Research Priorities in Surgical Diseases for Latino Patients: Surgical Access Disparity

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National Cancer Institute
Division of Cancer Prevention
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National Hispanic Medical Association
No Disclosures
Age-adjusted death rates for the 10 leading causes of death: United States, 2016 & 2017

1. Cancer
2. Heart disease
3. Unintentional injuries
4. Chronic lower respiratory diseases
5. Diabetes
6. Liver disease
7. Stroke
8. Alzheimer disease
9. Influenza and pneumonia
10. Kidney disease

Death rates per 100,000 U.S. standard population:
- Heart disease: 165.5 (2016), 165.0 (2017)
- Cancer: 155.8 (2016), 152.5 (2017)
- Unintentional injuries: 49.4 (2016), 47.4 (2017)
- Chronic lower respiratory diseases: 40.6 (2016), 40.9 (2017)
- Stroke: 37.3 (2016), 37.6 (2017)
- Alzheimer disease: 30.3 (2016), 31.0 (2017)
- Suicide: 14.0 (2016), 13.5 (2017)

Statistically significant decrease in age-adjusted death rate from 2016 to 2017 (p < 0.05).
Statistically significant increase in age-adjusted death rate from 2016 to 2017 (p < 0.05).

Notes: A total of 2,813,503 resident deaths were registered in the United States in 2017. The 10 leading causes accounted for 74.0% of all deaths in the United States in 2017. Causes of death are ranked according to number of deaths. Rankings for 2016 data are not shown. Data table for Figure 4 includes the number of deaths for leading causes. Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db328_tables-508.pdf#4.

Cancer cases 2019

New

Prostate 870,970 20%
Lung & bronchus 891,480 13%
Colon & rectum 7%
Urinary bladder 7%
Melanoma of skin 7%
Kidney & renal pelvis 5%
Non-Hodgkin lymphoma 5%
Oral cavity & pharynx 4%
Leukemia 4%
Pancreas 3%
All other sites 22%

Deaths

Lung & bronchus 870,436 24%
Prostate 24%
Colon & rectum 9%
Pancreas 7%
Liver & intrahepatic bile duct 7%
Leukemia 4%
Esophagus 4%
Urinary bladder 4%
Non-Hodgkin lymphoma 4%
Brain & other nervous system 3%
All other sites 25%

Excludes basal cell and squamous cell skin cancers and in situ carcinoma except urinary bladder.

<table>
<thead>
<tr>
<th>Male (N = 14,803)</th>
<th>%</th>
<th>APC</th>
<th>Female (N = 11,727)</th>
<th>%</th>
<th>APC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate *</td>
<td>16.6</td>
<td>-2.9*</td>
<td>Breast *</td>
<td>18.5</td>
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<tr>
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<td>13.3</td>
<td>-1.5*</td>
<td>Colon and Rectum*</td>
<td>13.3</td>
<td>-1.0*</td>
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<td>-0.6</td>
<td>Lung and Bronchus</td>
<td>9.7</td>
<td>-0.9</td>
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<td>Liver and Intrahepatic Bile Duct</td>
<td>7.1</td>
<td>0.2</td>
<td>Pancreas</td>
<td>6.2</td>
<td>2.0*</td>
</tr>
<tr>
<td>Pancreas</td>
<td>5.3</td>
<td>1.7*</td>
<td>Liver and Intrahepatic Bile Duct*</td>
<td>4.7</td>
<td>-0.9</td>
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<td>Stomach *</td>
<td>4.4</td>
<td>-4.6*</td>
<td>Corpus and Uterus, NOS</td>
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<td>0.1</td>
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<td>Leukemia</td>
<td>3.4</td>
<td>-1.2*</td>
<td>Ovary</td>
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<tr>
<td>Oral Cavity and Pharynx *</td>
<td>3.3</td>
<td>-3.0*</td>
<td>Stomach*</td>
<td>3.8</td>
<td>-4.0*</td>
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<tr>
<td>Non-Hodgkin Lymphoma</td>
<td>3.0</td>
<td>-1.3</td>
<td>Leukemia</td>
<td>3.2</td>
<td>-1.9*</td>
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<tr>
<td>Esophagus</td>
<td>3.0</td>
<td>-4.9*</td>
<td>Myeloma</td>
<td>2.7</td>
<td>-0.2</td>
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<tr>
<td>Other Sites</td>
<td>27.5</td>
<td></td>
<td>Other Sites</td>
<td>28.9</td>
<td></td>
</tr>
</tbody>
</table>

Data Source: Mortality Case File provided by the Demographic Registry of Puerto Rico (Oct, 2017). Percent changes were calculated using 1 year for each end point; APCs were calculated using weighted least squares method.

*The APC is significantly different from zero (p<0.05).*
Surgical Concept

ACCESS: “timely use of personal health services to achieve best possible outcomes”
Millman 1993

Surgery: time sensitivity, often high-acuity nature
Racial disparities in treatment and survival of hepatocellular carcinoma in native Americans and Hispanics

Eyad Alkhalili, M.D., Alissa Greenbaum, M.D., Li Luo, Ph.D., Rodrigo Rodriguez, M.D., Oscar Estrada Munoz, B.S., Jacqueline O’Neill, B.S., Itzhak Nir, M.D., Katherine T. Morris, M.D.*

Abstract

BACKGROUND: We investigated if there were any differences in disease presentation and survival between the 3 major ethnicities in New Mexico; non-Hispanic whites (NHW), native Americans (NA), and Hispanics (H).

METHODS: A retrospective analysis of patients with hepatocellular carcinoma treated at our institution between 2000 and 2014 was performed. Overall survival was analyzed using the Kaplan–Meier and Cox regression models.

RESULTS: We identified 326 patients; 106 (32.5%) NHW, 183 (56.1%) H, and 37 (11.4%) NA. No difference in disease stage, resectability, rate of offering surgery, or chemotherapy was found. Advanced cirrhosis was more common in H and NA than NHW (P = .01). NA had a higher incidence of nonviral hepatocellular carcinoma (P = .0009). NHW were more likely to receive transarterial chemoembolization/radiofrequency than NA or H (P = .04). Median survivals for NA, NHW, H were 24, 14, and 11 months, respectively, (P = .01).

CONCLUSIONS: More advanced cirrhosis was found in NHW and/or more advanced cirrhosis was found in NHW and/or NA and H had more advanced cirrhosis. Less likely to Trans arterial chemoembolization (TACE) & radiofrequency ablation (RFA)
Liver Cancer

Overall Survival by Ethnicity

Ethnicity
- Non Hispanic White
- Hispanics
- Native Americans

p = 0.01

Fraction Surviving

Overall Survival (months)
Racial Disparities in Inhospital Outcomes for Hepatocellular Carcinoma in the United States

Ruma Rajbhandari, MD, MPH; Rachel E. Simon, ScB; Raymond T. Chung, MD; and Ashwin N. Ananthakrishnan, MD

**Figure.** A, Proportion of procedure-related hepatocellular carcinoma (HCC) hospitalizations by race. B, Types of HCC-related procedures by race.
Racial and regional disparity in liver transplant allocation

Dominique J. Monlezun, Michael Darden, Paul Friedlander, Luis Balart, Geoffrey Parker, and Joseph F. Buell

Tulane Transplant Institute, Tulane University School of Medicine, New Orleans, LA
Milken Institute School of Public Health, George Washington University, Washington, DC
Thayer School of Engineering, Dartmouth College, Hanover, NH

Results. In the study sample (N = 258,602), significant disparities in the odds of receiving a liver were found: African Americans odds ratio 1.12 (95% confidence interval, 1.08–1.17), Asians 1.12 (95% confidence interval, 1.07–1.18), females 0.80 (95% confidence interval, 0.78–0.83), and malignancy 1.18 (95% confidence interval, 1.13–1.22). Region 7 (IL, MN, ND, SD, and WI) was set as the reference level since its transplantation rate most closely approximated the sex and race-matched rate of the national post-Share 35 average. Significant racial disparities by region were identified using Caucasian Region 7 as the reference: Hispanic Region 9 (New York, West Vermont) 1.22 (1.02–1.45), Hispanic Region 1 (New England) 1.26 (1.01–1.57), Hispanic Region 4 (Oklahoma, TX) 1.35 (1.05–1.74).
Racial and ethnic disparities in the treatment of unruptured thoracoabdominal aortic aneurysms in the United States

Dean J. Arnaoutakis, MD, a Brandon W. Propper, MD, a James H. Black III, MD, a Eric B. Schneider, PhD, b Ying Wei Lum, MD, a Julie A. Freischlag, MD, a Bruce A. Perler, MD, a and Christopher J. Abularrage, MD a,.*

aDivision of Vascular Surgery and Endovascular Therapy, Department of Surgery, The Johns Hopkins Hospital, Baltimore, Maryland
bDepartment of Surgery, Center for Surgical Trials and Outcomes Research, The Johns Hopkins Hospital, Baltimore, Maryland

Results: Overall, 1541 white, 207 black, and 117 Hispanic patients underwent thoracoabdominal aortic aneurysm repair. White patients tended to be older (P = 0.003), whereas black patients had a higher incidence of diabetes mellitus (P = 0.04). Black and Hispanic patients were less likely to have an elective admission (P < 0.001) and more likely to have repair performed at a hospital with a lower average annual surgical volume (P = 0.04). Postoperative complications were similar among the groups (P = 0.31). On multivariate analysis, increased mortality was independently associated with Hispanic ethnicity (relative ratio [RR], 2.57; 95% confidence interval [CI], 1.25–5.25; P = 0.01), cerebrovascular disease (RR, 1.88; 95% CI, 1.10–3.23; P = 0.02), and age (RR, 1.04; 95% CI, 1.01–1.07; P = 0.004).

Conclusions: Hispanic ethnicity is independently associated with increased mortality after repair of unruptured thoracoabdominal aneurysms. This finding was independent of preoperative comorbidities, postoperative complications, and surgeon and hospital volume.
Vascular Disparity

Explaining Racial Disparities in Amputation Rates for the Treatment of Peripheral Artery Disease (PAD) Using Decomposition Methods

J. A. Mustapha¹ • Bryan T. Fisher Sr.² • John A. Rizzo³ • Jie Chen⁴ • Brad J. Martinsen⁵ • Harry Kotlarz⁵ • Michael Ryan⁶ • Candace Gunnarsson⁶

A&A & Hispanic about 2x to be amputated than Caucasians

J Racial & Ethnic Health Disparities(2017)4:784
Blacks and Hispanics patients have fewer hemodialysis an AVF than white patients despite being younger and fewer co-morbidities.

DESIGN, SETTING, AND PARTICIPANTS A retrospective analysis of all patients with end-stage renal disease in the US Renal Data System who initiated hemodialysis between January 1, 2006, and December 31, 2010. Univariable statistics ($\chi^2$ test and analysis of variance) and logistic regression were used to compare racial/ethnic groups (white vs black vs Hispanic). Multivariable logistic regression and propensity score–matching techniques were used to evaluate hemodialysis access rates between different races/ethnicities with comparable characteristics.

396,075 patients
Colorectal Procedure Disparity

National disparities in laparoscopic colorectal procedures for colon cancer

Monirah AlNasser · Eric B. Schneider · Susan L. Gearhart · Elizabeth C. Wick · Sandy H. Fang · Adil H. Haider · Jonathan E. Efron

Methods The 2009 Healthcare Cost and Utilization Project: Nationwide Inpatient Sample (HCUP-NIS) database was queried to identify patients with the diagnosis of CRC by the International Classification of Diseases, Ninth Revision (ICD-9) codes. Multivariate logistic regression was performed to look at age, gender, insurance coverage, academic versus nonacademic affiliated institutions, rural versus urban settings, location, and proportional differences in laparoscopic procedures according to race.

Results A total of 14,502 patients were identified; 4,691 (32.35 %) underwent laparoscopic colorectal procedures and 9,811 (67.65 %) underwent open procedures. The
No racial disparities were found: open vs laparoscopic intervention. Private insurance & Medicare had laparoscopic intervention. Other independent predictors: teaching hospital, urban setting, hospital location in the Southern region, & elective procedure.
Association of a Policy Mandating Physician-Patient Communication With Racial/Ethnic Disparities in Postmastectomy Breast Reconstruction

Elham Mahmoudi, PhD, MS; Yiwen Lu, MS; Allan K. Metz; Adeyiza O. Momoh, MD; Kevin C. Chung, MD, MS

DESIGN, SETTING, AND PARTICIPANTS  This retrospective study used state inpatient data from January 1, 2008, through December 31, 2011, in New York and California to evaluate a final sample of 42,346 women aged 20 to 70 years, including 19,364 from New York (treatment group) and 22,982 from California (comparison group). The primary hypothesis tested the effect of the New York law on racial/ethnic disparities, using California as a comparator. The National Academy of Medicine’s (formerly Institute of Medicine) definition of a disparity was applied, and a difference-in-differences method (before-and-after comparison design) was used to evaluate the association of NY PBH Law 2803-o mandating physician-patient communication with disparities in IPBR. Data were analyzed from July 1, 2016, to February 24, 2017.
Breast Cancer: Immediate Postop Breast Reconstruction

1. No immediate increase in IPBR disparity
2. Not reduce the disparity between W & AA
3. Substantial disparities: W & H and W & other Minority and
Disparities in Surgical Access: A Systematic Literature Review, Conceptual Model, and Evidence Map

Elzerie de Jager, MBBS(Hons), Adele A Levine, MPH, N Rhea Udyavar, MD, Helen R Burstin, MD, MPH, Nizar Bhulani, MD, MPH, David B Hoyt, MD, FACS, Clifford Y Ko, MD, MS, MSHS, FACS, Joel S Weissman, PhD, LD Britt, MD, MPH, FACS, Adil H Haider, MD, MPH, FACS, Melinda A Maggard-Gibbons, MD, MSHS, FACS
1,375 papers identified

1,150 papers excluded due to the following:
1. Not peer reviewed
2. Non-quantitative
3. Conducted outside US
4. Not in English
5. Duplicates
6. Not examining an aspect of surgical access

425 abstracts screened

225 papers included

Figure 1. Flow diagram of studies for inclusion in a systematic literature review of measures of surgical access in the US.

Figure 2. A conceptual model for classifying surgical access disparity measures in the US.
Research Priority: Surgical Access

Figure 3. Measures of surgical access disparities in each surgical access segment categorized by disparity domain (race/ethnicity, insurance, income, education, geography, and other).
Research Priority: Surgical Access

Figure 4. Evidence map of measures of surgical access disparities in the US. Bubble size indicates number of studies supporting each measure. Plotting of the bubbles in each cell is systematic to increase readability of the figure. Horizontally, the bubbles are in 5 rows based on the disparity domain (color). A random placement generator was used to distribute bubbles vertically inside each cell.
### NIH Funding Opportunity: Surgical Disparities Research (R01: PAR-18-288  R21 PAR-18-289)

#### R21 Awards

<table>
<thead>
<tr>
<th>Project</th>
<th>PI</th>
<th>Title</th>
<th>Institution</th>
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<tbody>
<tr>
<td>MD011767-01</td>
<td>Chisolm, Deena</td>
<td>Opioid prescribing disparities in a public health crisis: The case of pediatric post-surgical pain management</td>
<td>Research Inst Nationwide Children's Hospital</td>
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<tr>
<td>MD011701-01</td>
<td>Jha, Ashish K.</td>
<td>Trends in Racial Disparities in Surgical Readmissions and Strategies to Narrow the Gap</td>
<td>Harvard School of Public Health</td>
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<tr>
<td>MD012657-01</td>
<td>McCrum, Marta L.</td>
<td>A Geographic Information System to Evaluate Disparities in Access to Emergency Surgery Services</td>
<td>University of Utah</td>
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<tr>
<td>MD012655-01</td>
<td>Funk, Luke M.</td>
<td>Addressing Disparities in Bariatric Surgery outcomes for Medicaid Patients</td>
<td>University of Wisconsin-Madison</td>
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#### R01 Awards

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<th>Institution</th>
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<tr>
<td>MD011678-01</td>
<td>Borrero, Sonya B.</td>
<td>Developing and testing a decision support tool for women making tubal sterilization decisions</td>
<td>University of Pittsburgh</td>
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<td>MD011695-01</td>
<td>Britt, L D</td>
<td>Developing Disparities-Sensitive Surgical Quality Metrics Across the Continuum of Care</td>
<td>American College of Surgeons</td>
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<td>MD011680-01</td>
<td>Robinson, Whitney Ragan</td>
<td>Racial Differences in Treatment with Hysterectomy: a Multilevel Investigation</td>
<td>University of North Carolina Chapel Hill</td>
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<td>MD011682-01</td>
<td>Patzer, Rachel E.</td>
<td>Reducing Disparities among Kidney Transplant Recipients</td>
<td>Emory University</td>
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<td>MD011679-01</td>
<td>McHugh, Matthew D.</td>
<td>The Impact of Nursing on Racial Disparities in Surgical Outcomes</td>
<td>University of Pennsylvania</td>
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<td>MD011685-01A1</td>
<td>Haider, Adil H.</td>
<td>Evaluation of a Cultural Dexterity Training Program for Surgeons: The PACTS Trial</td>
<td>Brigham and Women's Hospital</td>
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<td>MD011686-01A1</td>
<td>Messiah, Sarah Elizabeth</td>
<td>Socioecological Factors Associated with Ethnic Disparities in Bariatric Surgery Utilization</td>
<td>University of Texas Health Science Center Houston</td>
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</tbody>
</table>
NCI Hispanic/Latino Research

Genomic in HCC in the Hispanic population in Texas

Understanding Ethnic Differences in cancer: The Multiethnic Cohort Study

BRCA Mutations in Latinas

Genetic Studies of Homologous Recombination Deficiency in Hispanic Gastric Cancer

Breast Cancer Surveillance Consortium

Culturally Tailored Decision Aid in Improvement of Tx decisions in Hispanic Prostate CA

Center for Research Strategy

Antman & Bennett 2019
Awards by Cancer Type *

- **Prostate**: 18
- **Breast**: 14
- **Colon**: 5
- **Cervical**: 2
- **Leukemia**: 2
- **Liver**: 2
- **Endometrial**: 2
- **Pancreas**: 1
- **Bladder**: 1

*Represents active R21, R01, and U01 awards

CRCHD, Aguila et al 2019
Multiple gaps are evidence regarding knowledge needed to improve people health.

The weight of the evidence on Hispanic health is mostly from cross-sectional studies that offer nationwide averages, obscuring focalized health disparities and inequalities.

There is a surgical access disparity which has been known for decades and is now funded to conduct the needed research. –not enough

Require metrics standardizes measurable indicators that provide the foundation focused and tailored interventions which can be applied across.

• MEASUR- Metric for Equitable Access and Care in Surgery
Conclusions: Research Priority for Reduction in Disparities
Thank you

rodrigul@mail.nih.gov
Cancer Incidence & Death Rates by Race and Ethnicity

Incidence 2011-2015

Deaths 2012-2015

*For 100,000, age-adjusted to the 2000 US standard population. †Data based on Indian Health Service Contract Health Service Delivery Area counties. ‡Persons of Hispanic origin may be of any race.

**TOP TEN INCIDENCE CANCER SITES, ALL AGES:**
**PUERTO RICO, 2011-2015**
and 2001-2015 APC

<table>
<thead>
<tr>
<th>Male (N = 41,455)</th>
<th>%</th>
<th>APC</th>
<th>Female (N = 36,259)</th>
<th>%</th>
<th>APC</th>
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<tbody>
<tr>
<td>Prostate</td>
<td>37.3</td>
<td>-0.6</td>
<td>Breast</td>
<td>28.8</td>
<td>1.7*</td>
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<tr>
<td>Colon and Rectum</td>
<td>12.7</td>
<td>0.3</td>
<td>Colon and Rectum</td>
<td>11.5</td>
<td>0.1</td>
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<tr>
<td>Lung and Bronchus</td>
<td>6.0</td>
<td>-0.4</td>
<td>Thyroid</td>
<td>11.2</td>
<td>13.1*</td>
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<td>Oral Cavity and Pharynx</td>
<td>4.0</td>
<td>-0.3</td>
<td>Corpus and Uterus, NOS</td>
<td>7.9</td>
<td>4.6*</td>
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<tr>
<td>Urinary Bladder</td>
<td>4.0</td>
<td>0.1</td>
<td>Lung and Bronchus</td>
<td>4.2</td>
<td>1.2*</td>
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<tr>
<td>Non-Hodgkin Lymphoma</td>
<td>3.9</td>
<td>2.7*</td>
<td>Non-Hodgkin Lymphoma</td>
<td>4.0</td>
<td>3.2*</td>
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<tr>
<td>Liver and Intrahepatic Bile Duct</td>
<td>3.2</td>
<td>1.8*</td>
<td>Cervix Uteri</td>
<td>3.4</td>
<td>2.7*</td>
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<tr>
<td>Kidney and Renal Pelvis</td>
<td>2.7</td>
<td>4.6*</td>
<td>Ovary</td>
<td>2.6</td>
<td>1.5*</td>
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<tr>
<td>Leukemia</td>
<td>2.7</td>
<td>2.9*</td>
<td>Leukemia</td>
<td>2.5</td>
<td>4.3*</td>
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<td>Stomach</td>
<td>2.5</td>
<td>-3.2*</td>
<td>Pancreas</td>
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<td>Other Sites</td>
<td>21.1</td>
<td></td>
<td>Other Sites</td>
<td>21.7</td>
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Data Source: Puerto Rico Central Cancer Registry Incidence Case File (August 14, 2018). Percent changes were calculated using 1 year for each end point; APCs were calculated using weighted least squares method. *The APC is significantly different from zero (p<0.05).