 31 |
| % _{uw} | 41.1 | 8.6 | 50.3 | 86.6 | 0.0 | 13.4 |
| % _w | 29.9 | 10.6 | 59.5 | 74.0 | 0.0 | 26.0 |
| Age (year) | p _F =0.87 [†] | | | p _F =0.04 | | |
| Mean | 60.7 | 61.1 | 60.1 | 56.5 | --- | 50.9 |
| Range | 27-88 | 25-91 | 27-92 | 16-95 | --- | 29-84 |
| | (% _{wc}) [§] | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) |
| Gender | | | | | | |
| Male | --- | --- | --- | --- | --- | --- |
| Female | 100.0 | 100.0 | 100.0 | 100.0 | --- | 100.0 |
| Race-Ethnicity | p _c <0.01 [‡] | | | p _c =0.03 | | |
| Non-Hispanic White | 59.7 | 83.2 | 80.9 | 56.0 | --- | 67.7 |
| Non-Hispanic Black | 21.5 | 12.7 | 11.4 | 22.6 | --- | 7.0 |
| Hispanic/Others | 18.8 | 4.1 | 7.7 | 21.4 | --- | 25.3 |
| Marital Status | p _c =0.04 | | | p _c =0.03 | | |
| Married/Partner | 47.8 | 63.4 | 64.1 | 33.2 | --- | 56.6 |
| Single/Living Alone | 32.0 | 29.7 | 25.7 | 48.3 | --- | 25.2 |
| Unknown | 20.2 | 6.9 | 10.2 | 18.5 | --- | 18.2 |
| Medical Coverage | p _c =0.19 | | | p _c <0.01 | | |
| Medicare Alone | 13.5 | 10.1 | 10.5 | 9.9 | --- | 0.0 |
| Medicare+Supplement | 13.9 | 36.7 | 25.8 | 21.3 | --- | 6.6 |
| Private/HMO/Tricare/Others | 67.2 | 48.6 | 57.8 | 48.9 | --- | 70.6 |
| Medicaid /No insurance [¶] | 5.4 | 4.6 | 5.9 | 19.9 | --- | 22.8 |
| US Census Region | p _c =0.02 | | | p _c =0.02 | | |
| Northeast | 12.1 | 12.2 | 17.2 | 9.5 | --- | 25.0 |
| Midwest | 12.4 | 18.9 | 26.2 | 28.6 | --- | 11.5 |
| South | 51.5 | 41.1 | 33.9 | 45.1 | --- | 29.6 |
| West | 24.0 | 27.8 | 22.7 | 16.8 | --- | 33.9 |
| Stratum | p _c <0.01 | | | p _c <0.01 | | |
| Academic | 16.5 | 3.4 | 4.6 | 29.3 | --- | 0.0 |
| Large Non-Academic | 27.5 | 15.5 | 14.8 | 38.6 | --- | 10.7 |
| Medium Non-Academic | 12.7 | 7.9 | 37.0 | 12.5 | --- | 53.5 |
| Small Non-Academic | 43.3 | 73.2 | 43.6 | 19.6 | --- | 35.8 |

(*) N_{uw}=unweighted sample size; %_{uw}= unweighted row % patients; %_w=weighted row % patients

(†) p_t=p-value (ANOVA, F statistics)

(‡) p_c=p-value (Chi-square test to measure of association between patient's characteristics and urban/rural area)

(§) %_{wc} = Weighted column percentages based on weighted number of patients

(¶) No insurance included self-pay and unknown insurance information

Table 5: Urban/Rural Area by Patient and Facility Characteristics and Cancer Site (Continued)

| | Prostate | | | Gastric | | |
|-------------------------------------|----------------------|--------------------|--------------------|-----------------------------------|--------------------|--------------------|
| | Urban | Rural | Mix | Urban | Rural | Mix |
| Total* | | | | | | |
| N _{uw} | 141 | 60 | 198 | 121 | 16 | 107 |
| % _{uw} | 35.4 | 15.0 | 49.6 | 49.6 | 6.6 | 43.8 |
| % _w | 30.6 | 19.2 | 50.2 | 39.4 | 11.3 | 49.3 |
| Age (year) | p _F =0.37 | | | p _F =0.12 | | |
| Mean | 68.2 | 70.4 | 68.3 | 62.9 | 68.3 | 60.8 |
| Range | 46-85 | 52-84 | 49-89 | 36-94 | 51-90 | 33-93 |
| | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) |
| Gender | | | | p _c =0.30 [‡] | | |
| Male | 100.0 | 100.0 | 100.0 | 58.1 | 80.1 | 65.0 |
| Female | --- | --- | --- | 41.9 | 19.9 | 35.0 |
| Race-Ethnicity | p _c <0.01 | | | p _c <0.01 | | |
| Non-Hispanic White | 53.7 | 77.0 | 81.0 | 43.3 | 87.3 | 71.7 |
| Non-Hispanic Black | 33.5 | 18.6 | 9.5 | 29.0 | 0.0 | 10.3 |
| Hispanic/Others | 12.8 | 4.4 | 9.5 | 27.7 | 12.7 | 18.0 |
| Marital Status | p _c =0.22 | | | p _c =0.07 | | |
| Married/Partner | 67.5 | 81.9 | 72.7 | 71.8 | 48.8 | 69.4 |
| Single/Living Alone | 14.5 | 10.5 | 18.8 | 17.5 | 51.2 | 18.9 |
| Unknown | 18.0 | 7.6 | 8.5 | 10.7 | 0.0 | 11.7 |
| Medical Coverage | p _c =0.22 | | | p _c =0.07 | | |
| Medicare Alone | 23.5 | 27.3 | 25.5 | 16.0 | 5.4 | 12.0 |
| Medicare+Supplement | 30.2 | 50.5 | 31.3 | 24.1 | 50.6 | 24.1 |
| Private/HMO/Tricare/Others | 43.7 | 20.9 | 40.8 | 49.4 | 11.4 | 58.8 |
| Medicaid /No insurance [¶] | 2.6 | 1.3 | 2.4 | 10.5 | 32.6 | 5.1 |
| US Census Region | p _c <0.01 | | | p _c <0.01 | | |
| Northeast | 13.7 | 9.1 | 21.9 | 9.3 | 0.0 | 29.2 |
| Midwest | 9.8 | 37.7 | 21.2 | 14.9 | 30.5 | 14.8 |
| South | 57.9 | 30.6 | 30.8 | 50.4 | 32.8 | 51.4 |
| West | 18.6 | 22.6 | 26.1 | 25.4 | 36.7 | 4.6 |
| Stratum | p _c <0.01 | | | p _c <0.01 | | |
| Academic | 13.3 | 4.2 | 8.0 | 16.3 | 1.9 | 9.3 |
| Large Non-Academic | 19.3 | 11.4 | 16.2 | 33.5 | 13.5 | 18.7 |
| Medium Non-Academic | 11.2 | 28.5 | 28.7 | 10.1 | 34.9 | 42.2 |
| Small Non-Academic | 56.2 | 55.9 | 47.1 | 40.1 | 49.7 | 29.8 |

(*) N_{uw}=unweighted sample size; %_{uw}= unweighted row % patients; %_w=weighted row % patients

(†) p_t=p-value (ANOVA, F statistics)

(‡) p_c=p-value (Chi-square test to measure of association between patient's characteristics and urban/rural area)

(§) %_{wc} = Weighted column percentages based on weighted number of patients

(¶) No insurance included self-pay and unknown insurance information

Table 5 Urban/Rural Area by Patient and Facility Characteristics and Lung Cancer (Continued)

| | Lung (NSC) | | | Lung (SC) | | |
|-------------------------------------|-----------------------------------|--------------------|--------------------|-----------------------------------|--------------------|--------------------|
| | Urban | Rural | Mix | Urban | Rural | Mix |
| Total* | | | | | | |
| N _{uw} | 124 | 42 | 161 | 50 | 14 | 73 |
| % _{uw} | 37.9 | 12.8 | 49.2 | 36.5 | 10.2 | 53.3 |
| % _w | 29.5 | 15.3 | 55.2 | 27.4 | 14.7 | 57.9 |
| Age (year) | p _F =0.44 [†] | | | p _F =0.16 [†] | | |
| Mean | 66.3 | 68.9 | 67.1 | 60.7 | 64.7 | 63.0 |
| Range | 37-90 | 43-87 | 45-91 | 28-83 | 54-76 | 43-82 |
| | (% _{wc}) [§] | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) | (% _{wc}) |
| Gender | p _c =0.80 [‡] | | | p _c =0.16 | | |
| Male | 49.6 | 55.2 | 48.9 | 38.3 | 30.9 | 56.6 |
| Female | 50.4 | 44.8 | 51.1 | 61.7 | 69.1 | 43.4 |
| Race-Ethnicity | p _c <0.01 | | | p _c <0.01 | | |
| Non-Hispanic White | 54.2 | 88.9 | 83.7 | 64.5 | 78.1 | 92.2 |
| Non-Hispanic Black | 30.3 | 7.3 | 11.3 | 30.0 | 0.0 | 7.1 |
| Hispanic/Others | 15.5 | 3.8 | 5.0 | 5.5 | 21.9 | 0.7 |
| Marital Status | p _c <0.01 | | | p _c =0.17 | | |
| Married/Partner | 35.4 | 59.7 | 57.6 | 51.9 | 63.2 | 60.5 |
| Single/Living Alone | 41.9 | 35.7 | 30.9 | 28.6 | 36.8 | 35.4 |
| Unknown | 22.7 | 4.6 | 11.5 | 19.5 | 0.0 | 4.1 |
| Medical Coverage | p _c =0.03 | | | p _c <0.01 | | |
| Medicare Alone | 26.6 | 13.8 | 15.9 | 19.2 | 0.0 | 18.1 |
| Medicare+Supplement | 23.7 | 49.7 | 37.8 | 8.9 | 35.0 | 20.2 |
| Private/HMO/Tricare/Others | 37.2 | 24.3 | 38.7 | 45.9 | 54.6 | 57.9 |
| Medicaid /No insurance [¶] | 12.5 | 12.2 | 7.6 | 26.0 | 10.4 | 3.8 |
| US Census Region | p _c =0.05 | | | p _c =0.47 | | |
| Northeast | 14.9 | 10.1 | 18.3 | 6.8 | 11.4 | 16.2 |
| Midwest | 16.4 | 28.4 | 30.1 | 26.0 | 45.4 | 31.3 |
| South | 47.4 | 40.6 | 29.2 | 45.9 | 22.3 | 23.9 |
| West | 21.3 | 20.9 | 22.4 | 21.3 | 20.9 | 28.6 |
| Stratum | p _c <0.01 | | | p _c =0.02 | | |
| Academic | 29.4 | 9.9 | 11.8 | 20.0 | 4.8 | 9.8 |
| Large Non-Academic | 32.1 | 14.1 | 17.6 | 27.8 | 8.6 | 16.8 |
| Medium Non-Academic | 5.9 | 38.2 | 40.1 | 18.5 | 34.4 | 49.5 |
| Small Non-Academic | 32.6 | 37.8 | 30.5 | 33.7 | 52.2 | 23.9 |

(*) N_{uw}=unweighted sample size; %_{uw}= unweighted row % patients; %_w=weighted row % patients

(†) p_t=p-value (ANOVA, F statistics)

(‡) p_c=p-value (Chi-square test to measure of association between patient's characteristics and urban/rural area)

(§) %_{wc} = Weighted column percentages based on weighted number of patients

(¶) No insurance included self-pay and unknown insurance information

Table 6: Clinical Performance Measures (CPM) for Breast Cancer by Census Socio-demographic Factors

| Census Socio-demographic Factor | Clinical Performance Measure | | | | | |
|---------------------------------|--|----------------------|--|----------------------|--|----------------------|
| | CM 1B: Stage II-III breast cancer patients with 1-3 positive axillary nodes who receive post chemotherapy external beam irradiation to the chest wall/breast and supraclavicular area (n [‡] =60) | | CM 2: Use of external beam irradiation treatment to the supraclavicular field and axillary apex without full axillary radiation in patients with N1 (1-3 positive axillary nodes) disease after axillary dissection (n [‡] =31) | | CM 3A: Use of external beam regional nodal irradiation after Breast Conservation Treatment (BCT) in stage II-III patients with ≥ N1 breast cancer (n [‡] =56) | |
| | No (%) [*] | Yes (%) [*] | No (%) [*] | Yes (%) [*] | No (%) [*] | Yes (%) [*] |
| College Education | | | | | | |
| ≤ median | 37.9 | 48.4 | 25.0 | 51.9 | 39.3 | 35.7 |
| > median | 62.1 | 51.6 | 75.0 | 48.1 | 60.7 | 64.3 |
| Totals [‡] | 29 (p [†] =0.41) | 31 | 4 (p [†] =0.60) | 27 | 28 (p [†] =0.78) | 28 |
| Annual Household Income | | | | | | |
| ≤ median | 37.9 | 45.2 | 25.0 | 51.9 | 39.3 | 46.4 |
| > median | 62.1 | 54.8 | 75.0 | 48.1 | 60.7 | 53.6 |
| Totals [‡] | 29 (p [†] =0.57) | 31 | 4 (p [†] =0.60) | 27 | 28 (p [†] =0.59) | 28 |
| Poverty Level | | | | | | |
| ≤ median | 44.8 | 51.6 | 75.0 | 44.4 | 42.9 | 60.7 |
| > median | 55.2 | 48.4 | 25.0 | 55.6 | 57.1 | 39.3 |
| Totals [‡] | 29 (p [†] =0.60) | 31 | 4 (p [†] =0.33) | 27 | 28 (p [†] =0.18) | 28 |
| Unemployment | | | | | | |
| ≤ median | 37.9 | 38.7 | 50.0 | 33.3 | 39.3 | 53.6 |
| > median | 62.1 | 61.3 | 50.0 | 66.7 | 60.7 | 46.4 |
| Totals [‡] | 29 (p [†] =0.95) | 31 | 4 (p [†] =0.60) | 27 | 28 (p [†] =0.28) | 28 |
| Urban/Rural Area | | | | | | |
| Urban | 58.6 | 35.5 | 75.0 | 29.6 | 60.7 | 42.9 |
| Rural | 6.9 | 6.4 | 0.0 | 7.4 | 7.1 | 0.0 |
| Urban/Rural Mix | 34.5 | 58.1 | 25.0 | 63.0 | 32.2 | 57.1 |
| Totals [‡] | 29 (p [†] =0.21) | 31 | 4 (p [†] =0.24) | 27 | 28 (p [†] =0.07) | 28 |

Note: All Census variables were dichotomized by median of the respective variable distribution, except the urban/rural area which was categorized into urban (100% urban), rural (100% rural), and mix.

(*) Unweighted column percentage

(†) p-values (Chi-square test or Fisher's Exact test to measure of association between CPM and Census socio-demographic variable)

(‡) surveyed sample size

**Table 7: Clinical Performance Measures (CPM) for Cervix Cancer
by Census Socio-demographic Factors**

| Census Socio-demographic Factor | Clinical Performance Measure | | | | | |
|---------------------------------|--|----------------------|---|----------------------|--|----------------------|
| | CM 2: Use of brachytherapy in the definitive management of cervical cancer | | CM 3: Completion of all radiation treatment in ≤ 60 days for patients treated for carcinomas of the intact cervix | | CM 4: Use of concurrent Cisplatin-containing chemotherapy with radiation | |
| | No (%) [*] | Yes (%) [*] | No (%) [*] | Yes (%) [*] | No (%) [*] | Yes (%) [*] |
| College Education | | | | | | |
| ≤ median | 60.0 | 50.5 | 56.3 | 47.0 | 40.8 | 54.9 |
| > median | 40.0 | 49.5 | 43.7 | 53.0 | 59.2 | 45.1 |
| Totals [‡] | 20 (p [†] =0.42) | 184 | 103 (p [†] =0.17) | 117 | 49 (p [†] =0.09) | 153 |
| Annual Household Income | | | | | | |
| ≤ median | 40.0 | 52.6 | 52.4 | 49.6 | 57.4 | 49.7 |
| > median | 60.0 | 47.4 | 47.6 | 50.4 | 42.6 | 50.3 |
| Totals [‡] | 20 (p [†] =0.28) | 194 | 105 (p [†] =0.67) | 125 | 54 (p [†] =0.33) | 157 |
| Poverty Level | | | | | | |
| ≤ median | 60.0 | 47.3 | 43.7 | 53.0 | 46.9 | 48.4 |
| > median | 40.0 | 52.7 | 56.3 | 47.0 | 53.1 | 51.6 |
| Totals [‡] | 20 (p [†] =0.28) | 184 | 103 (p [†] =0.17) | 117 | 49 (p [†] =0.86) | 153 |
| Unemployment | | | | | | |
| ≤ median | 55.0 | 49.5 | 41.8 | 58.1 | 57.1 | 47.7 |
| > median | 45.0 | 50.5 | 58.2 | 41.9 | 42.9 | 52.3 |
| Totals [‡] | 20 (p [†] =0.64) | 184 | 103 (p [†] =0.02) | 117 | 49 (p [†] =0.25) | 153 |
| Urban/Rural Area | | | | | | |
| Urban | 85.0 | 86.4 | 84.5 | 87.2 | 87.8 | 85.6 |
| Urban/Rural Mix | 15.0 | 13.6 | 15.5 | 12.8 | 12.2 | 14.4 |
| Totals [‡] | 20 (p [†] =0.74) | 184 | 103 (p [†] =0.56) | 117 | 49 (p [†] =0.71) | 153 |

Note: All Census variables were dichotomized by median of the respective variable distribution, except the urban/rural area which was categorized into urban (100% urban), rural (100% rural), and mix.

(*) Unweighted column percentage

(†) p-values (Chi-square test or Fisher's Exact test to measure of association between CPM and Census socio-demographic variable)

(‡) surveyed sample size

Table 8: Clinical Performance Measures (CPM) for Gastric Cancer by Census Socio-demographic Factors

| Census Socio-demographic Factor | Clinical Performance Measure | | | | | |
|---------------------------------|--|----------------------|---|----------------------|--|----------------------|
| | CM 1A: Use of CT-based simulation and treatment planning (n [‡] =244) | | CM 1B: Use of Dose Volume Histograms (DVH) to evaluate normal tissue doses to the kidneys and liver (n [‡] =243) | | CM 2: Completion of planned RT course within the prescribed time frame (n [‡] =186) | |
| | No (%) [*] | Yes (%) [*] | No (%) [*] | Yes (%) [*] | No (%) [*] | Yes (%) [*] |
| College Education | | | | | | |
| ≤ median | 100.0 | 47.7 | 53.3 | 45.9 | 50.9 | 43.5 |
| > median | 0.0 | 52.3 | 46.7 | 54.1 | 49.1 | 56.5 |
| Totals [‡] | 1 (p [†] =0.48) | 243 | 60 (p [†] =0.32) | 183 | 55 (p [†] =0.36) | 131 |
| Annual Household Income | | | | | | |
| ≤ median | 100.0 | 49.8 | 63.3 | 45.4 | 49.1 | 45.8 |
| > median | 0.0 | 50.2 | 36.7 | 54.6 | 50.9 | 54.2 |
| Totals [‡] | 1 (p [†] >0.99) | 243 | 60 (p [†] =0.02) | 183 | 55 (p [†] =0.68) | 131 |
| Poverty Level | | | | | | |
| ≤ median | 0.0 | 50.2 | 46.7 | 51.4 | 45.4 | 48.1 |
| > median | 100.0 | 49.8 | 53.3 | 48.6 | 54.6 | 51.9 |
| Totals [‡] | 1 (p [†] >0.99) | 243 | 60 (p [†] =0.53) | 183 | 55 (p [†] =0.74) | 131 |
| Unemployment | | | | | | |
| ≤ median | 100.0 | 49.0 | 40.0 | 51.9 | 47.3 | 48.8 |
| > median | 0.0 | 51.0 | 60.0 | 48.1 | 52.7 | 51.2 |
| Totals [‡] | 1 (p [†] =0.49) | 243 | 60 (p [†] =0.11) | 183 | 55 (p [†] =0.84) | 131 |
| Urban/Rural Area | | | | | | |
| Urban | 0.0 | 49.8 | 38.4 | 53.6 | 54.6 | 52.7 |
| Rural | 100.0 | 6.2 | 13.3 | 3.8 | 3.6 | 6.1 |
| Urban/Rural Mix | 0.0 | 44.0 | 48.3 | 42.6 | 41.8 | 41.2 |
| Totals [‡] | 1 (p [†] =0.07) | 243 | 60 (p [†] =0.01) | 183 | 55 (p [†] =0.79) | 131 |

Note: All Census variables were dichotomized by median of the respective variable distribution, except the urban/rural area which was categorized into urban (100% urban), rural (100% rural), and mix.

(*) Unweighted column percentage

(†) p-values (Chi-square test or Fisher's Exact test to measure of association between CPM and Census socio-demographic variable)

(‡) surveyed sample size

Table 9: Clinical Performance Measures (CPM) for Non-Small Cell Lung Cancer (NSCLC) and Small Cell Lung Cancer (SCLC) by Census Socio-demographic Factors

| Census Socio-demographic Factor | Clinical Performance Measure | | | |
|---------------------------------|--|----------------------|--|----------------------|
| | NSCLC CM 1: Proper radiation therapy dose (59-74 Gy) (n [‡] =113) | | SCLC CM 2: Use of concurrent chemo- radiation (n [‡] =58) | |
| | No (%) [*] | Yes (%) [*] | No (%) [*] | Yes (%) [*] |
| College Education | | | | |
| ≤ median | 53.9 | 48.0 | 0.0 | 50.9 |
| > median | 46.1 | 52.0 | 100.0 | 49.1 |
| Totals [‡] | 13 (p [†] =0.69) | 100 | 3 (p [†] =0.24) | 55 |
| Annual Household Income | | | | |
| ≤ median | 61.5 | 45.0 | 33.3 | 47.3 |
| > median | 38.5 | 55.0 | 66.7 | 52.7 |
| Totals [‡] | 13 (p [†] =0.26) | 100 | 3 (p [†] >0.99) | 55 |
| Poverty Level | | | | |
| ≤ median | 53.9 | 56.0 | 100.0 | 49.1 |
| > median | 46.1 | 44.0 | 0.0 | 50.9 |
| Totals [‡] | 13 (p [†] =0.88) | 100 | 3 (p [†] =0.24) | 55 |
| Unemployment | | | | |
| ≤ median | 69.2 | 51.0 | 66.7 | 52.7 |
| > median | 30.8 | 49.0 | 33.3 | 47.3 |
| Totals [‡] | 13 (p [†] =0.22) | 100 | 3 (p [†] >0.99) | 55 |
| Urban/Rural Area | | | | |
| Urban | 53.8 | 35.0 | 33.3 | 30.9 |
| Rural | 7.7 | 9.0 | 0.0 | 7.3 |
| Urban/Rural Mix | 38.5 | 56.0 | 66.7 | 61.8 |
| Totals [‡] | 13 (p [†] =0.40) | 100 | 3 (p [†] >0.99) | 55 |

Note: All Census variables were dichotomized by median of the respective variable distribution, except the urban/rural area which was categorized into urban (100% urban), rural (100% rural), and mix.

(*) Unweighted column percentage

(†) p-values (Chi-square test or Fisher's Exact test to measure of association between CPM and Census socio-demographic variable)

(‡) surveyed sample size

Table 10: Clinical Performance Measures (CPM) for Prostate Cancer by Census Socio-demographic Factors

| Census Socio-demographic Factor | Clinical Performance Measure | | | | | |
|---------------------------------|---|----------------------|--|----------------------|---|----------------------|
| | CM 1: Use of high energy linear accelerators (≥ 6 MV) in men with non-metastatic prostate cancer treated with EBRT (photons or protons) (n [‡] =341) | | CM 2: Use of dose levels ≥ 75 Gy for non-metastatic intermediate and high-risk prostate cancer patients treated with EBRT alone (n [‡] =176) | | CM 3: Androgen suppression therapy concurrent with EBRT for high risk disease (T3 or Gleason 8-10 or PSA > 20) (n [‡] =67) | |
| | No (%) [*] | Yes (%) [*] | No (%) [*] | Yes (%) [*] | No (%) [*] | Yes (%) [*] |
| College Education | | | | | | |
| \leq median | 100.0 | 49.4 | 57.9 | 50.7 | 77.8 | 53.5 |
| $>$ median | 0.0 | 50.6 | 42.1 | 49.3 | 22.2 | 46.5 |
| Totals [‡] | 1 (p [†] =0.50) | 340 | 38 (p [†] =0.43) | 138 | 9 (p [†] =0.28) | 58 |
| Annual Household Income | | | | | | |
| \leq median | 100.0 | 51.8 | 63.2 | 52.9 | 77.8 | 67.2 |
| $>$ median | 0.0 | 48.2 | 36.8 | 47.1 | 22.2 | 32.8 |
| Totals [‡] | 1 (p [†] >0.99) | 340 | 38 (p [†] =0.26) | 138 | 9 (p [†] =0.71) | 58 |
| Poverty Level | | | | | | |
| \leq median | 0.0 | 47.6 | 31.6 | 50.0 | 11.1 | 39.7 |
| $>$ median | 100.0 | 52.4 | 68.4 | 50.0 | 88.9 | 60.3 |
| Totals [‡] | 1 (p [†] >0.99) | 340 | 38 (p [†] =0.04) | 138 | 9 (p [†] =0.14) | 58 |
| Unemployment | | | | | | |
| \leq median | 0.0 | 47.9 | 23.7 | 50.7 | 33.3 | 39.7 |
| $>$ median | 100.0 | 52.1 | 76.3 | 49.3 | 66.7 | 60.3 |
| Totals [‡] | 1 (p [†] >0.99) | 340 | 38 (p [†] <0.01) | 138 | 9 (p [†] >0.99) | 58 |
| Urban/Rural Area | | | | | | |
| Urban | 100.0 | 36.8 | 26.3 | 33.3 | 44.4 | 32.8 |
| Rural | 0.0 | 14.7 | 15.8 | 13.0 | 11.1 | 13.8 |
| Urban/Rural Mix | 0.0 | 48.5 | 57.9 | 53.6 | 44.4 | 53.4 |
| Totals [‡] | 1 (p [†] =0.52) | 340 | 38 (p [†] =0.66) | 138 | 9 (p [†] =0.88) | 58 |

Note: All Census variables were dichotomized by median of the respective variable distribution, except the urban/rural area which was categorized into urban (100% urban), rural (100% rural), and mix.

(*) Unweighted column percentage

(†) p-values (Chi-square test or Fisher's Exact test to measure of association between CPM and Census socio-demographic variable)

(‡) surveyed sample size

18. Extent of Clinical Activities Initiated and Completed. Items 18(A) and 18(B) should be completed for all research projects. If the project was restricted to secondary analysis of clinical data or data analysis of clinical research, then responses to 18(A) and 18(B) should be “No.”

18(A) Did you initiate a study that involved the testing of treatment, prevention or diagnostic procedures on human subjects?

Yes
 No

18(B) Did you complete a study that involved the testing of treatment, prevention or diagnostic procedures on human subjects?

Yes
 No

If “Yes” to either 18(A) or 18(B), items 18(C) – (F) must also be completed. (Do NOT complete 18(C-F) if 18(A) and 18(B) are both “No.”)

18(C) How many hospital and health care professionals were involved in the research project?

_____ Number of hospital and health care professionals involved in the research project

18(D) How many subjects were included in the study compared to targeted goals?

_____ Number of subjects originally targeted to be included in the study
_____ Number of subjects enrolled in the study

Note: Studies that fall dramatically short on recruitment are encouraged to provide the details of their recruitment efforts in Item 17, Progress in Achieving Research Goals, Objectives and Aims. For example, the number of eligible subjects approached, the number that refused to participate and the reasons for refusal. Without this information it is difficult to discern whether eligibility criteria were too restrictive or the study simply did not appeal to subjects.

18(E) How many subjects were enrolled in the study by gender, ethnicity and race?

Gender:

_____ Males
_____ Females
_____ Unknown

Ethnicity:

_____ Latinos or Hispanics
_____ Not Latinos or Hispanics
_____ Unknown

Race:

- American Indian or Alaska Native
 Asian
 Blacks or African American
 Native Hawaiian or Other Pacific Islander
 White
 Other, specify: _____
 Unknown

18(F) Where was the research study conducted? (List the county where the research study was conducted. If the treatment, prevention and diagnostic tests were offered in more than one county, list all of the counties where the research study was conducted.)

19. Human Embryonic Stem Cell Research. Item 19(A) should be completed for all research projects. If the research project involved human embryonic stem cells, items 19(B) and 19(C) must also be completed.

19(A) Did this project involve, in any capacity, human embryonic stem cells?

- Yes
 No

19(B) Were these stem cell lines NIH-approved lines that were derived outside of Pennsylvania?

- Yes
 No

19(C) Please describe how this project involved human embryonic stem cells:

20. Articles Submitted to Peer-Reviewed Publications.

20(A) Identify all publications that resulted from the research performed during the funding period and that have been submitted to peer-reviewed publications. Do not list journal abstracts or presentations at professional meetings; abstract and meeting presentations should be listed at the end of item 17. **Include only those publications that acknowledge the Pennsylvania Department of Health as a funding source** (as required in the grant agreement). List the title of the journal article, the authors, the name of the peer-reviewed publication, the month and year when it was submitted, and the status of publication (submitted for publication, accepted for publication or published.). Submit an electronic copy of each publication or paper submitted for publication, listed in the table, in a PDF version 5.0.5 (or greater) format, 1,200 dpi. Filenames for each publication should include the number of the research project, the last name of the PI, and an abbreviated title of the publication. For example, if you submit two publications for Smith (PI for Project 01), one publication for Zhang (PI for Project 03), and one publication for Bates (PI for Project 04),

the filenames would be:

- Project 01 – Smith – Three cases of isolated
- Project 01 – Smith – Investigation of NEB1 deletions
- Project 03 – Zhang – Molecular profiling of aromatase
- Project 04 – Bates – Neonatal intensive care

If the publication is not available electronically, provide 5 paper copies of the publication.

Note: The grant agreement requires that recipients acknowledge the Pennsylvania Department of Health funding in all publications. Please ensure that all publications listed acknowledge the Department of Health funding. If a publication does not acknowledge the funding from the Commonwealth, do not list the publication.

| Title of Journal Article: | Authors: | Name of Peer-reviewed Publication: | Month and Year Submitted: | Publication Status (check appropriate box below): |
|---|--|------------------------------------|---------------------------|--|
| 1. Impact of sociodemo-graphic factors on the management of lung cancer: Results of a Quality Research in Radiation Oncology Survey | R Rengan, A Ho, JB Owen, R Komaki, N Khalid, JF Wilson, B Movsas | Practical Radiation Oncology | April 2013 | <input type="checkbox"/> Submitted <input type="checkbox"/> Accepted <input checked="" type="checkbox"/> Published |

20(B) Based on this project, are you planning to submit articles to peer-reviewed publications in the future?

Yes X No _____

If yes, please describe your plans:

We plan to submit an overview article on sociodemographic factors and their relationship to management of breast, cervix, and gastric cancer. The journal will be Practical Radiation Oncology or the Journal of the American College of Radiology.

21. Changes in Outcome, Impact and Effectiveness Attributable to the Research Project.

Describe the outcome, impact, and effectiveness of the research project by summarizing its impact on the incidence of disease, death from disease, stage of disease at time of diagnosis, or other relevant measures of outcome, impact or effectiveness of the research project. If there were no changes, insert “None”; do not use “Not applicable.” Responses must be single-spaced below, and no smaller than 12-point type. **DO NOT DELETE THESE INSTRUCTIONS.** There is no limit to the length of your response.

None

22. Major Discoveries, New Drugs, and New Approaches for Prevention Diagnosis and Treatment. Describe major discoveries, new drugs, and new approaches for prevention, diagnosis and treatment that are attributable to the completed research project. If there were no major discoveries, drugs or approaches, insert “None”; do not use “Not applicable.” Responses must be single-spaced below, and no smaller than 12-point type. **DO NOT DELETE THESE INSTRUCTIONS.** There is no limit to the length of your response.

None

23. Inventions, Patents and Commercial Development Opportunities.

23(A) Were any inventions, which may be patentable or otherwise protectable under Title 35 of the United States Code, conceived or first actually reduced to practice in the performance of work under this health research grant? Yes _____ No X

If “Yes” to 23(A), complete items a – g below for each invention. (Do NOT complete items a - g if 23(A) is “No.”)

- a. Title of Invention:
- b. Name of Inventor(s):
- c. Technical Description of Invention (describe nature, purpose, operation and physical, chemical, biological or electrical characteristics of the invention):
- d. Was a patent filed for the invention conceived or first actually reduced to practice in the performance of work under this health research grant?
Yes _____ No _____

If yes, indicate date patent was filed:

- e. Was a patent issued for the invention conceived or first actually reduced to practice in the performance of work under this health research grant?
Yes _____ No _____
If yes, indicate number of patent, title and date issued:
Patent number:
Title of patent:
Date issued:
- f. Were any licenses granted for the patent obtained as a result of work performed under this health research grant? Yes _____ No _____

If yes, how many licenses were granted? _____
- g. Were any commercial development activities taken to develop the invention into a commercial product or service for manufacture or sale? Yes _____ No _____

If yes, describe the commercial development activities:

23(B) Based on the results of this project, are you planning to file for any licenses or patents, or undertake any commercial development opportunities in the future?

Yes _____ No X

If yes, please describe your plans:

24. Key Investigator Qualifications. Briefly describe the education, research interests and experience and professional commitments of the Principal Investigator and all other key investigators. In place of narrative you may insert the NIH biosketch form here; however, please limit each biosketch to 1-2 pages.

BIOGRAPHICAL SKETCH

| | | | |
|--|---------------------------|---|--------------------|
| NAME Jean B. Owen, PhD | | POSITION TITLE Consultant, Medical and Pharmaceutical Research and Ethics | |
| eRA COMMONS USER NAME (credential, e.g., agency login) | | | |
| EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.) | | | |
| INSTITUTION AND LOCATION | DEGREE (if applicable) | MM/YY | FIELD OF STUDY |
| Harvard University, Cambridge, MA | B.A. | 1971 | Economics |
| Boston College, Chestnut Hill, MA | Ph.D. | 1980 | Economics |
| Medical College of Wisconsin, Milwaukee, WI | Graduate certificate | 2014 | Research Ethics |

A. Personal Statement

As project director of the Quality Research in Radiation Oncology (QRRO) project (formerly the PCS) I led the development of clinical performance measures and survey processes to measure quality of care benchmarks in radiation oncology. Among other projects were cost effectiveness analyses within multi-institutional clinical trials, a Practice Accreditation Program in Radiation Oncology, a Practice Quality Improvement program, and a study using the National Cancer Data Base and Patient Care Evaluation study processes. Since leaving the American College of Radiology I have been working as an independent consultant specializing in innovative design, planning, compliance, implementation, analysis, and reporting of projects in quality improvement, accreditation, registries, and cost analyses of medical practices. I also pursued a Graduate Certificate in Research Ethics to enhance my expertise in incorporating patient privacy and other ethical issues into the design of observational studies. I received the American Society for Radiation Oncology (ASTRO) Honorary Member award for 2013.

B. Positions and Honors

Research Economist, School of Public Health, Harvard University, Boston, MA 1980-82
 Assistant Professor of Economics, University of Massachusetts, Lowell, MA, 1982-86
 Senior Analyst- Senior Scientist, Health Data Institute, Inc., Lexington, MA, 1986-88
 Director- Senior Director, QRRO, American College of Radiology, Philadelphia, PA, 1989-2012
 B.A. *magna cum laude*, Harvard University
 Visiting Fellow, Japan Society for the Promotion of Science, 1999
 Invited speaker, Japan-US PCS Workshop, National Cancer Center, Tokyo, Japan, February 2003
 Honorary Member, American Society for Radiation Oncology (ASTRO), 2013

C. Selected Peer-reviewed Publications (from 80+ manuscripts, 100+ conference proceedings)

1. Crozier, C., Wittman-Erickson, B., Movsas, B., **Owen, J.**, Khalid, N. and Wilson, J. F.: QRRO®: Shifting the Focus to Practice Quality Improvement in Radiation Oncology. *J for Healthcare Quality*, 33(5):49-57, 2011.
2. Hamilton, A.S., Wu, X., Lipscomb, J., Fleming, S.T., Lo, M., Wang, D., Goodman, M., Ho, A., **Owen, J.**, Rao, C. and German, R.R.: Regional, Provider, and Economic Factors Associated with the Choice of Active Surveillance in the Treatment of Men with

- Localized Prostate Cancer. *J Natl Cancer Inst Monogr*, 45:213-220, 2012.
PMCID:PMC3540885
3. Fleming, S.T., Hamilton, A.S., Sabatino, S.A., Kimmick, G.G., Wu, X.C., **Owen, J.B.**, Huang, B., and Hwang, W.: Treatment Patterns for Prostate Cancer: Comparison of Medicare Claims Data to Medical Record Review. *Medical Care*, www.lww-medicalcare.com, 2012.
 4. Zelefsky, M., Cohen, G., Bosch, W., Morikawa, L., Khalid, N., Crozier, C., Lee, R., Zietman, A., **Owen, J.**, Wilson, J. F. and Devlin, P.: Results from the Quality Research in Radiation Oncology (QRRO) Survey: Evaluation of Dosimetric Outcomes for Low Dose Rate Prostate Brachytherapy. *Brachytherapy*, 12:19-24, 2013.
PMCID:PMC3518616
 5. Zelefsky, M., Lee, W.R., Zietman, A., Khalid, N., Crozier, C., **Owen, J.**, and Wilson, J.F.: Evaluation of Adherence to Quality Measures for Prostate Cancer Radiotherapy in the United States: Results from the Quality Research in Radiation Oncology (QRRO) Survey. *Practical Radiation Oncology*, 3(1):2-8, 2013. PMCID:PMC3587045.
 6. Cetnar, J.P., Hampton, J.M., Williamson, A.A., Downs, T., Wang, D., **Owen, J.B.**, Crouse, B., Jones, N., Wilson, J.F., Trentham-Dietz, A.: Place of Residence and Primary Treatment of Prostate Cancer: Examining Trends in Rural and Nonrural Areas in Wisconsin. *Urology*, 81(3):540-546, 2013.
 7. Goodman, K., Khalid, N., Kachnic, L., Minsky, B., Crozier, C., **Owen, J.**, Wilson, J. F. and Thomas Jr., C.: Quality Research in Radiation Oncology (QRRO) Analysis of Clinical Performance Measures in the Management of Gastric Cancer. *Int J Radiat Onco Biol Phys*, 85(2):355-362, 2013. PMCID:PMC3545084
 8. Komaki, R., Khalid, N., Langer, C., Kong, F., **Owen, J.**, Crozier, C., Wilson, J.F., Wei, S., and Movsas, B.: Quality Research in Radiation Oncology Survey Shows Improvements over a Decade in the Quality of Care for Lung Cancer Patients in the United States. *Int J Radiat Onco Biol Phys*, 85(4):1082-1089, 2013.
 9. Hamilton, A.S., Fleming, S.T., Wang, D., Goodman, M., Wu, X.C., **Owen, J.B.**, Lo, M., Ho, A., Anderson, R.T., Thompson, T.: Clinical and Demographic Factors Associated with Receipt of Guideline Concordant Initial Therapy for Localized Prostate Cancer. *Am J Clin Oncol*, doi: 10.1097/COC.000000000000017; publ. online on January 1, 2014.
 10. Rengan, R., Ho, A., **Owen, J.**, Khalid, N., Wilson, J.F., Movsas, B.: Impact of Sociodemographic Factors on the Radiotherapeutic Management of Lung Cancer: Results of a Quality Research in Radiation Oncology (QRRO) Survey. *Practical Radiation Oncology*, 4:e167-e179, 2014. DOI: 10.1016/j.prro.2013.07.012.
 11. Eifel, P., Ho, A., Khalid, N., Erickson, B., **Owen, J.**: Patterns of Radiation Therapy Practice for Patients Treated for Intact Cervical Cancer in 2005-2007: A Quality Research in Radiation Oncology Study. *Int J Radiat Onco Biol Phys*, 89(2):249-256, 2014. DOI: 10.1016/j.ijrobp.2013.11.228; published online on January 8, 2014.
 12. **Owen, J.B.**, Khalid, N., Ho, A., Kachnic, L.A., Komaki, R., Tao, M.L., Currey, A., Wilson, J.F.: Can patient comorbidities be included in Clinical Performance Measures for radiation oncology? *J Oncol Pract*, JOP.2013.001143; publ. online on March 18, 2014.
 13. Wang, D., Ho, A., Hamilton, A., Wu, X.C., Lo, M., Fleming, S., Goodman, M., Thompson, T., **Owen, J.**: Type and Dose of Radiotherapy used for Initial Treatment of Non-Metastatic Prostate Cancer. *Radiation Oncology*, 9:47. <http://www.ro-journal.com/content/pdf/9/1/47>; 2014.