Comparison of Cancer Patients Treated in Hospital Outpatient Departments and Physician Offices

Final Report

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answering today's health policy questions

Study Overview

- Study Purpose
- Key Findings
- Overview of Study Approach
- Comparison of Patient Characteristics
- Comparison of Care Characteristics
- Conclusions
- Appendix: Data and Methodology

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STUDY PURPOSE

Setting for Receiving Cancer Care

- Patients receiving cancer treatment may receive care in a physician's office or a hospital outpatient department (HOPD).
- Currently there is a payment differential between these two settings, with HOPDs generally receiving a higher payment rate.
- Policymakers have expressed interest in equalizing Medicare payments for cancer care provided in physician offices and HOPDs.
- For example, Representative Mike Rogers introduced H.R. 2869, the Medicare Patient Access to Cancer Treatment Act of 2013, which would establish payment parity under the Medicare program for ambulatory care services furnished in the HOPD and the physician office setting in a budget-neutral manner.

Understanding Patient Differences between Settings

- The implications of “site-neutral” Medicare payments for cancer depend, in part, on whether patients treated in HOPDs differ in important ways from those treated in physician offices.
- The study purpose is to understand how cancer patients and their care differ between HOPDs and physician offices.

Patients and Visits were Compared in Terms of…

- Patient Characteristics
  - Demographics and socioeconomic status
  - Severity and complexity
- Care Characteristics
  - Reason for visit
  - Services, treatments and medications ordered or provided

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KEY FINDINGS

Key Findings: Comparison of Patient Characteristics

- Relative to those treated in physician offices, cancer patients receiving care in HOPDs are more likely to be:
  - Black or Hispanic
  - Self pay, charity care, or on Medicaid
  - From areas with low household income, high rates of poverty, and low rates of college education
  - Burdened with more severe chronic conditions, in terms of their effect on mortality
  - Hospitalized, have an emergency department visit, and have higher Medicare spending prior to receiving ambulatory care

Key Findings: Comparison of Delivery of Care

- Relative to care provided to cancer patients treated in physician offices, care provided to cancer patients treated in HOPDs is:
  - More likely to be for the receipt of treatment
  - More likely to be for a new problem or the flare-up of a chronic problem
  - Likely to include the provision or ordering of more treatments and services
  - More likely to include care from a nurse

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OVERVIEW OF STUDY APPROACH

Study Overview

Study Question	Data Source	Approach
How do the patient populations treated in HOPDs and freestanding physician offices differ?	• 2008-2010 National Ambulatory Medical Care Survey (NAMCS) - survey of visits to non-federal employed office-based physicians. • 2008-2010 National Hospital Ambulatory Medical Care Survey (NHAMCS) - survey of visits to hospital outpatient departments. • 2012 Standard Analytical File of 5% sample of Medicare beneficiaries. Claims include inpatient, outpatient, skilled nursing facility, professional, and home health data.	Descriptive analysis of pooled NAMCS/NHAMCS sample. For claims analysis, descriptive analyses at the patient and claims level using information in the 90 days prior to an HOPD or physician office visit.
How does the delivery of care vary between settings?	• 2008-2010 NAMCS and NHAMCS	Descriptive analysis of pooled NAMCS/NHAMCS sample.

Definition of Cancer Patients

Types of Patients	Data Sources	Definition of Cancer Patients	Characteristics Studied
All cancer patients (primary analysis sample)	• 2008-2010 NAMCS/NHAMCS	• Patients who have cancer based on "cancer" checkbox on the NAMCS and NHAMCS patient record form.	• Demographics and socioeconomic status • Services, treatments and medications ordered or received • Severity and complexity
Patients receiving cancer treatment (secondary analysis sample)	• 2008-2010 NAMCS/NHAMCS	• Cancer patients with a reason for visit related to cancer (malignant neoplasms, chemotherapy or radiation) or given antineoplastic medication.	• Same as above
	• 2011/2012 Standard Analytical File of 5% sample of Medicare beneficiaries	• Patients with a principal diagnosis related to cancer in 2012 (ICD-9-CM codes: 140-149, 150-159, 160-165, 170-176, 179-189, 190-199, 200-208, 209.0, 209.1, 209.2, 209.3,230-234).*	• Severity and complexity • Utilization of services in 90-days prior to visit

*Analyses were conducted using definition of cancer patients based on primary and secondary diagnoses. This approach yielded similar results to the findings based only on principal diagnoses and, so, are not shown in this report.

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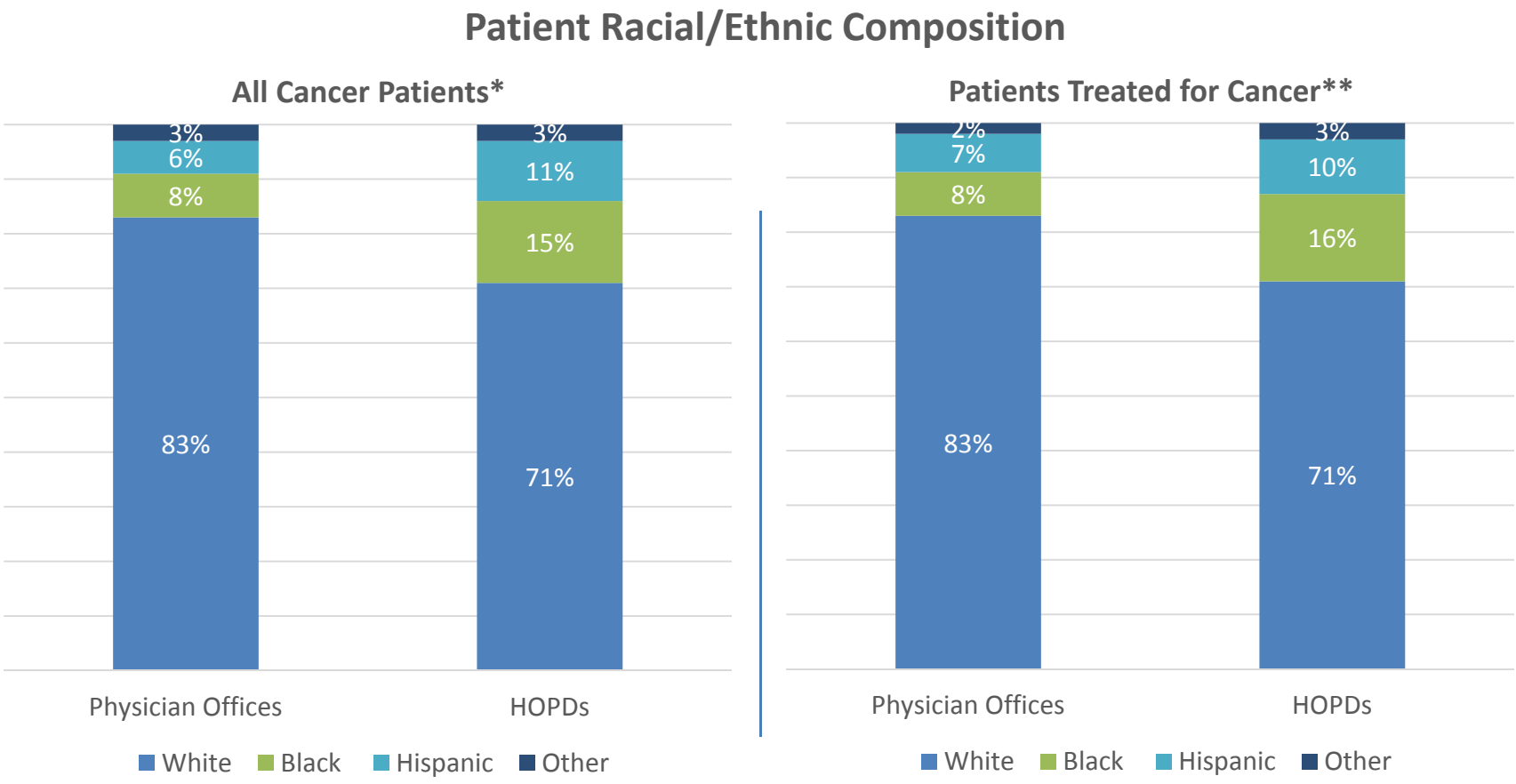
HOW DO CANCER PATIENTS TREATED IN HOPDs DIFFER FROM THOSE TREATED IN PHYSICIAN OFFICES?

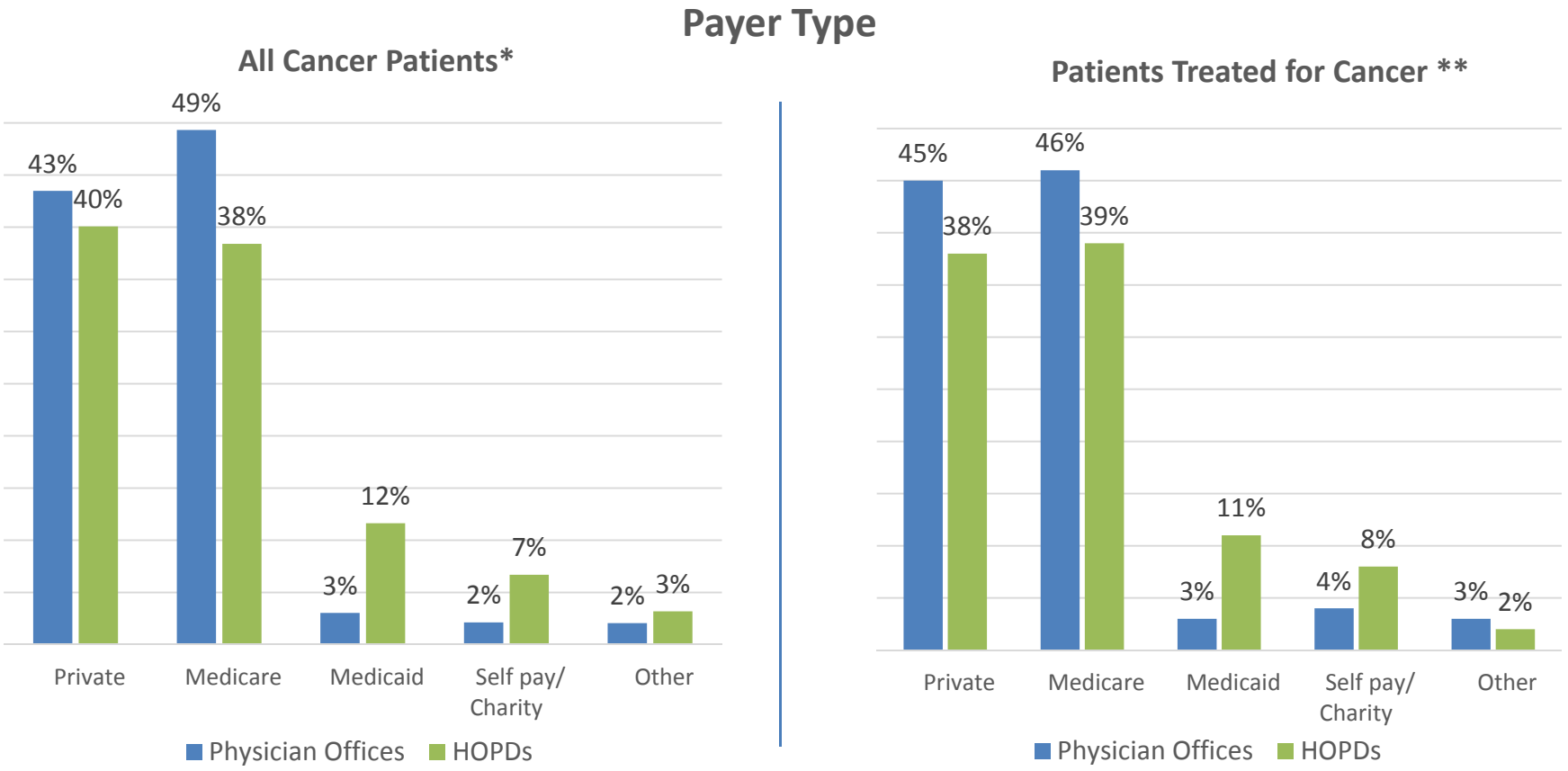
Relative to cancer patients seen in physician offices, cancer patients seen in hospital outpatient departments are…

… 1.9x More Likely to be Black or Hispanic (26%/14%)



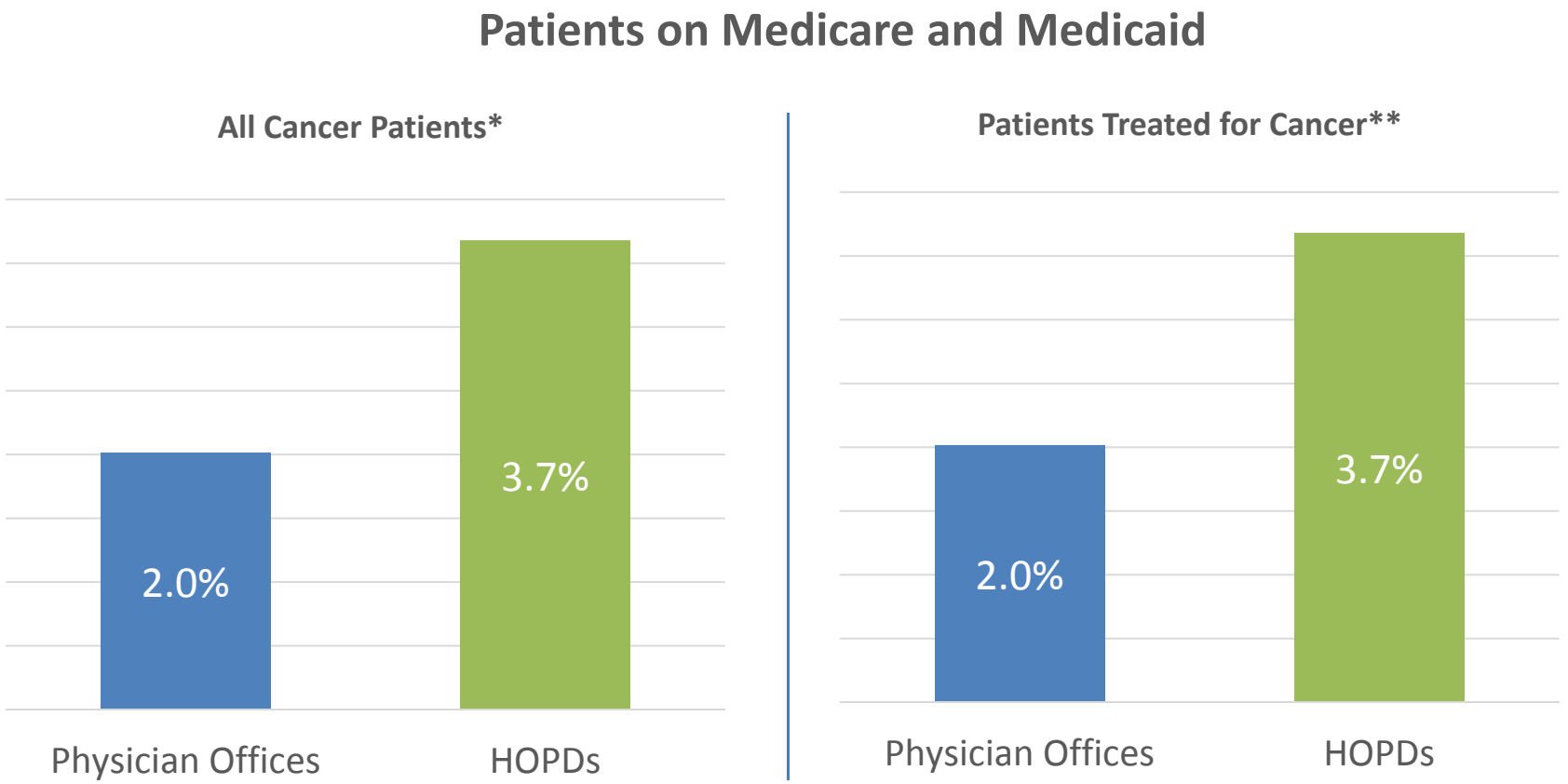
*P< 0.001 **P< 0.05

… 3.8x More Likely to be Medicaid, Self Pay, or Charity (19%/5%)



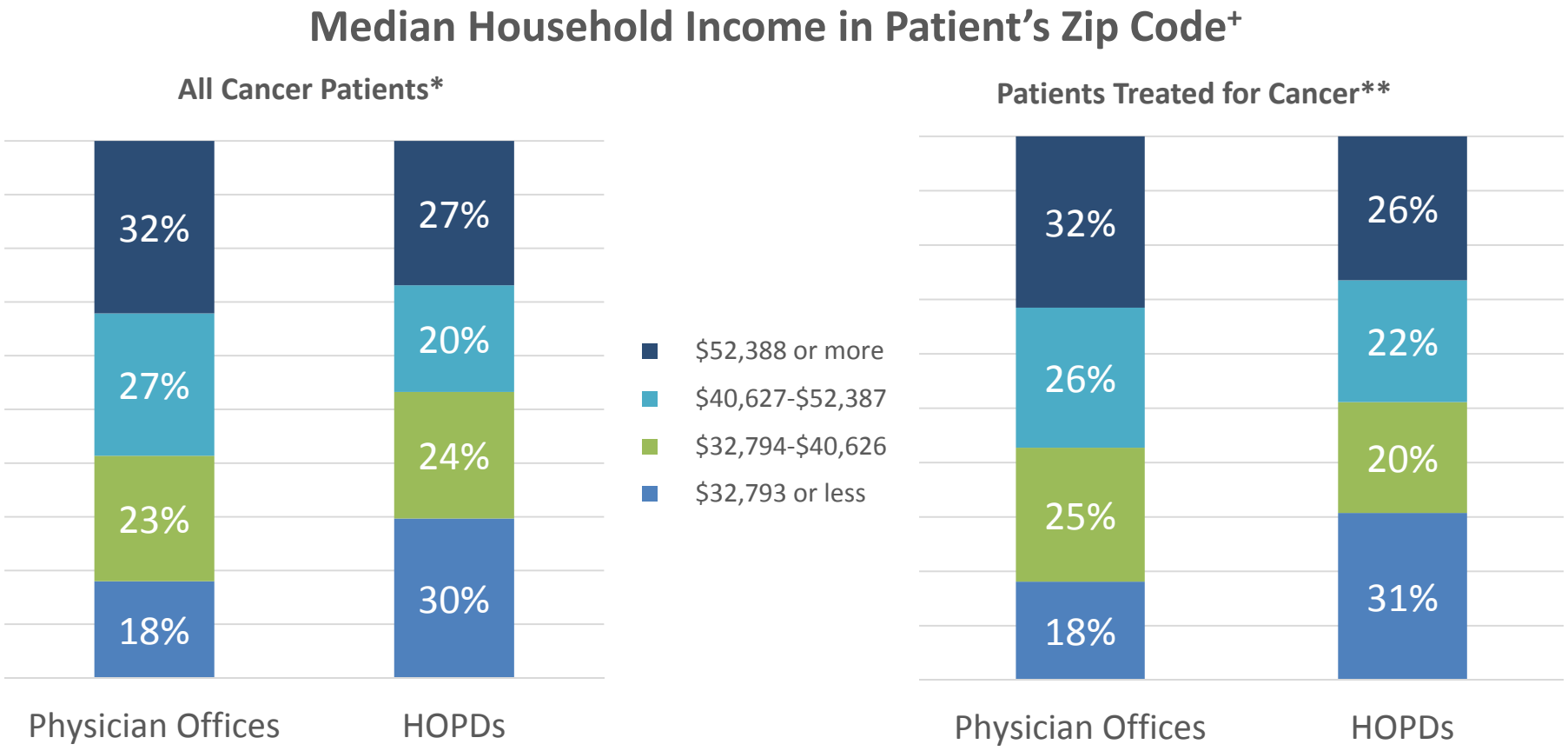
*P< 0.001 **P< 0.05

… 1.9x More Likely to be Dual Eligible (3.7%/2.0%)



*P< 0.05 **P=0.279

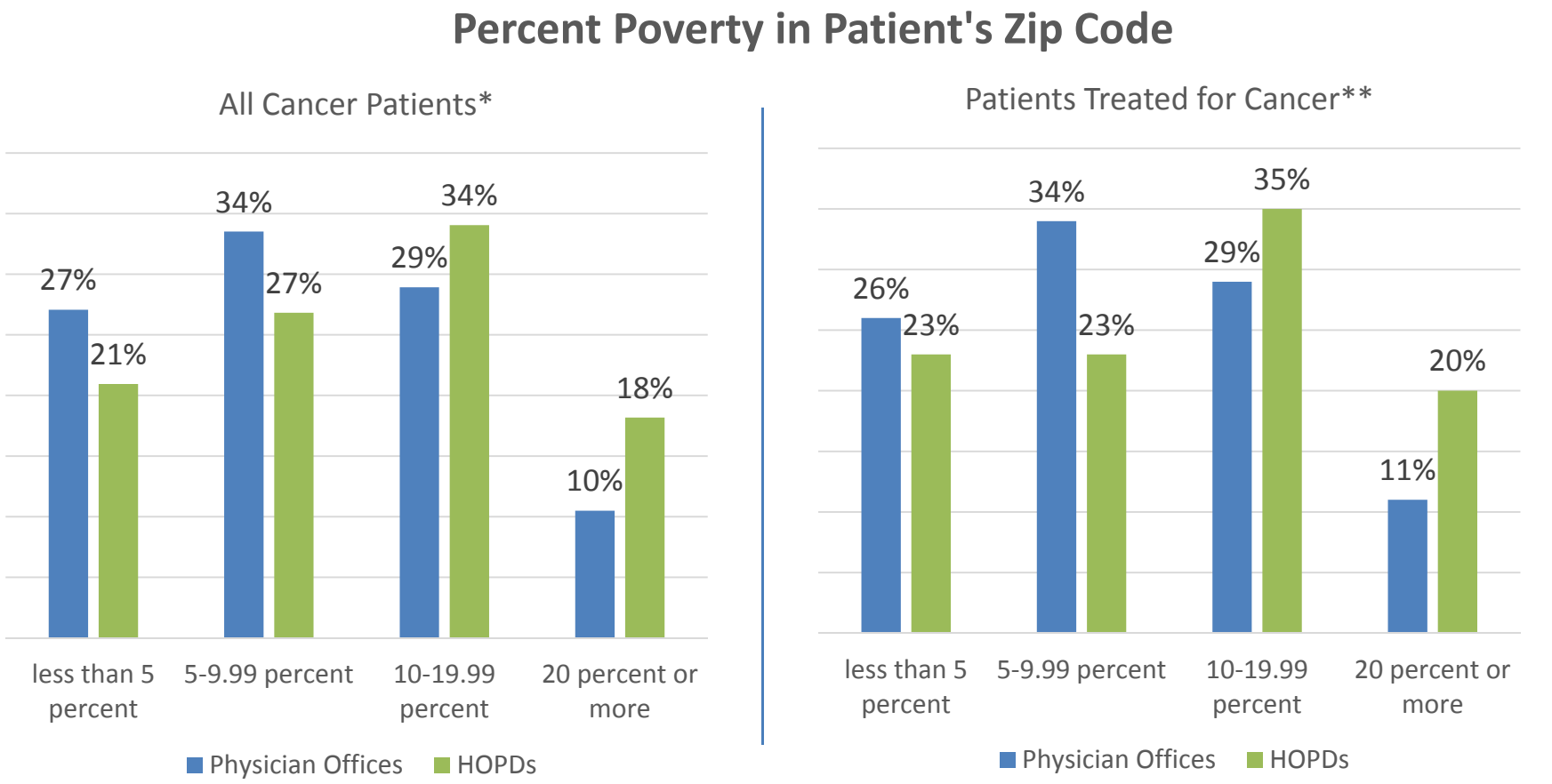
…1.7x More Likely to Live in Areas < $33K in Median Income (30%/18%)



+ Categories based on national quartiles; Due to rounding, categories may not add to 100%

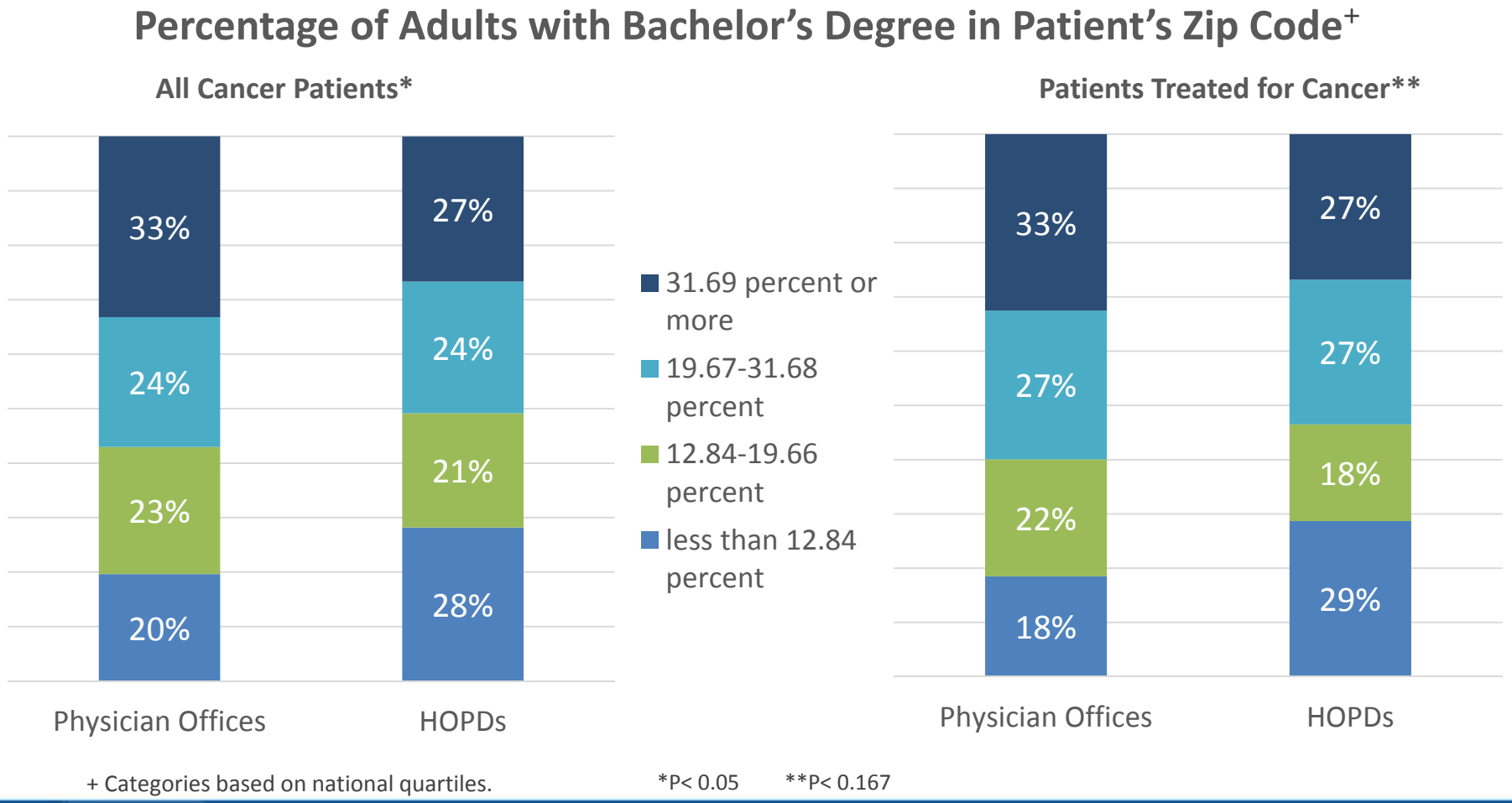
*P< 0.01 **P= 0.100

…1.8x More Likely to Live in High Poverty Areas (18%/10%)



*P< 0.05 **P< 0.1

… 1.4x More Likely to Live in Areas with Low Rates of College Education (28%/20%)



+ Categories based on national quartiles.

*P< 0.05 **P< 0.167

Severity and Complexity Measures

- We measured patient severity and complexity using two indicators:
  - Charlson Comorbidity Index
  - Prior Utilization
- Charlson Comorbidity Index predicts the ten-year mortality of patients, with higher scores predicting higher mortality.
  - It is computed by assigning higher weights to more severe conditions in terms of their effect on mortality.
- Prior utilization of care captures use and Medicare spending for hospital, skilled nursing facility, home health, hospital outpatient, and physician/professional care in the 90 days preceding the HOPD or physician office visit.

HOPD Patients Have More Severe Chronic Conditions

	Medicare Cancer Patients		Medicare Patients Treated for Cancer	
	Physician Offices	HOPDs	Physician Offices	HOPDs
Average number of chronic conditions	1.5	1.7	1.8	1.9
Average Charlson Comorbidity Score	1.0	1.5	1.7	2.1

Chronic conditions captured in Charlson Score: Congestive heart failure, Cardiac arrhythmias, Valvular disease, Pulmonary circulation disorders, Peripheral vascular disorders, Hypertension, Paralysis, Other neurological disorders, Chronic Pulmonary disease, Diabetes (uncomplicated), Diabetes (complicated), Hyperthyroidism, Renal failures, Liver disease, Peptic ulcer disease without bleeding, AIDS/HIV, Lymphoma, Metastatic cancer, Solid tumor without metastasis, Rheumatoid arthritis/collagen vascular disease , Coagulopathy, Obesity, Weight Loss, Fluid and electrolyte disorders, Blood loss anemia, Deficiency anemia, Alcohol abuse, Drug Abuse, Psychoses, Depression

P< 0.001 for all cancer patients; P< 0.005 for patients treated for cancer

Medicare Cancer Patients Seen in HOPDs Have Higher Charlson Scores

Charlson Score Based on Number of Visits and Care Setting for Medicare Beneficiaries (2012)

Number of HOPD or Physician Office Visits During Year	Care Setting for Ambulatory Care	
	Majority Physician Offices	Majority HOPDs
1	2.5	3.2
2-5	2.0	3.0
6-10	2.3	3.4
11-15	2.8	3.8
16-20	3.2	4.6
21-30	3.8	5.2
30 +	4.7	6.1
Mean Charlson Score	3.3	4.9

P-value<0.001 in each category of number of visits.

This table presents the average Charlson Scores by number of visits for Medicare Beneficiaries who received ambulatory care in either a physician office or an HOPD.

Patients who received ambulatory care in either type of setting in a given year are categorized as follows:

Majority Physician Offices: more than 50% of care was delivered in physician offices

Majority HOPDs: more than 50% of care was delivered in HOPDs

Medicare Cancer Patients Seen in HOPDs Have Higher Prior Emergency Department Use

Emergency Department Utilization 90 Days Prior to Cancer Visit by Setting*

Care Setting Use Prior to Visit	Physician Offices	HOPDs
Percent with an Emergency Department (ED) Visit	14.6%	19.1%
Mean Number of ED Visits	0.21	0.29

*P< 0.001

Medicare Cancer Patients Seen in HOPDs Have Higher Prior Acute Care Hospital Use

STCH Utilization 90 Days Prior to Cancer Visit by Setting*

Care Setting Use Prior to Visit	Physician Offices	HOPDs
Percent with a Short Term Acute Care Hospital (STCH) stay	17.0%	24.5%
Mean Number of Stays in STCH	0.27	0.48
Total STCH Medicare Utilization Days (If at least 1 STCH stay)	6.0	6.9
Mean Number of STCH stays (If at least 1 STCH stay)	1.6	1.9
Total STCH payments (If at least 1 STCH stay)	$10,386	$13,794

*P< 0.001

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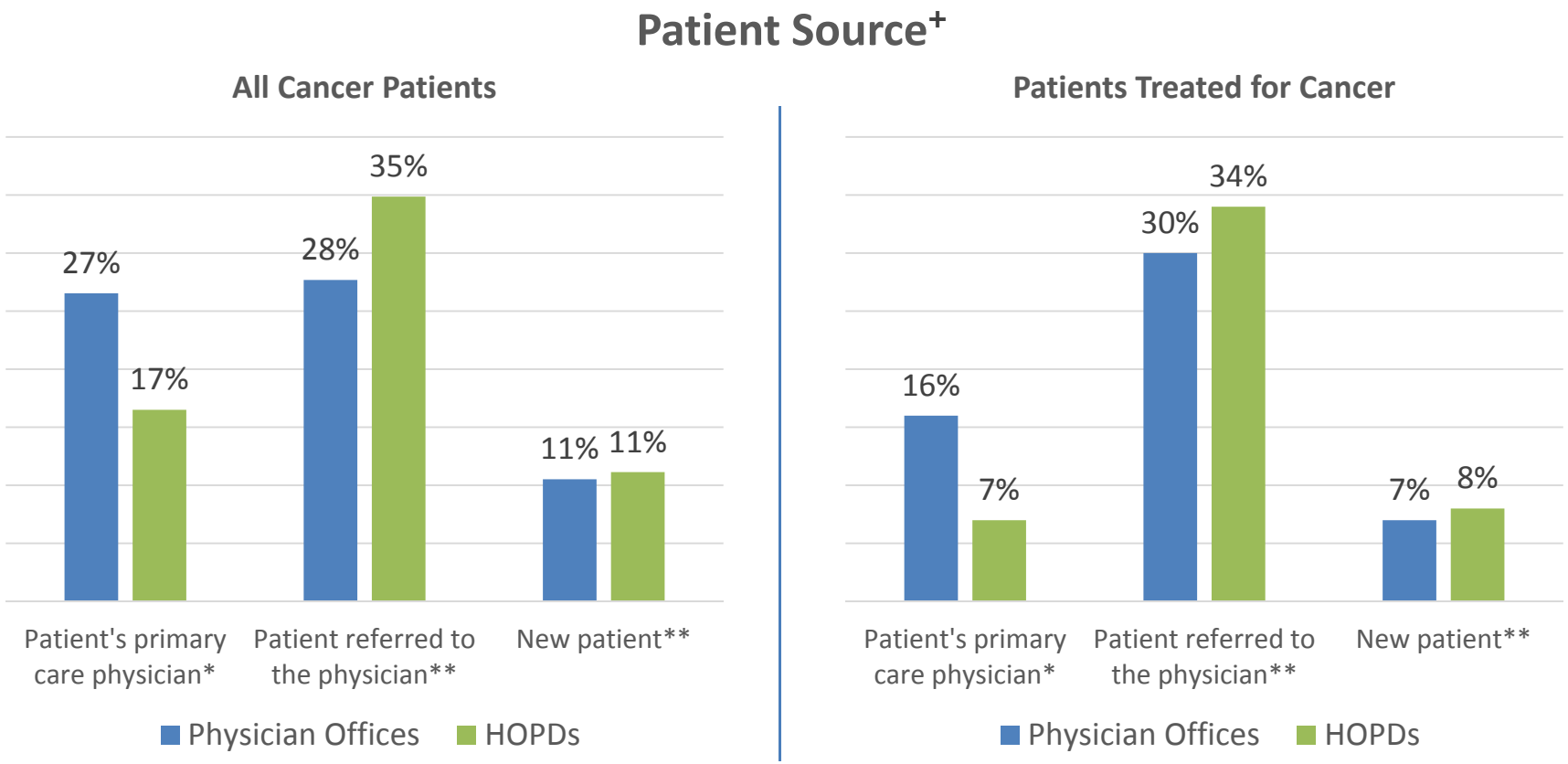
HOW DOES THE DELIVERY OF CARE VARY BETWEEN HOPDs AND PHYSICIAN OFFICES?

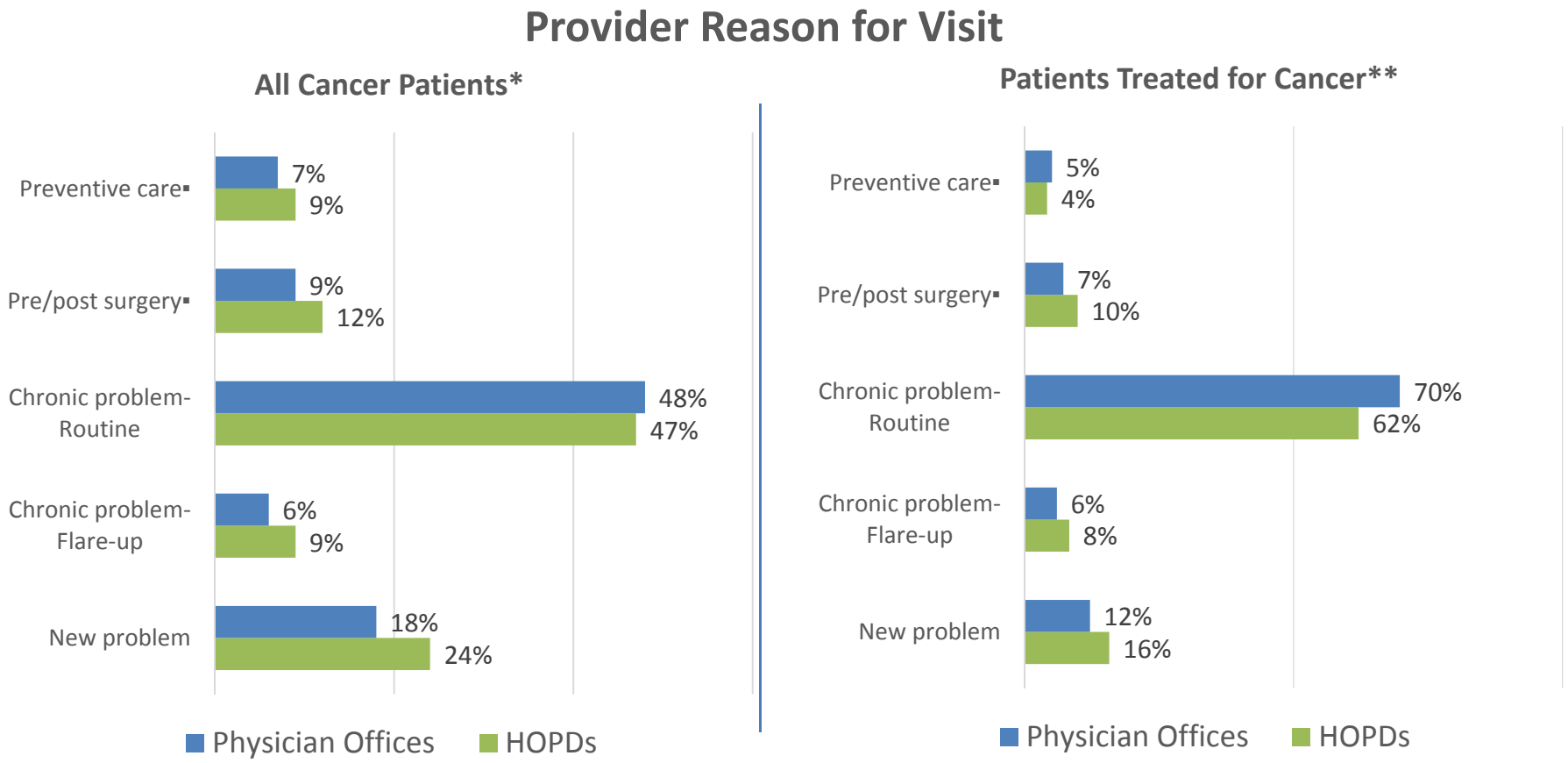
Relative to care received by cancer patients seen in physician offices, care provided to cancer patients seen in hospital outpatient departments is…

…Less Likely to be Delivered by a Patient's Primary Care MD



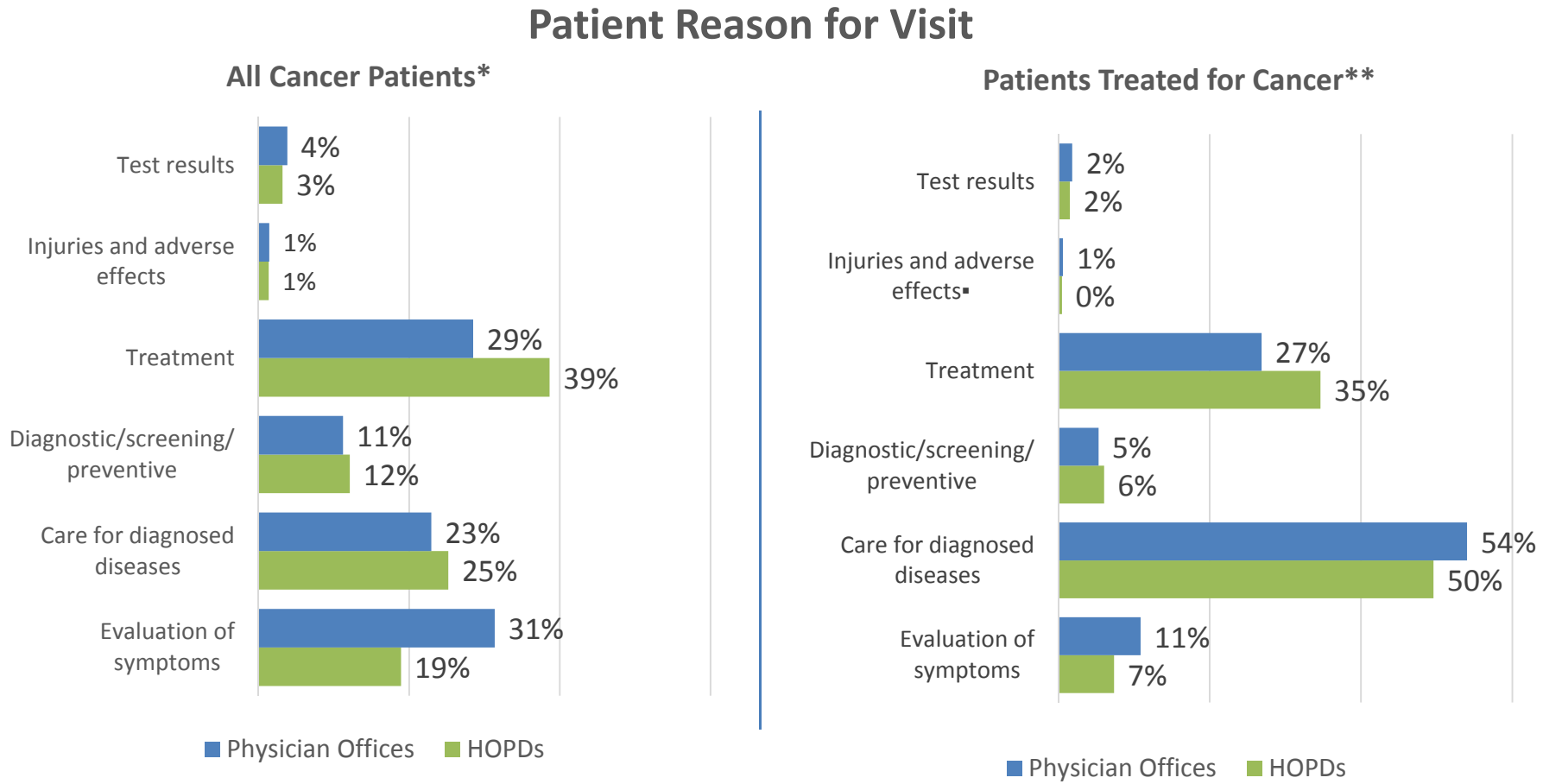
+ Categories are not mutually exclusive. *P<0.01 **Not statistically significant at 10% level.

… 1.4x More Likely to be for a New Problem or Flare-up of a Chronic Problem (33%/24%)



*P< 0.01 **P= 0.162 ▪ Cell count < 30

…1.3x More Likely to be Primarily for Receipt of Treatment (39%/29%)



*P= 0.001 **P=0.377 ▪ Cell count < 30

Include More Services and Treatments, More Medications and More Health Education Ordered or Provided

	All Cancer Patients		Patients Treated for Cancer	
Service/Treatment Indicators	**Physician Offices**	**HOPDs**	**Physician Offices**	**HOPDs**
Average number of services/treatments ordered or provided during visit*	3.8	4.2	5.0	5.6
Average number of medications ordered or provided during visit**	3.3	3.9	3.6	4.5
Had any health education ordered or provided***	38%	45%	36%	43%

- In addition to more services and treatments, care provided in HOPDs involves more health education compared to care provided in physician offices.

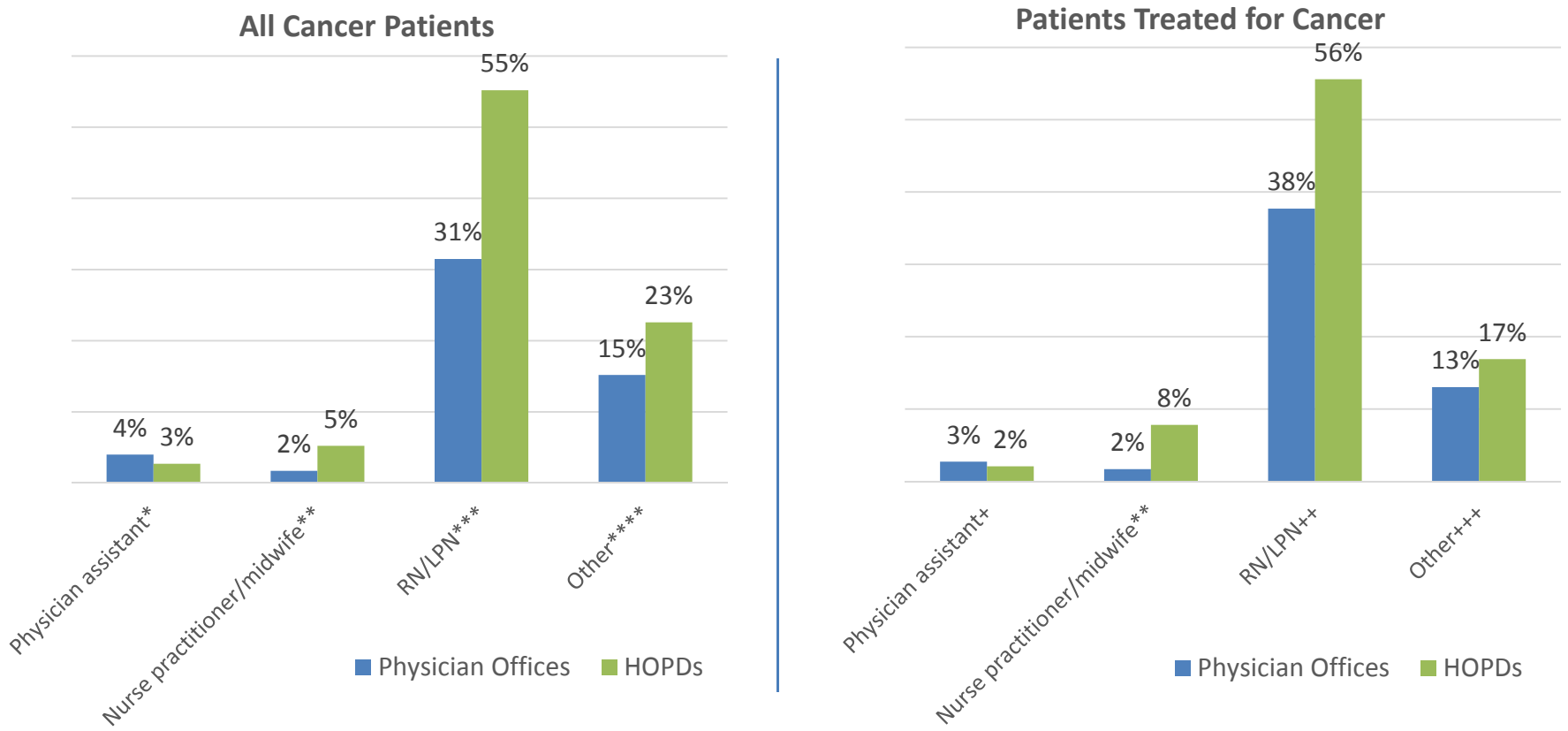
*Based on a comprehensive services/treatments indicator available only in 2009 and 2010 data; P<0.05 for all cancer patients; P= 0.163 for patients treated for cancer

**P<0.01 for all cancer patients; P<0.005 for patients treated for cancer

*** P<0.1 for all cancer patients; ***P= 0.302 for patients treated for cancer

…More Likely to Involve a Nurse in Addition to a Physician

Providers Seen During Visit Among Patients Who See a Physician#



#Categories are not mutually exclusive. *P=0.3892 **P< 0.01 ***P< 0.001 ****P=0.0584 +P= 0.5564 ++P=0.0184 +++P=0.3707

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CONCLUSIONS

Conclusions

- Our findings suggest key differences between cancer patients treated in HOPDs and physician offices.
  - Cancer patients treated in HOPDs are more likely to be uninsured or covered by Medicaid.
  - HOPD patients tend to come from communities with lower income, higher poverty rates, and lower educational attainment.
  - Cancer patients treated in HOPDs tend to have more severe chronic conditions and, in Medicare, have higher prior utilization of hospitals and emergency departments.
- To the extent that these differences result in variations in the cost of care, site-neutral payments may have adverse effects on patient access to care.

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APPENDIX: DATA AND METHODOLOGY

Data

- 2008-2010 National Ambulatory Medical Care Survey (NAMCS)
  - Survey of visits to non-federally employed, office-based physicians, excluding visits to anesthesiologists, pathologists, radiologists.
  - Visits to the following care settings were excluded from analysis: community health centers, non-federal government clinics, HMOs, and faculty practice plans.
- 2008-2010 National Hospital Ambulatory Medical Care Survey (NHAMCS)
  - Survey of visits to hospital outpatient departments (HOPDs) and emergency departments of non-federal, short-stay general hospitals.
  - In order to examine patient and care differences between physician office visits and HOPD visits, we limited our analyses to HOPD visits in the NHAMCS sample.

Data

- Analysis is limited to cancer patients. Cancer patients are defined in two ways:
  - All cancer patients: patients with cancer based on “cancer” checkbox on NAMCS and NHAMCS patient record forms.
  - Patients treated for cancer: cancer patients with a reason for visit related to cancer (malignant neoplasms, chemotherapy or radiation) or given antineoplastic medication.
- Analysis dataset included
  - 12,990 visits by cancer patients
    - 5,672 visits to physician offices; 7,318 visits to HOPDs
  - 4,877 visits by patients treated for cancer
    - 1,866 visits to physician offices; 3,011 visits to HOPDs

Data

- 2012 Standard Analytical File of 5% sample of Medicare beneficiaries. Claims include:
  - Inpatient
  - Outpatient
  - Skilled nursing facility
  - Professional services (carrier file)
  - Home health agencies
- Cancer patients were identified based on principal diagnosis related to cancer in 2012 (ICD9 codes: 140-149, 150-159, 160-165, 170-176, 179-189, 190-199, 200-208, 209.0, 209.1, 209.2, 209.3,230-234).
  - We conducted sensitivity analyses using an alternative definition of cancer patients based on principal and secondary diagnoses. These analyses yielded results similar to those based on the principal diagnosis only.

Methodology: Descriptive Analysis

- Descriptive analysis of pooled NAMCS/NHAMCS sample
  - Differences between visits to HOPDs and physician offices were tested using t-test for continuous variables and Pearson chi-squared test for categorical variables.
  - Analysis was conducted using weights that take into account the complex sampling design of NAMCS and NHAMCS.
  - Patient-level weights were used in analyzing patient characteristics, and visit-level weights were used in analyzing visit characteristics.
    - Patient-level weights were constructed based on the methodology outlined by Burt and Hing (2007)[1] using visit-level weight and the number of times the patient was seen by the provider within the past year.

[1] Burt, C. W., & Hing, E. (2007). Making patient-level estimates from medical encounter records using a multiplicity estimator. *Statistics in Medicine*, *26*(8), 1762–1774. doi:10.1002/sim.2797

Methodology: Descriptive Analysis

- Descriptive analysis of claims data
  - Analysis was conducted at the patient and claims level using information in the 90 days prior to an HOPD or physician office visit.
  - Charlson Score for Medicare Beneficiaries was calculated based on outpatient claims, inpatient claims, and carrier claims at beneficiaries level with the application of a hierarchy of comorbidities to avoid double-counting.
  - Emergency department utilization was identified by
    - HCPCS codes 99281-99285 and/or place of service for line item “23” in carrier file.
    - Revenue center codes 0450-0459, 0981 in outpatient and inpatient claims files.