What’s the difference between a Radiologist and a Nuclear Medicine Physician?

In fact – What the heck in Nuclear Medicine?...
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As I stated in my previous blog, a Radiologist is a physician you probably never meet, yet still impacts the understanding and treatment course of your cancer. He reads and interprets your imaging or your radiology exams, such as CT, MRI, and X-ray.

A Nuclear Medicine physician also reads and interprets imaging, but some types of imaging are not called radiology – they are called nuclear medicine, or nuclear imaging. In prostate cancer the most common nuclear imaging exams are Bone Scans, and all types of PET Scans. These are considered nuclear medicine because the patient receives an injection that is radioactive, called a radio-pharmaceutical as part of the imaging. (An MRI or CT Scan can sometimes require an injection, but it is not a radiopharmaceutical, so they are not nuclear medicine.)

Another way to state the difference between imaging with radiology vs nuclear medicine, is that radiology is designed to see anatomy (shapes & sizes), while nuclear medicine is designed to see physiology (cells, molecules, chemical interactions, etc.). If you’ve ever had a PET scan (nuclear imaging) for your prostate cancer, you may have had it “fused” with a CT scan (radiology). That’s because the PET is better at visualizing cancer cells, but the CT scan is better at visualizing anatomy such as organs, bones, etc. Since no medical imaging is 100% perfect, using 2 different techniques together often improves the accuracy of the exam.
Another unusual thing about Nuclear Medicine, is that it includes both imaging, and treatment — because a radiopharmaceutical can be used for either. And the radiopharmaceutical (injection) is what makes something “nuclear medicine”. So nuclear medicine physicians not only deal with imaging, but they also administer a few treatments. In prostate cancer, this is mainly one treatment right now, which is Xofigo (radium 223). Xofigo was FDA approved in 2013 for men on hormone therapy, with rising PSA and bone metastases (see full Xofigo information here).

So if you are scheduled to start Xofigo, you may have a clinic visit scheduled to see a nuclear medicine physician, who you may have never met before in your cancer care. The only other type of doctor who administers Xofigo is a Radiation Oncologist — See previous blog post.

In the world of prostate cancer there are many twists and turns on the journey. The medical system is often complicated, and sometimes overwhelming. Understanding the medical system can help you navigate your journey. Knowing a little about the different physicians might be of help. So if you hear the word nuclear medicine, know that it includes both imaging and treatment in prostate cancer. And know that it’s slightly different than radiology when it comes to your imaging. Use this information to formulate better questions for your nurses, or medical oncologist. Better questions always bring better answers. Stay empowered.