



**MEDICAL COLLEGE OF WISCONSIN
DECEMBER 16, 2015**

**CANCER RESEARCH STATE INCOME TAX CHECK-OFF PROGRAM
REPORTING PERIOD JULY 1, 2014 - JUNE 30, 2015**

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A. BACKGROUND: CANCER STATISTICS

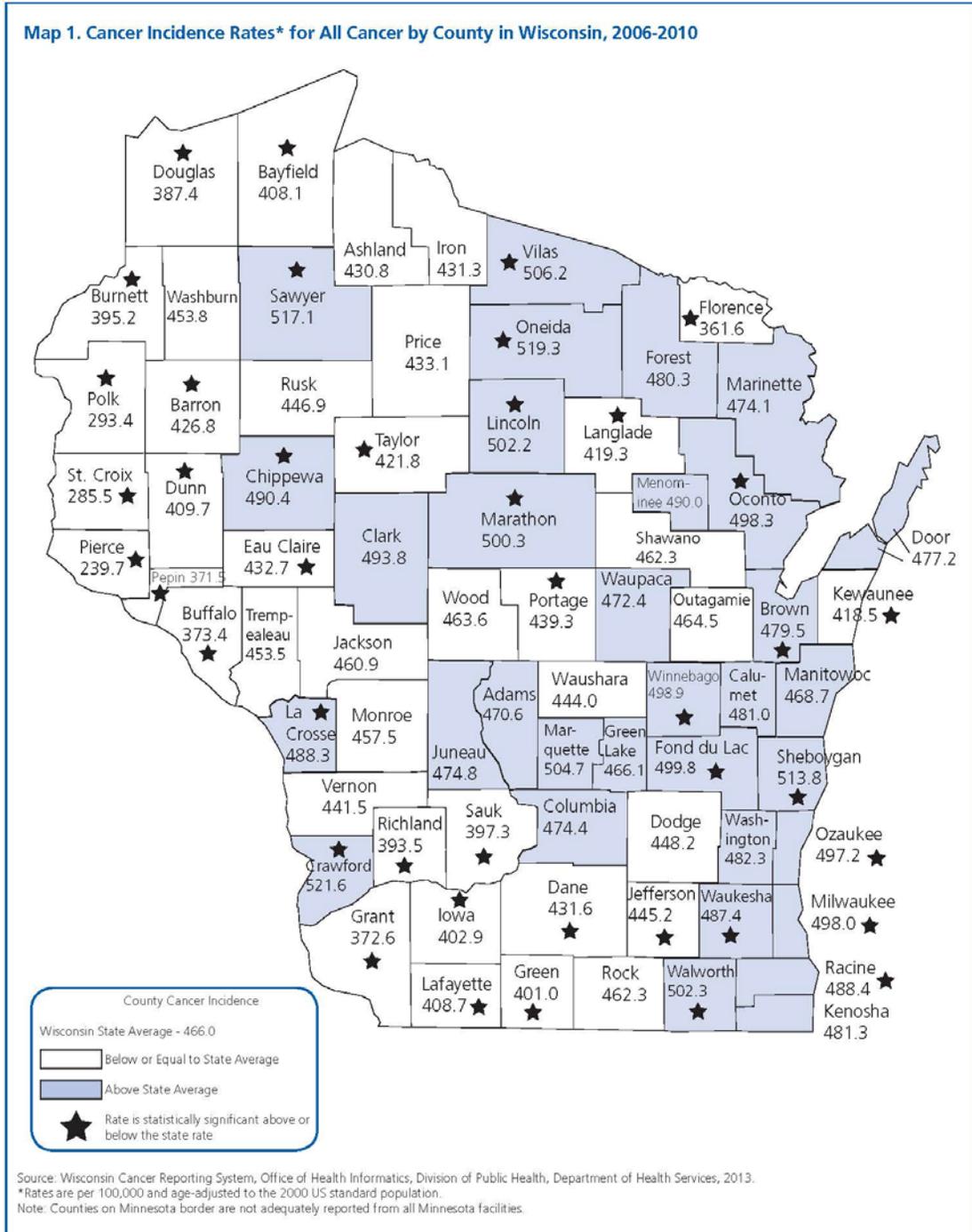
Malignant neoplasms (cancer) is the second most common cause of death in the United States and accounts for nearly 1 of every 4 deaths, exceeded only by heart disease .^{1,2} In 2014, about 1.7 million new cancer cases are expected to be diagnosed, and more than 1,600 Americans are expected to die each day from the disease. The American Cancer Society estimates that over 30% of Americans now living will eventually develop cancer in their lifetime.³

In 2010, cancer replaced heart disease as the leading cause of death among Wisconsin residents, responsible for 1 of every 4 deaths (22.9%).² In Wisconsin this year, it is estimated that one resident will die of cancer each hour, and 87 Wisconsin residents will be told they have the disease (Map 1).^{2,4}

Breast cancer remains the most frequently diagnosed cancer in Wisconsin women, representing 31% of all female cancer diagnoses.² Prostate cancer is the most frequently diagnosed cancer among Wisconsin males, representing 30% of all cancers newly diagnosed.

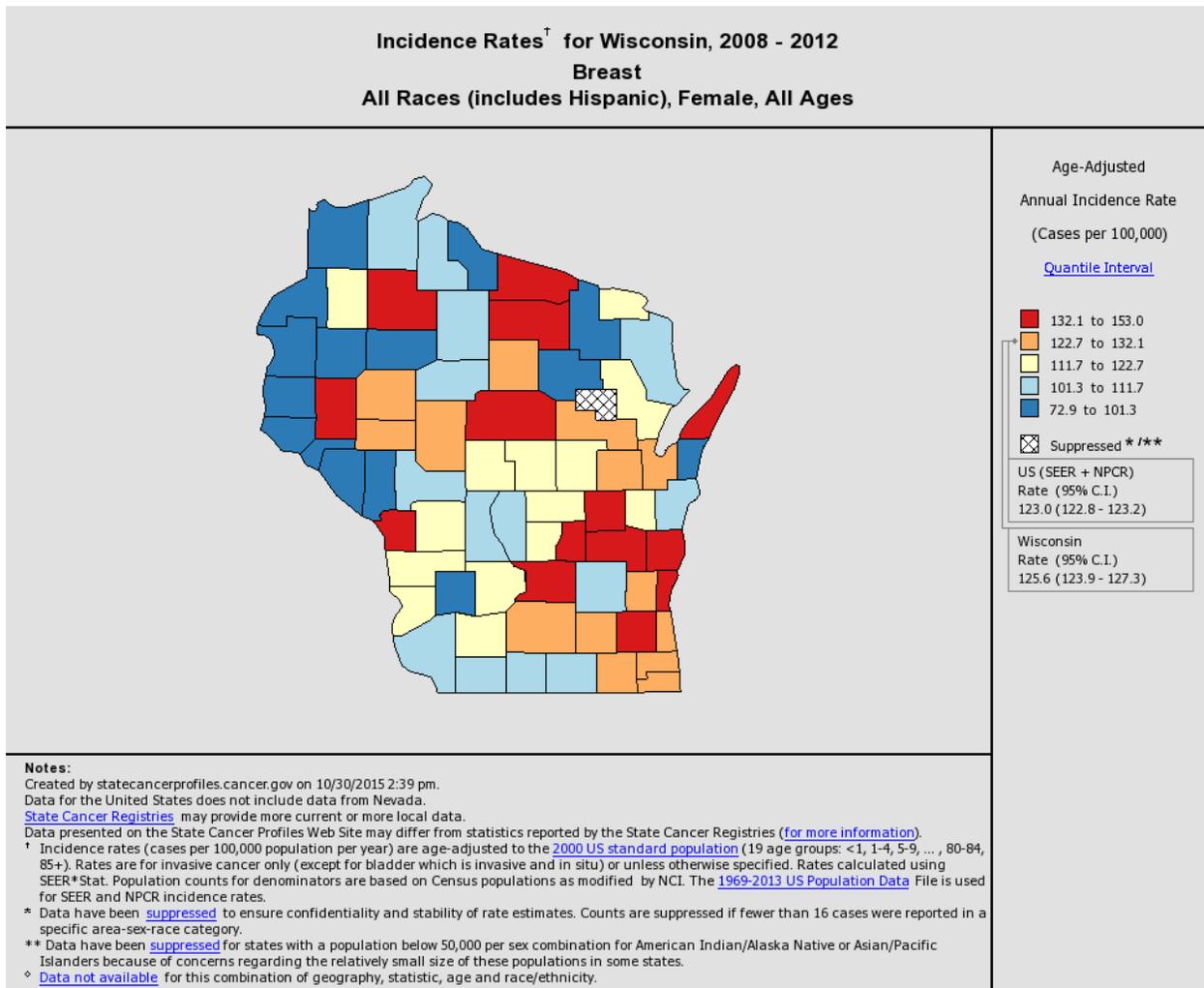
The risk of developing and dying from cancer varies by race. The state mortality rate was 175.6 per 100,000 population, but the rates by racial group ranged from 99 for Asian/Pacific Islanders to 240 for African Americans. Hispanics/Latinos of any race experienced the lowest rate of cancer mortality, 98 per 100,000 in population.²

Figure 1
Cancer incidence rates for all cancer by county in Wisconsin, 2006 – 2010
(Cases per 100,000)



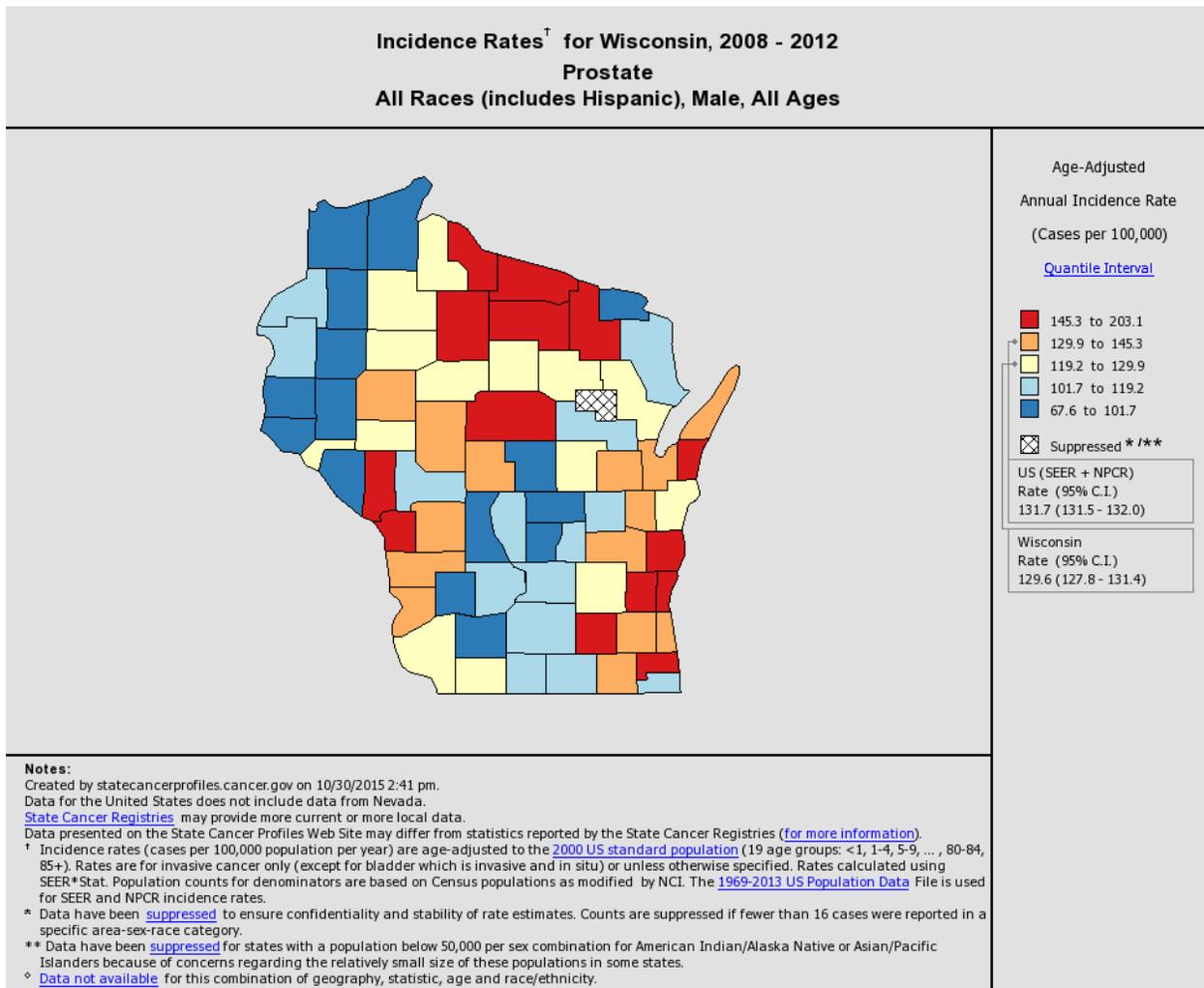
Breast cancer is the most common non-skin cancer in the United States and is the second leading cause of cancer death in women, after lung cancer. It can be expected that 1 in 8 American women will be diagnosed with breast cancer. In Wisconsin, breast cancer remains the most frequently diagnosed cancer in women, representing 31% of all female cancer diagnoses. In particular, some of Wisconsin’s highest rates of breast cancer are in the MCW Cancer Center’s seven-county catchment area, which includes Milwaukee, Kenosha, Ozaukee, Racine, Walworth, Washington, and Waukesha counties. Breast cancer has a significant impact on the communities of Southeastern Wisconsin. Of the nearly 4,500 Wisconsin women who are diagnosed with breast cancer each year, over 700 of them die from the disease, and breast cancer incidence rates in the seven-county Southeastern Wisconsin patient catchment area are some of the highest in the nation (See Figure 2).^{3,5}

Figure 2



Prostate cancer is the second most common type of cancer among men in the United States and is the most frequently diagnosed cancer among Wisconsin males. Today, over 2 million American men are currently diagnosed with or have survived prostate cancer. Approximately 240,000 men were diagnosed with the disease in 2013. This year, approximately 4,400 men in Wisconsin will be diagnosed with prostate cancer, and over 600 of those men will die from their disease. Prostate cancer is a critical public health issue for the state, and our region, with recent data showing that prostate cancer incidence rates in the eight-county Southeastern Wisconsin patient catchment area are some of the highest in the nation (See Figure 3).^{3,5}

Figure 3

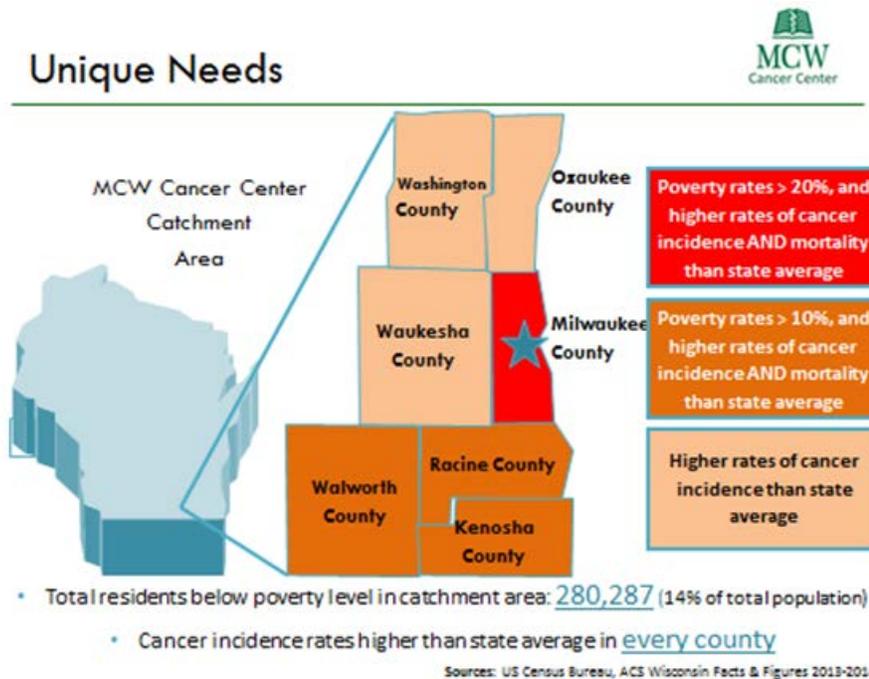


B. CANCER BURDEN IN SOUTHEASTERN WISCONSIN

The Medical College of Wisconsin Cancer Center (MCWCC) significantly impacts the health and quality of life of the people of Southeastern Wisconsin. MCWCC serves over 2 million residents in a seven-county area, and provides the people of Southeastern Wisconsin with access to nationally recognized physician scientists, the latest research-driven treatments, and over 200 cancer clinical trials. The Medical College of Wisconsin is the only academic medical center in Southeastern Wisconsin, a distinct region that includes large underserved minority populations with significant disparities in cancer incidence and outcomes. This includes 83% of Wisconsin’s African American and 63% of the state’s total minority population. Over 280,000 residents in the catchment area (14%) are below the poverty line. Cancer centers in Madison and Chicago, each 75 miles away, do not reach this underserved, poor, urban population, making the Medical College of Wisconsin Cancer Center the only academic cancer center accessible to these communities (See Figure 4).

Southeastern Wisconsin also faces significant socio-economic challenges and barriers to health and cancer care access, which includes segregation, poverty, lack of affordable housing, stretched public transportation, a troubled public school system, the highest unemployment and incarceration rates in the state and increasingly constrained public services and programs. These issues further contribute to health disparities by socioeconomic status that exist – and persist – in this area and clearly indicate that reaching this community requires an academic cancer center in close proximity. The primary region of patients for the Medical College of Wisconsin Cancer Center consists of eight counties in southeastern Wisconsin (Milwaukee, Kenosha, Ozaukee, Racine, Walworth, Washington and Waukesha) serving > 2 million residents. In addition, MCWCC captures a significant number of patients from the eastern portion of the state, particularly up to the Green Bay area. We have identified growth areas that include the two Wisconsin counties (Brown and Marathon) where MCW has established satellite community medical education campuses. Partnered with the largest and only stand-alone children’s hospital in Wisconsin, we are the state hub of pediatric oncology research, and a pediatric catchment area that includes the entire state of Wisconsin.

Figure 4



C. WISCONSIN STATE CANCER RESEARCH TAX CHECK-OFF PROGRAM

The State of Wisconsin established a Breast Cancer Research State Income Tax Check-Off Program under 2003 Wisconsin Act 176, and a Prostate Cancer Research Program with creation of 2005 Wisconsin Act 460. Under these Acts, every individual filing a Wisconsin income tax return could make an additional payment or donate any portion of their refund to the breast and/or prostate cancer research programs. Following the enactment of 2011 Wisconsin Act 222, individuals filing a Wisconsin tax return were allowed to make additional payment or donation of their tax refund for research on any cancer, not just breast or prostate cancer.

After administrative expenses, the amounts received under both State Income Tax Check-Off programs are divided evenly between the Medical College of Wisconsin (MCW) and the University of Wisconsin Carbone Cancer Center. The law requires both entities to use the money for cancer research and to report annually on the research projects conducted during the previous year. These funds may not be used to supplant funds available from other sources.

In September 2014, the Medical College of Wisconsin received its second appropriation resulting from Act 222 for research on any type of cancer in the amount of \$57,495.25. Applications for new Cancer Research Projects were solicited in winter 2014-2015.

D. RESEARCH PROJECTS SELECTION PROCESS

At the Medical College of Wisconsin, breast and prostate cancer related research grant and fellowship applications are selected using a peer-review process that draws upon both standing and ad hoc Cancer Center Research Grant Committees. The MCW faculty selected to serve on these committees represent basic and translational science departments, clinical departments, and the other disciplines involved in cancer research at the College such as biostatistics. Because of the highly technical nature of the basic science proposals, a lay-person was not included on the review panel.

Research grant applications were reviewed in the winter of 2014-2015 by the Cancer Center's Research Grants Committee. The applications were prioritized on the basis of scientific merit, and the recommendations for funding were submitted to the Cancer Center's Senior Leadership Committee. The Senior Leadership Committee of the Cancer Center is responsible to the Dean of the Medical College for appropriate allocation of funds from the State of Wisconsin Cancer Research State Income Tax Check-Off Program. Final decisions on awards were made after ensuring that the recommended applications complied with State requirements that funding be used for breast or prostate cancer research only and that the funding is non-supplanting. The Principal Investigator must sign a non-supplanting attestation form.

One grant award was made during the 2014-2015 academic year: This award was for research on BREAST CANCER. The award was for one year in the amount of \$50,000. The funded research project is described in Section E below.

The residual funds in the State of Wisconsin Tax Check-Off Program in Cancer Research will be carried over and used in 2016 to fund additional cancer research projects.

E. BREAST CANCER RESEARCH PROJECTS FUNDED IN FY2015

<u>Title of Research Project:</u>	<i>“Understanding the Use of Advanced Practice Providers in Breast Cancer Care: A National Study”</i>
<u>Principal Investigator:</u>	Tina Yen, MD, MS, Associate Professor, Department of Surgery, Medical College of Wisconsin
<u>Co-Investigator:</u>	Ann Nattinger, MD, MPH, Professor and Chief, Department of General Internal Medicine
<u>Amount Awarded:</u>	\$50,000
<u>Period of Award:</u>	One year (May 2015 – April 2016)

Lay Abstract (Provided by applicant):

The American Society of Clinical Oncology (ASCO) has projected that by 2025 there will be a shortage of over 2,200 oncologists, due to an estimated 40% growth in overall demand for oncology services and only a 25% increase in physician supply. This anticipated shortfall is largely due to the increasing burden of cancer, the increasing number of cancer survivors who require significant, ongoing care, implementation of the Affordable Care Act which will provide insurance to an additional 29 million Americans by 2017, and an aging oncology work force. This shortage translates to disparities in quality of care and access to care, including longer wait times or travel distances, particularly for people who reside in rural and other underserved areas. Given the projected workforce shortages and disparities in access to care, ASCO in 2007 and the Institute of Medicine in 2008 both highlighted the need to develop a multi-faceted strategy to ensure that Americans have access to high quality oncology services. One proposed strategy is to explore models that expand the use of advanced practice providers (APPs; nurse practitioners [NPs] and physician assistants [PAs]), in cancer care. There are several collaborative practice models that employ APPs in the care of cancer patients. Due to variations in practices, resources and state regulations which define the scope of practice for NPs, APPs have varying levels of independent practice, ranging from being able to see and treat patients entirely independently of physicians to requiring varying degrees of physician supervision. APPs may see patients during active treatment and/or during follow-up surveillance; they may see all types of patients or be limited to those who are healthier and/or with lower risk, more straightforward disease. Current literature does not address the optimal organization of APP care in oncology. In addition, the medical outcomes (resource utilization, such as hospitalization and emergency room visits; quality of care, such as receipt of appropriate evaluation and treatment) of APP models of care for oncology patients have not been examined in any studies. Our goal is to begin to address these gaps in the literature. One approach is to study large billing claims databases. Claims can identify patients cared for independently by APPs without any physician supervision (APP-based model). These data will be valuable in determining the scope of independent APP practice nationally, the type of care provided, determinants of such care, and the association with medical outcomes. Another potential method to assess APP care is to utilize large electronic medical record (EMR) databases, as these datasets could capture visits which involve both the APP and MD (shared MD-APP care) more effectively than claims databases. To our knowledge, there have been no studies that provide methods for using EMRs to assess APP involvement in patient care. Therefore, we need to explore how to exploit the EMR data to more accurately measure both independent APP care and shared MD-APP care. Once such methods are developed, EMRs could permit much more detailed analyses to determine the best practice models with regard to APP care in oncology.

F. IMPLEMENTATION OF RESEARCH PROJECTS

The research project selection process was completed in April of 2015, and funds were administratively committed to the Principal Investigator of the project after a signed “Statement of Non-Supplanting” and documentation of compliance with relevant state, federal and institutional regulations was provided. Work on the project has commenced. A progress report for the new award will be included with next year’s annual report (12/2016).

**G. PROGRESS REPORTS FROM PROJECTS AWARDED OR ACTIVE DURING THE PREVIOUS TWO YEARS
(7/1/12 – 6/30/14)**

Fifteen research grants relevant to breast and/or prostate cancer have been awarded since the inception of the State of Wisconsin Cancer Research State Income Tax Check-Off Programs. We track the progress and scholarly output of grants for two years after their completion. The previously awarded and/or active State of Wisconsin Income Tax Cancer Research Grants from the last two academic years are listed below. An updated progress report for each is appended to this report (see Appendix I).

1 - Title of Research Project: *“Histological Validation of MRI of the Prostate”*

Principal Investigator: Peter LaViolette, PhD, Assistant Professor, Department of Radiology,
Medical College of Wisconsin

Co-Investigator: Mark Hohenwarter, PhD, Associate Professor, Department of Radiology,
Medical College of Wisconsin
Paul Knechtges, MD, Associate Professor, Department of Radiology,
Medical College of Wisconsin
Kenneth Iczkowski, MD, Associate Professor, Department of Pathology,
Medical College of Wisconsin
Kenneth Jacobsohn, MD, Assistant Professor, Department of Urology,
Medical College of Wisconsin

Amount Awarded: \$50,000

Period of Award: One year (May 2014 – April 2015)

2 - Title of Research Project: *“Utility of Exosomal RNA s to Predict Responses to Androgen Deprivation
Therapy in Prostate Cancer Patients”*

Principal Investigator: Deepak Kilari, MD, Assistant Professor, Department of Medicine,
Division of Hem/Onc, Medical College of Wisconsin

Co-Investigator: Liang Wang, MD, PhD, Associate Professor, Department of Pathology,
Medical College of Wisconsin

Amount Awarded: \$50,000

Period of Award: One year (May 2014 – April 2015)

3 - Title of Research Project: *“Identification of Factors that Promote Invasion and Metastasis of Epithelial Tumor Cells”*

Principal Investigator: Jill Gershan, PhD, Assistant Professor, Department of Pediatrics, Medical College of Wisconsin

Co-Investigator: Ramani Ramchandran, PhD, Professor, Department of Pediatrics, Medical College of Wisconsin

Amount Awarded: \$50,000

Period of Award: One year (July 2013 – June 2014)

4 - Title of Research Project: *“Regulation of Breast Cancer Hormone Sensitivity”*

Principal Investigator: Guan Chen, MD, PhD, Professor, Department of Pharmacology and Toxicology, Medical College of Wisconsin

Co-Investigators: Zainab Basir, MD (MCW, Department of Pathology) and Xiaomei Qi, MD (MCW, Department of Pharmacology)

Amount Awarded: \$50,000 from State of Wisconsin Tax Check-Off Program for BREAST Cancer Research

Initial Period of Award: One year (July 2012 – June 2013) (One year unfunded extension to December 2014 granted to allow completion of the goals of the project)

5 - Title of Research Project: *“Use of β -hydroxy- β -methylbutyrate (HMB) to Counteract Loss of Muscle Mass and Strength in Older Men with Recurrent Prostate Cancer Started on Androgen Deprivation Therapy (ADT)”*

Principal Investigator: Kathryn Bylow, MD, Assistant Professor, Department of Medicine, Medical College of Wisconsin

Co-Investigators: James Thomas, MD (Dept. of Medicine, MCW), Alex Ng, PhD (Marquette University), Danny A. Riley, PhD (Dept. of Cell Biology, MCW), and Robert Prost, PhD (Dept. of Radiology, MCW)

Amount Awarded: \$100,000 from State of Wisconsin Tax Check-Off Program for PROSTATE Cancer Research

Initial Period of Award: Two years (July 2011 – June 2013) (3-year unfunded extension to June 2016 granted to allow completion of the goals of the project)

H. REPORT SUMMARY

Research into the fundamental biology of breast and prostate cancer holds the promise of identifying new approaches to the treatment or prevention of the cancers. We have invested the funds provided by Wisconsin taxpayers in new pilot research projects. These projects undergo a multi-level process of peer-review to assess their scientific merit and significance to breast and prostate cancer. During academic year 2014-2015, we issued one 1-year awards of \$50,000 after competitive peer-review. Residual funds from the Breast and Prostate Cancer Research State Income Tax Check-Off Programs will be carried over into the next year and combined with the next appropriation from TY14 to fund additional research projects in FY16. We have reported previously on the research projects funded since 2007 with allocations from the Breast and/or Prostate Cancer Research State Income Tax Check-Off Programs. In this annual report, we provide information on (a) the new project funded in FY15 and (b) progress reports on the five projects funded or active during the past two academic years (FY13 and FY14).

Appendix I - Progress Reports
Breast and Prostate Cancer Research
State Income Tax Check-Off Program Awards
Made in the Last Two Academic Years (FY13 and FY14)

Title of Research Project: *“Histological Validation of MRI of the Prostate”*

Principal Investigator: Peter LaViolette, PhD, Assistant Professor, Department of Radiology, Medical College of Wisconsin

Co-Investigator: Mark Hohenwarter, PhD, Associate Professor, Department of Radiology, Medical College of Wisconsin

Paul Knechtges, MD, Associate Professor, Department of Radiology, Medical College of Wisconsin

Kenneth Iczkowski, MD, Associate Professor, Department of Pathology, Medical College of Wisconsin

Kenneth Jacobsohn, MD, Assistant Professor, Department of Urology, Medical College of Wisconsin

Amount Awarded: \$50,000

Period of Award: One year (May 2014 – April 2015)

Title of Research Project: *“Utility of Exosomal RNA s to Predict Responses to Androgen Deprivation Therapy in Prostate Cancer Patients”*

Principal Investigator: Deepak Kilari, MD, Assistant Professor, Department of Medicine, Division of Hem/Onc, Medical College of Wisconsin

Co-Investigator: Liang Wang, MD, PhD, Associate Professor, Department of Pathology, Medical College of Wisconsin

Amount Awarded: \$50,000

Period of Award: One year (May 2014 – April 2015)

Title of Research Project: *“Identification of Factors that Promote Invasion and Metastasis of Epithelial Tumor Cells”*

Principal Investigator: Jill Gershan, PhD, Assistant Professor, Department of Pediatrics, Medical College of Wisconsin

Co-Investigator: Ramani Ramchandran, PhD, Professor, Department of Pediatrics, Medical College of Wisconsin

Amount Awarded: \$50,000

Period of Award: One year (July 2013 – June 2014)

Title of Research Project: *“Regulation of Breast Cancer Hormone Sensitivity”*

Principal Investigator: Guan Chen, MD, PhD, Professor, Department of Pharmacology and Toxicology, Medical College of Wisconsin

Co-Investigators: Zainab Basir, MD (MCW, Department of Pathology) and Xiaomei Qi, MD (MCW, Department of Pharmacology)

Amount Awarded: \$50,000 from State of Wisconsin Tax Check-Off Program for BREAST Cancer Research

Initial Period of Award: One year (July 2012 – June 2013) (One year unfunded extension to June 2014 granted to allow completion of the goals of the project)

Title of Research Project: *“Use of β -hydroxy- β -methylbutyrate (HMB) to Counteract Loss of Muscle Mass and Strength in Older Men with Recurrent Prostate Cancer Started on Androgen Deprivation Therapy (ADT)”*

Principal Investigator: Kathryn Bylow, MD, Assistant Professor, Department of Medicine, Medical College of Wisconsin

Co-Investigators: James Thomas, MD (Dept. of Medicine, MCW), Alex Ng, PhD (Marquette University), Danny A. Riley, PhD (Dept. of Cell Biology, MCW), and Robert Prost, PhD (Dept. of Radiology, MCW)

Amount Awarded: \$100,000 from State of Wisconsin Tax Check-Off Program for PROSTATE Cancer Research

Initial Period of Award: Two years (July 2011 – June 2013) (One year unfunded extension to June 2014 granted to allow completion of the goals of the project)

References

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4. US Cancer Statistics Working Group. United States Cancer Statistics: 1999-2007 Incidence and Mortality Web-based Report. Atlanta: US Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute 2010. www.cdc.gov/uscs
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Office of Government and
Community Relations

December 16, 2015

The Honorable Scott Walker
Governor, State of Wisconsin
Room 115 East, State Capitol
Madison, WI 53702

Dear Governor Walker:

Enclosed please find the Medical College of Wisconsin's (MCW) annual report for the *Cancer Research Program*. This Program was initially funded through the Wisconsin income tax check-off programs within 2003 Wisconsin ACT 176 (breast cancer) and 2005 Wisconsin ACT 460 (prostate cancer). Following 2011 Act 222, however, the tax check-off funding may now be utilized for any type of cancer research.

MCW is statutorily required to report annually on the use of these funds by January 1st of each year. The MCW Cancer Center uses these funds to award grants that support promising investigators and projects in cancer research, with the ultimate goal of reducing the burden of cancer in the state of Wisconsin. We are truly grateful to the Wisconsin State Legislature, and to the people of Wisconsin, for this support.

This document reports activities, projects and research funded through the *Cancer Research Program* at MCW for the period of **July 1, 2014 – June 30, 2015**. If you have any questions or comments regarding this report, please contact me at 414.955.8217 or at kkuhn@mcw.edu.

Sincerely,

Kathryn A. Kuhn
Vice President, Government and Community Relations
Medical College of Wisconsin

Enclosure:

Medical College of Wisconsin 2015 Breast and Prostate Cancer Research Program Report

Cc:

Jeff Renk, *Senate Chief, Assistant Clerk and Director of Operations*
Patrick E. Fuller, *Assembly Chief Clerk*
Emily Pope, *Legislative Fiscal Bureau*
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