Prostate cancer has a significant impact in the United States. Prostate cancer continues to have the highest incidence rate and second highest mortality rate of any cancer in American men. The mortality rate has been decreasing at approximately 4% per year since 1994, while the incidence rate is increasing at a slightly less than 2% per year since 1995. The decrease in mortality is felt to be due to improvements in screening, diagnosis, and treatment. Prostate cancer is becoming a major public health problem. It represents 1% or the cost of all cancer treatments in the United States with $8 Billion dollars and a cost per-patient from diagnosis to death of $81,658.00.

Multidisciplinary team approach is key to successful treatment of prostate cancer. A team consist of a Urologist, Radiation Oncologist, Medical Oncologist, Pathologist, Radiologist, Primary Care Physician and dedicated coordinators. Within the Radiation Oncology department, the team consist of a Radiation Oncologist, Rad Onc Nurse, Medical Physicist, Medical Dosimetrist, Radiation Therapy Technicians, Medical Assistant, Coordinator and Scheduling staff. The concept of TEAM is vital to the success of treatment.

Treatment options of localized prostate cancer consists of: Active surveillance, surgery, radiotherapy, cryotherapy. Radiation therapy is the use of high-energy beams or radioactive seeds to eliminate tumors. External beam treatment is done with a linear accelerator. The two main techniques are 3DCRT (Three Dimensional Conformal Therapy) and IMRT (Intensity Modulated Radiation Therapy) with IGRT (Image Guided Radiation Therapy). The most exciting and advanced technology is IMRT and IGRT using the trueBEAM Varian Linac. Cyberknife is a form of stereotactic radiosurgery (SRS) used to treat only early stage localized prostate cancer. This method uses advanced imaging technologies, combined with a sophisticated computer treatment planning system to deliver ultra-high dose radiation to the tumor (prostate) with extreme precision with an accuracy of under a millimeter. Treatment using SRS can be completed in 5 sessions or fewer, compared with the daily sessions of up to ten weeks with image-guided radiation therapy (IGRT).

The use of radioactive seeds to eliminate tumors is called Brachytherapy. There are two ways to do Brachytherapy. LDR (Low Dose Rate) brachytherapy is the popular “prostate seed implant” where radioactive seeds are implanted directly into the prostate. HDR (High Dose Rate) brachytherapy uses Ir-192 and a remote after loader unit to deliver ultra-high doses of radiation in a short amount of time. Unlike the PSI where the seeds are permanently implanted into the prostate, the HDR is temporary and the Ir-192 radioactive pellets are delivered through plastic catheters using a remote afterloader and left in for 10-15 minutes. Once the precise dose is delivered, the radioactive Ir-192 pellets are removed with a remote after loader.

The potential side effects of radiation therapy can be divided into two different types. Acute immediate side effects which occur during or immediately after treatments. Late side effects are delayed long term side effects which can occur 6 months or longer after treatments. Men who undergo brachytherapy can potentially develop inflammation and swelling of the prostate gland immediately post-op. They can also develop urgency, urinary frequency and urinary retention. Long term side effects can include rectal bleeding and impotence in 10-15% or patients. Possible side effects of EBRT (External Beam Radiation Therapy) can include frequent urination, diarrhea, and radiation proctitis (inflammation of the rectum). Late side effects can include rectal bleeding and erectile dysfunction.

All prostate cancer patients deserve the best quality of care. In deciding on a treatment regimen, patients must be informed of the risks and benefits of each treatment. All specialists must provide patients with up-to-date information on options and be aware of the different influences during the decision-making process. Hence, it is imperative that the patient seek care in an institution that has a multidisciplinary approach as research has proven that a multidisciplinary approach is key to successful treatment of aggressive prostate cancer.

Dr. Winlove Suasin completed her MD degree from Creighton University in Omaha, Nebraska and Radiation Oncology Residency at the Fox Chase Cancer Center in Philadelphia, PA. She is married with 4 Children. Her professional interest includes Intensity Modulated Radiation Therapy, Image Guided Radiation Therapy, Gynecologic Brachytherapy, Prostate seed implantation and Gamma Knife Stereotactic Radiosurgery. She is licensed to practice medicine in Hawaii, California, Arkansas and Virginia.