

# Action to Cure Kidney Cancer

*2016 Campaign  
to Fund Kidney Cancer Research*

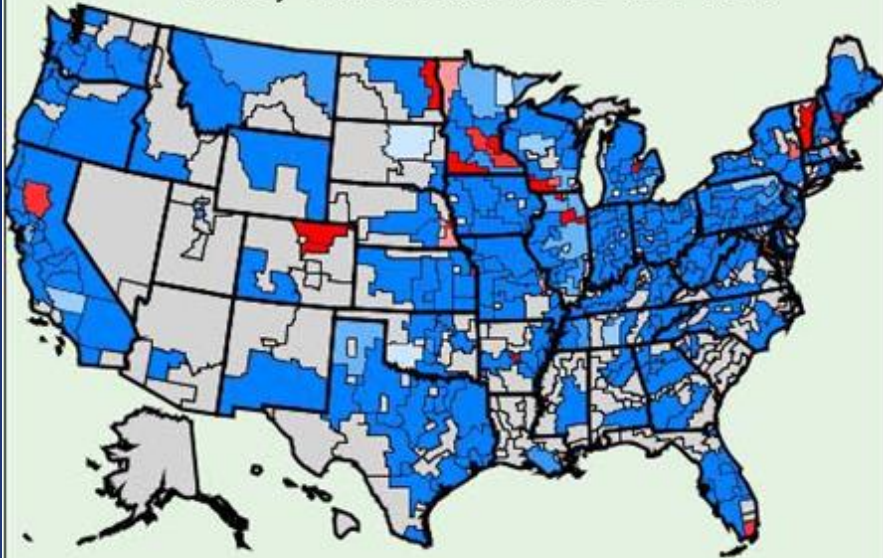


# Kidney Cancer Facts

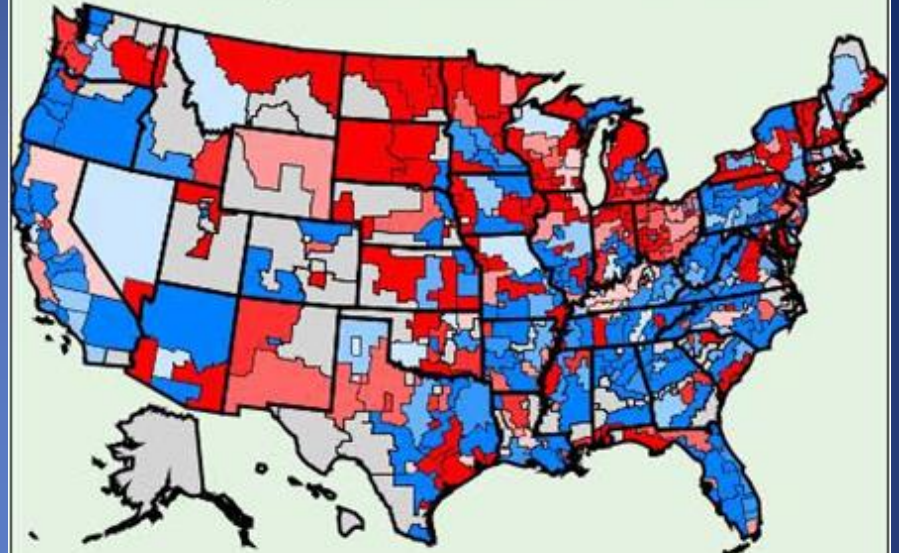
---

- **9<sup>th</sup> most common cancer in the U.S.**
- **Until recently, 3<sup>rd</sup> highest rate of increasing incidence of all cancers**
- **Kidney cancer has the 4<sup>th</sup> highest incidence among African-American males and 4<sup>th</sup> highest among Hispanic males**
- **Men used to be twice as likely to get kidney cancer as women (but now women make up 38% of the total)**

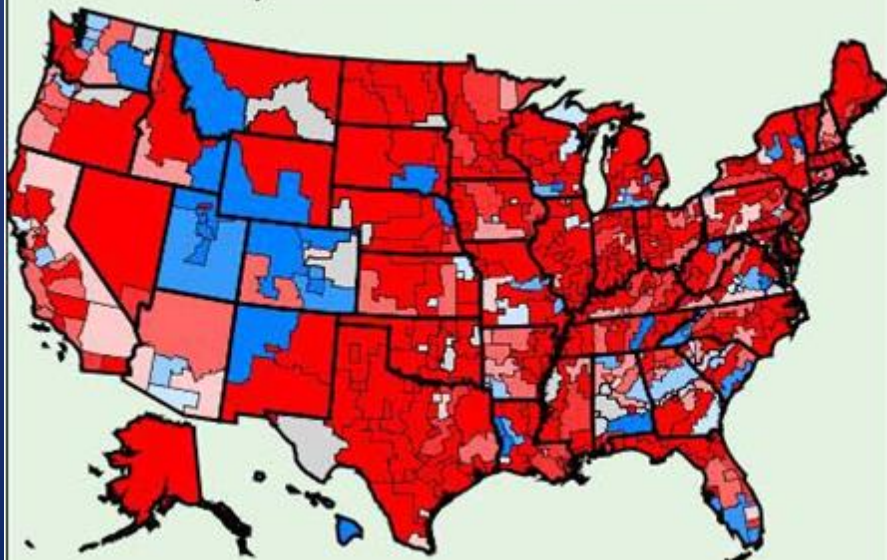
Kidney Cancer: White Males 1950-1954



Kidney Cancer: White Males 1970-1974



Kidney Cancer: White Males 1990-1994

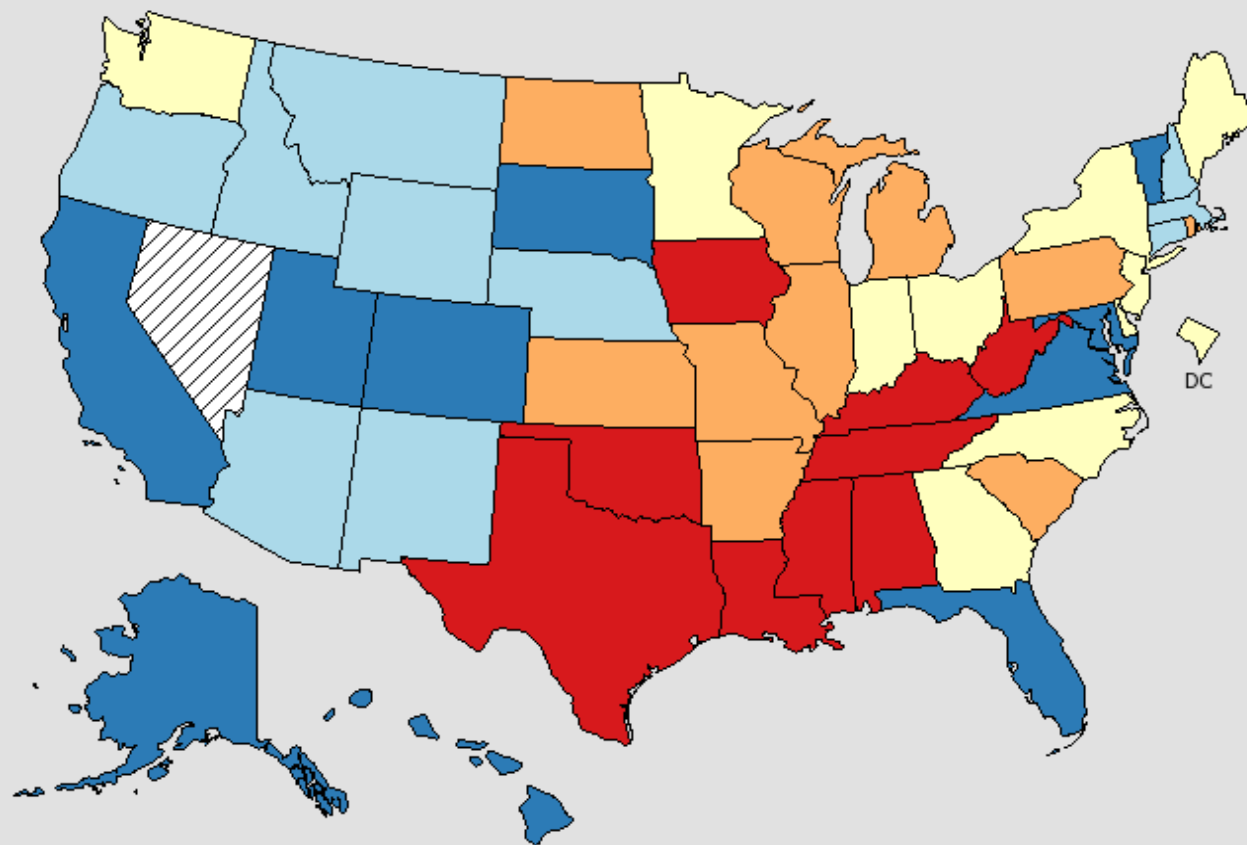


Rates per 100,000 person-years,  
1950 to 1994

- 5.21 - 6.25 (50; 9.8%)
- 5.00 - 5.21 (50; 9.8%)
- 4.83 - 5.00 (51; 10.0%)
- 4.68 - 4.83 (51; 10.0%)
- 4.54 - 4.68 (51; 10.0%)
- 4.38 - 4.54 (51; 10.0%)
- 4.20 - 4.38 (51; 10.0%)
- 4.03 - 4.20 (51; 10.0%)
- 3.73 - 4.03 (51; 10.0%)
- 2.35 - 3.73 (51; 10.0%)
- Sparse data (0)

Source:  
National Cancer Institute

**Incidence Rates<sup>†</sup> for United States, 2012**  
**Kidney & Renal Pelvis**  
**All Races (includes Hispanic), Both Sexes, All Ages**



Age-Adjusted  
 Annual Incidence Rate  
 (Cases per 100,000)

[Quantile Interval](#)

- 17.5 to 21.1
- 16.3 to 17.5
- 15.4 to 16.3
- 14.1 to 15.4
- 12.4 to 14.1

Data Not Available ◇

US (SEER + NPCR)  
 Rate (95% C.I.)  
 15.8 (15.7 - 16.0)

**Notes:**

Created by statecancerprofiles.cancer.gov on 09/15/2015 12:27 pm.

Data for the United States does not include data from Nevada.

[State Cancer Registries](#) may provide more current or more local data.

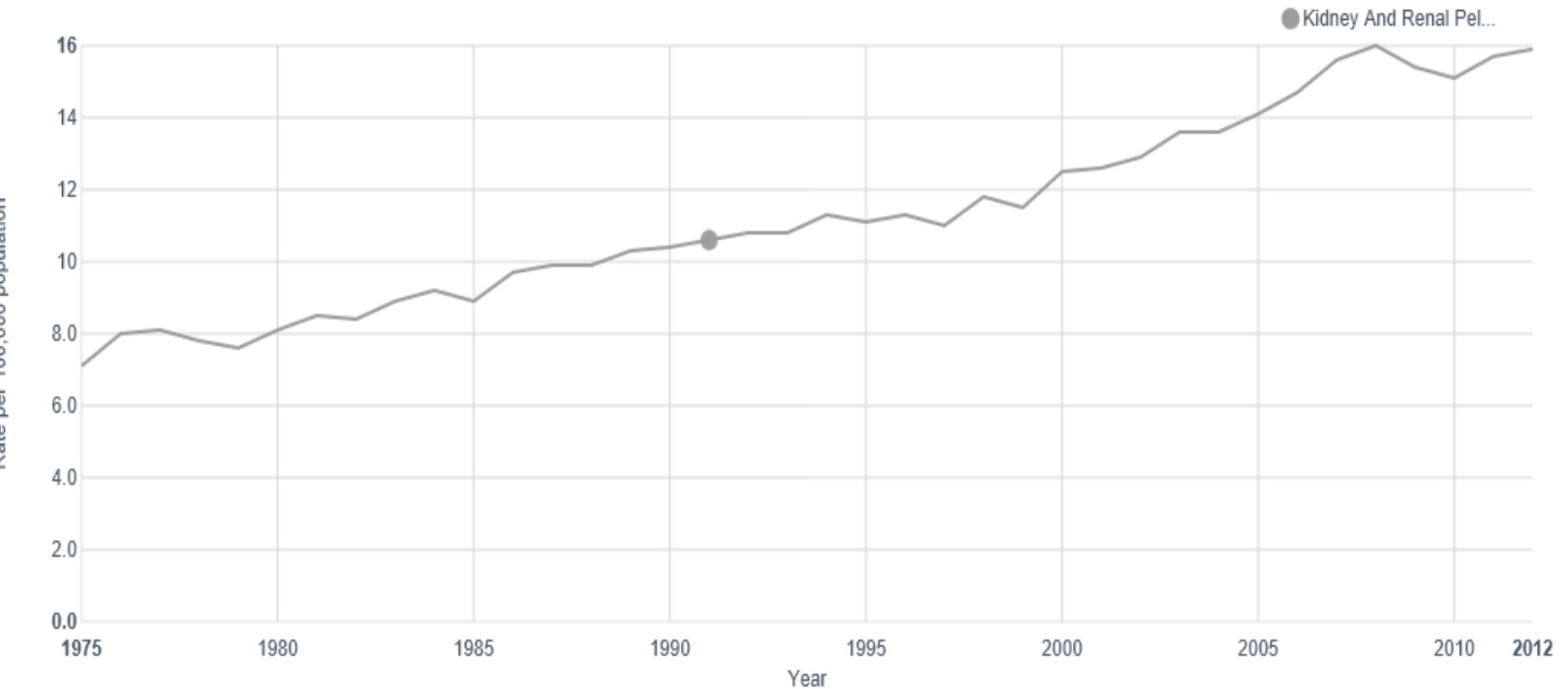
Data presented on the State Cancer Profiles Web Site may differ from statistics reported by the State Cancer Registries ([for more information](#)).

<sup>†</sup> Incidence rates (cases per 100,000 population per year) are age-adjusted to the [2000 US standard population](#) (19 age groups: <1, 1-4, 5-9, ... , 80-84, 85+). Rates are for invasive cancer only (except for bladder which is invasive and in situ) or unless otherwise specified. Rates calculated using SEER\*Stat. Population counts for denominators are based on Census populations as modified by NCI. The [1969-2013 US Population Data](#) File is used for SEER and NPCR incidence rates.

◇ [Data not available](#) for this combination of geography, statistic, age and race/ethnicity.

# Trends in incidence rates, 1975-2012

Per 100,000, age adjusted to the 2000 US standard population



# U.S.A. Kidney Cancer Facts

---

**2016**

- **14,240 deaths**
- **62,700 new cases**
- **Source - American Cancer Society, 2016**

# Detection

---

- **Kidney cancer is often discovered incidentally while undergoing tests for another condition**
- **30% of newly diagnosed patients have metastatic disease and 50% of the others will develop metastasis in their lifetime**
- **The most common diagnostic tools are abdominal/pelvic ultrasound, CT scan and MRIs**

# Treatment

---

- **Chemotherapy is rarely effective for kidney cancer since the kidneys function to filter out toxic chemicals**
- **Radiation therapy is mostly palliative**
- **No proven adjuvant therapy to prevent recurrence (like Tamoxifen for breast cancer )**



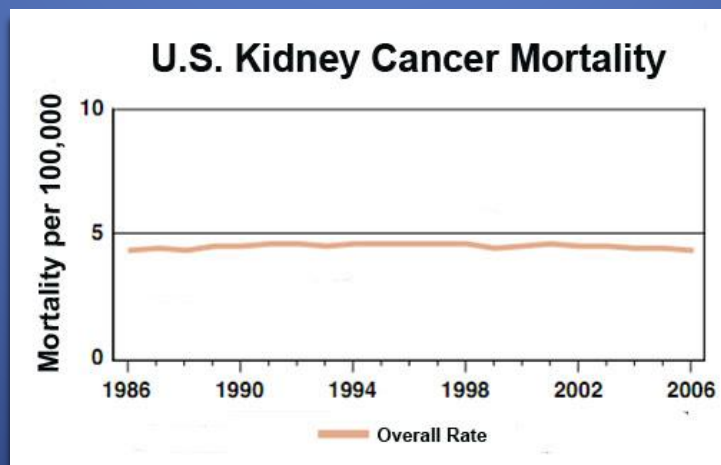
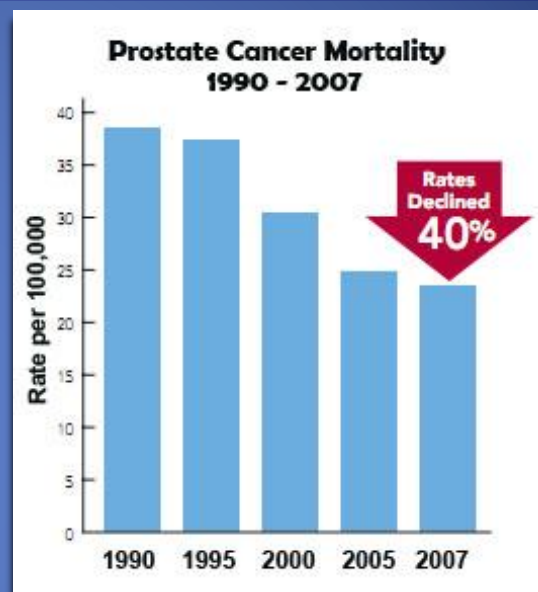
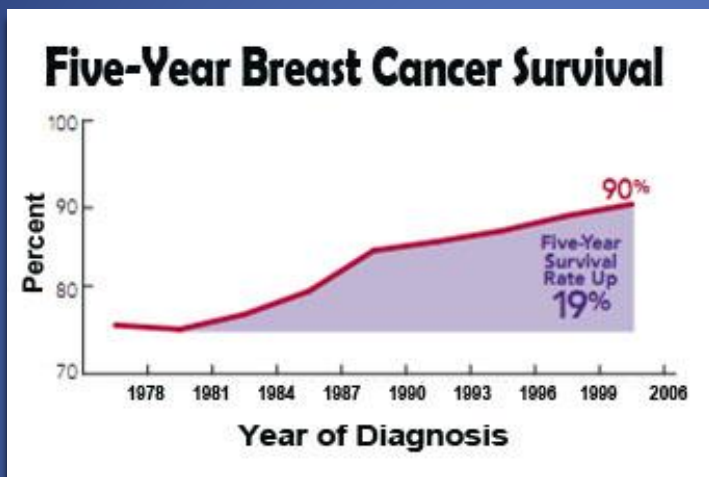
# Treatment

---

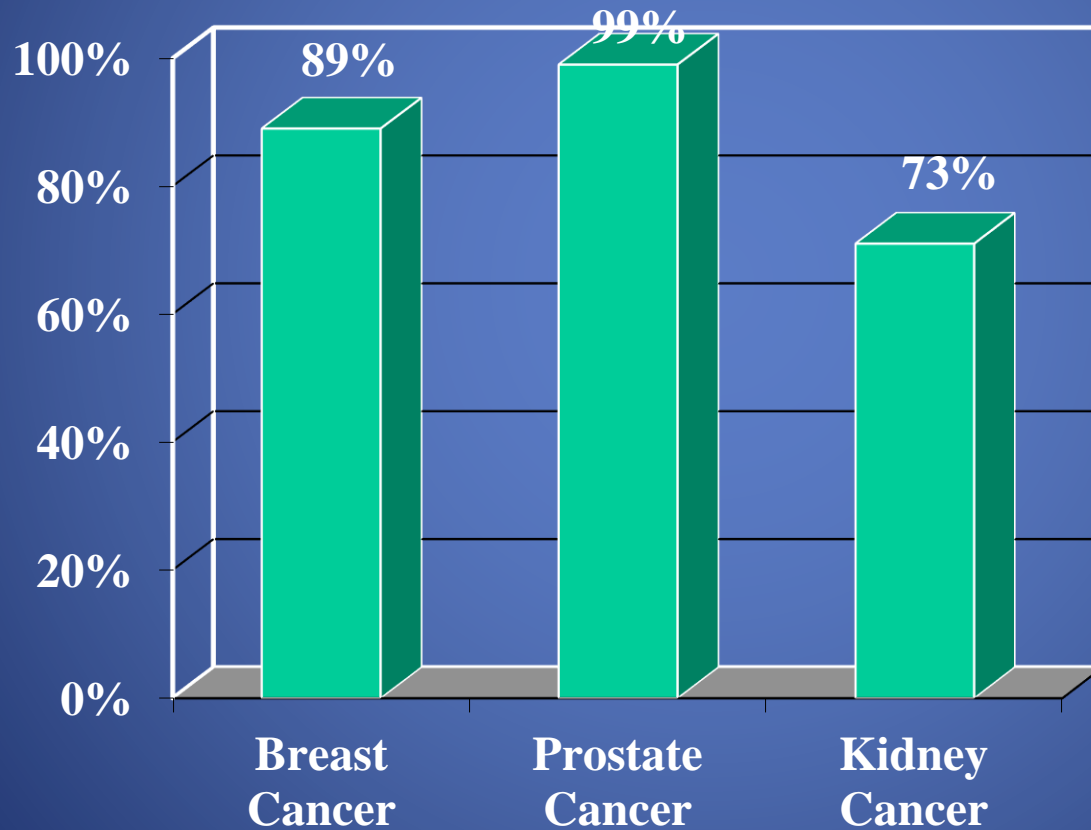
- There are currently nine drugs approved by the U.S. FDA to fight kidney cancer.
- Of the nine, only one has demonstrated a durable response rate to metastatic disease, with a rate of 6%.
- The best targeted therapy, Sutent, has shown a median survival of 26 months (12 months more than standard care), an average treatment length of 11 months at a cost of \$113,000 (close to three times the introductory cost in 2006, a 160% increase in nine years).

# Progress Against Cancer

(American Society of Clinical Oncology Report)



# 5-Year Survival Rate



[Data sources: Surveillance, Epidemiology, and End Results \(SEER\) 18 registries, National Cancer Institute, 2015](#)

# DoD Funding

---

Breast and Prostate cancer research have been effective

- Breast cancer: FY 1992 – 2014 **\$3.02 billion**
- Prostate cancer: FY 1997 – 2014 **\$1.37 billion**
- Kidney cancer: FY 2006– 2014 **\$9.1 million**

For FY 2013, DoD funding equaled to:

**\$2,905 per mortality for prostate cancer**

**\$77 per mortality for kidney cancer**

# Military Relevance

---

In a 2012 study identifying cancer incidence among patients of the United States Veterans Affairs Healthcare System, kidney cancer was the 6th leading cancer.<sup>1</sup> Vietnam veterans exposed to Agent Orange have had kidney cancer. Exposure to ionizing radiation, chemicals and hazardous materials can cause kidney cancer. Smoking, hypertension and obesity are high kidney cancer risk factors.

A cohort of about 210,000 U.S. veterans followed for 26 years was analyzed for a study examining the role of smoking in the development of renal cancer.<sup>2</sup> The follow-up of these military veterans revealed 719 deaths from renal cancer, making this one of the largest studies of renal cancer and cigarette smoking. Current smokers had a 47 percent increase in risk for renal cancer relative to nonsmokers, and the relative risk correlated positively with the number of cigarettes smoked per day.

1. Leah L. Zullig, George L. Jackson, Raye Anne Dorn, Dawn T. Provenzale, Rebecca McNeil, Catherine M. Thomas, and Michael J. Kelly. Cancer Incidence among Patients of the United States Veterans Affairs (VA) Healthcare System. *Mil Med.* 2012 June ;177(6): 693-701

2. McLaughlin JK, Hrubec Z, Heineman EF, Blot WJ, Fraumeni JF. (1990) Renal Cancer and Cigarette Smoking in a 26-Year Followup of U.S. Veterans

# Military Relevance

---

Maria Czyzyk-Krzeska, a researcher at the University of Cincinnati's Genome Research Institute, received the first kidney cancer grant from CDMRP in FY2006. This grant led to the discovery of a protein, microRNA-204, which is uniformly lost in kidney cancer and which acts as a tumor suppressor. Her discovery led to her discovery of other proteins that represent actionable therapeutic targets, and, a collaboration of researchers are initiating the testing of compounds to treat metastatic kidney cancer. Czyzyk-Krzeska's research led to two journal articles in *Cancer Cell*, which have been referenced over 100 times.

Unlike, for example, prostate cancer, there is no diagnostic test for kidney cancer. Srikanth Singamaneni is a research engineer at Washington University. The objective of his FY2010 Grant was to develop a non-invasive test to detect kidney cancer. In collaboration with university clinicians, he developed the technology for a smartphone-based, highly sensitive spectrometer test of urine samples to detect kidney cancer. An NCI grant will enable Singamaneni's team to refine the test, using 300 samples, and initiate a clinical trial within three years.

# MARINE CORPS, Camp Lejeune, NC

---

U.S. Marines and their families stationed at Camp Lejeune, North Carolina have a 35% higher risk of contracting kidney cancer than their U.S. counterparts due to contaminated drinking water.<sup>3</sup>

3. References:Public Health Rep. 105:535-537  
2014 CDC Camp Lejeune Contaminated Drinking Water Report

# Kidney Cancer as a Proving Ground

---

Pfizer developed Sutent for metastatic kidney cancer since it is a highly vascular disease, receiving FDA approval for Sutent in January 2006. Since then, Pfizer has tested Sutent in the following 27 cancers:

glioblastoma urothelial melanoma stomach meningioma  
breast mesothelioma thyroid prostate germ cell  
leiomyosarcoma of the uterus esophageal soft tissue  
neuroendocrine leukemia colorectal liposarcoma  
adenoid ovarian liver non-small cell lung head and neck  
bladder cervical multiple myeloma lymphoma pancreatic

Source: [ClinicalTrials.gov](http://ClinicalTrials.gov) (National Institutes of Health)



# Funding Since FY2006

---

- **Due to ACKC's annual campaign, \$9.1 million has been awarded to kidney cancer researchers**

# FY 2016 -Congress highlights need for National Cancer Institute to increase attention to kidney cancer research and its early detection efforts.

Congress passed the \$1.8 trillion omnibus appropriation bill for Fiscal Year 2016 calling for an increase of \$2 billion in the NIH budget and \$264 million in the National Cancer Institute's budget, bringing the latter to \$5.2 billion. This is good news considering that from 2005 through 2013, the NCI budget was basically flat, averaging \$4.9 billion.

Further, the following recommendation from Congress to the NCI was put into the bill at our behest:

at \$675,639,000, which includes \$130,000,000 for PMI and \$12,600,000 to support pediatric research as authorized by the Gabriella Miller Kids First Research Act.

## NATIONAL CANCER INSTITUTE (NCI)

*Kidney Cancer.*—The agreement encourages support of meritorious scientific research on kidney cancer, specifically early detection of the disease. The agreement encourages the NCI to support a Specialized Program of Research Excellence in kidney cancer and other research programs for subtypes of kidney cancer, such as papillary and chromophobe. NCI should provide an update on these efforts in the fiscal year 2017 budget request.

## NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE (NINDS)

*Alternating Hemiplegia of Childhood (AHC).*—The agreement notes AHC is a rare neurodevelopmental disorder characterized by repeated episodes of weakness

# ACKC's Government Funding Objective

---

- **Seek an appropriation of \$15 million to the Congressionally Directed Medical Research Programs (CDMRP) of the Department of Defense (DOD) to fund kidney cancer research.**
- **Encourage increased funding at NIH for NCI kidney cancer research, early detection and papillary and chromophobe two underserved diseases; and additional SPORE programs, 5-year, \$11 million grants to specialized cancer centers to study the biology and develop new therapies for kidney cancer.**

# Action to Cure Kidney Cancer

## [www.ackc.org](http://www.ackc.org)

---

Kidney cancer patients deserve equitable treatment with other cancer patients, as every day, 39 Americans die from kidney cancer.

---

---

***Thank you for your time.***

---

# National Cancer Institute FY 2010 Funding per Incidence

---

Brain	\$6,736	Esophagus	\$1,831
Leukemia	\$5,568	Melanoma	\$1,501
Ovary	\$5,131	Prostate	\$1,380
Breast	\$3,019	Lung	\$1,267
Liver	\$3,009	<b>Kidney</b>	<b>\$753</b>
Myeloma	\$2,401	Stomach	\$691
Pancreas	\$2,252	Thyroid	\$349
Colorectal	\$1,896	Uterine	\$327
non-Hodg. lym.	\$1,867	Bladder	\$321

(in thousands)

Source: NCI Office of Budget and Finance,  
American Cancer Society

# National Cancer Institute FY 2010 Funding per Mortality

---

Breast	\$15,691	Myeloma	\$4,550
Melanoma	\$11,754	Liver	\$3,838
Brain	\$11,287	<b>Kidney</b>	<b>\$3,364</b>
Leukemia	\$10,975	Pancreas	\$2,640
Prostate	\$9,375	Esophagus	\$2,101
Thyroid	\$9,225	Lung	\$1,792
Ovary	\$8,105	Uterine	\$1,791
Non-Hodg. lym.	\$6,054	Bladder	\$1,540
Colorectal	\$5,263	Stomach	\$1,373

(in thousands)

Source: NCI Office of Budget and Finance,  
American Cancer Society