Prostate Cancer Incidence Reported Among Department of Defense Military Treatment Facilities, 2005-2008

Tara Blando, MPH; Elizabeth Butts, MPH; Ashleigh Drake, MPH; CAPT Paul D. Rockswold, MC, USN, MD, MPH, FAAFP
Health Analysis Department, Navy & Marine Corps Public Health Center

Abstract

This analysis provides age-adjusted prostate cancer incidence rates that assess trends among race and location using Department of Defense Central Cancer Registry (DoDCCR) data from 2005 to 2008. Four metrics assess the prostate cancer burden in the DoD population: (1) counts stratified by race and year of diagnosis; (2) counts stratified by age group and year of diagnosis; (3) age-adjusted incidence rates stratified by state and year of diagnosis; and (4) age-adjusted incidence rates stratified by year of diagnosis.

Introduction

Prostate cancer is the most frequently diagnosed cancer in men with a prediction of 241,740 new cases expected in 2012 in the United States. Incidence rates are higher among African-American men than Whites for reasons that remain unclear. Age, race, and a family history of the disease are the only well-established risk factors for prostate cancer.

Objectives

- To characterize prostate cancer data and describe potential racial or geographic trends between the years 2005-2008.
- Establish a baseline for prostate cancer among the Military Health System (MHS) population.

Methods

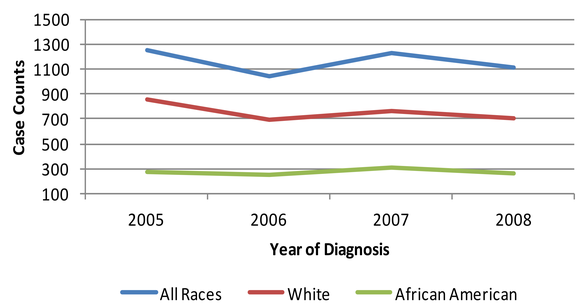
- Data were obtained from the DoDCCR file June 2011 for calendar years 2005 through 2008. In order to compare DoD prostate cancer incidence rates to the United States prostate cancer incidence rates, SEER data were obtained through SEERStat.
- The 2005-2008 population demographic figures are provided by Defense Eligibility and Enrollment System (DEERS) and accessed through MHS Management Analysis and Reporting Tool (M2) via the Population Detail Summary file in DEERS VSAM MDR 2006 (VM6) data file.

Results

Metric #1: Prostate Cancer, All Ages, DoD Central Registry, Counts Stratified by Race and Year of Diagnosis

The number of cases of prostate cancer cases remained stable between 2005-2008, with an average of 800 cases per year in whites, 300 cases per year for African-Americans, and 1,200 cases per year for all races combined (Figure 1).

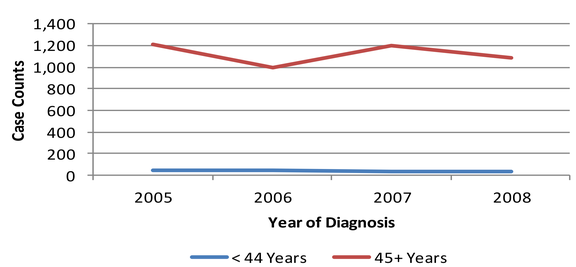
Figure 1: Prostate Cancer, DOD Central Registry, Counts Stratified by Race and Year of Diagnosis, 2005 - 2008



Metric #2: Prostate Cancer, All Ages, DoD Central Registry, Counts Stratified by Age Group and Year of Diagnosis

All counts remained stable between 2005-2008, with the age group of "less than 45 years" averaging 40 case counts annually and age group "45+ years" averaging 1,100 case counts per year (Figure 2). Although only 3.5% of cases occurred in men less than 45, this is approximately 6 times greater than what is reported by SEER.

Figure 2: Prostate Cancer, DOD Central Registry, Counts Stratified by Age Group and Year of Diagnosis, 2005 - 2008



Metric #3: Prostate Cancer, DoD Central Registry, Age-Adjusted Incidence Rates, Ages 20-64, Stratified by State and Year of Diagnosis

Within any given reporting state, there were no statistically significant differences over time. Statistical differences do exist when comparing between some states during some years (Table 1).

Table 1: Prostate Cancer, DoD Central Registry, Age-Adjusted Incidence Rates, Ages 20-64, Stratified by State and Year of Diagnosis

Location	Year			
	2005	2006	2007	2008
California				
Count	88	78	82	104
Incidence Rate*	74.6 (59.7, 91.9)	64.1 (50.5, 79.9)	65.3 (51.7, 81.1)	79.0 (64.3, 95.9)
Colorado				
Count	41	43	55	31
Incidence Rate*	111.7 (80,151.4)	108.3 (78.2,145.8)	129.5 (97.4,168.7)	72.6 (49.2,103.1)
Florida				
Count	46	32	34	48
Incidence Rate*	40.3 (29.4,53.9)	25.6 (17.5,36.4)	26.8 (18.5,37.7)	36.1 (26.5,48.1)
Texas				
Count	118	122	131	115
Incidence Rate*	85.9 (70.9, 103.1)	86.4 (71.6, 103.4)	87 (72.5, 103.5)	72.4 (59.5, 87.1)
Virginia				
Count	111	89	128	102
Incidence Rate*	113.2 (92.9, 136.2)	83.3 (66.7, 102.4)	118.1 (98.4, 140.3)	89.0 (72.5, 107.9)

*Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130) standard; Confidence Intervals (Tiwari mod) are 95% for rates
*Statistics only reported where 30 or more cases per year diagnosed within the state per diagnosis year for stability of rates

Metric #4 Prostate Cancer, DoD Central Registry, Age-Adjusted Incidence Rates, Ages 20-64, Stratified by Year of Diagnosis

When compared to SEER17, DoD prostate cancer rates for same age group and dates of diagnosis, all rates are lower except during 2005 in Whites and African-Americans (Table 2).

Table 2: Prostate Cancer, DoD Central Registry, Age-Adjusted Incidence Rates, Ages 20-64, Stratified by Year of Diagnosis

	Race					
	White		African American		All Races Combined	
	DoD	SEER17	DoD	SEER17	DoD	SEER17
2005	77.7 (71.2, 84.7)	76.6 (75.3, 77.8)	165.3 (140.8, 192.3)	149.0 (143.6, 154.7)	65.8 (61.3, 70.5)*	80.4 (79.3, 81.6)
2006	54.8 (49.7, 60.3)*	84.4 (83.1, 85.7)	121.3 (102.5, 142.1)*	154.5 (149.2, 159.9)	50.5 (46.7, 54.5)*	88.3 (87.1, 89.5)
2007	57.2 (52.2, 62.4)*	87.7 (86.4, 88.9)	120.6 (103.4, 139.5)*	162.4 (157.1, 167.8)	57.9 (53.9, 62.0)*	92.8 (91.6, 94.0)
2008	47.4 (43.1, 52.0)*	80.9 (79.7, 82.2)	96.1 (81.9, 111.8)*	153.3 (148.3, 153.4)	50.0 (46.4, 53.8)*	86.0 (84.8, 87.1)

*Indicates a statistically significant difference when compared to SEER17 rates
Note: Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population. 95% Confidence Intervals were calculated using the Tiwari Method for both the DoD and SEER17 age-adjusted rates.

Conclusion

- This analysis provides age-adjusted prostate cancer incidence rates that assess trends among race and location utilizing DoDCCR data.
- DoD data shows that DoD rates trend lower for prostate cancer than United States rates for all three subgroups of race over time.
- When looking at geography, location matters when comparing between states of diagnosis over time.
- Longer time trends might elucidate whether the trends that the DoD data show for 2005-2008 are consistent trends over the longer term, and whether these trends coincide with the United States population over time.
- Selection bias is likely to have occurred and might reflect the case distribution rather than a "true" difference in disease patterns.

Disclaimer

"The views expressed in this presentation are those of the author and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the U.S. Government."

"This research was supported in part by Focus Group Solutions, Inc., a Woman Owned Small Business specializing in Life Sciences Research to the Department of Defense."

"This research was supported in part by an appointment to the Postgraduate Research Participation Program at the Navy and Marine Corps Public Health Center administered by the Oak Ridge Institute for Science and Education through an interagency agreement between the U.S. Department of Energy and NMCPHC."

NAVY MEDICINE
World Class Care…Anytime, Anywhere