

Greetings and thank you for the opportunity. I am Dr. Kyle Rusthoven. I am the Radiation Oncologist at Carteret Healthcare.

As you heard from previously Don Kirkman, Carteret County is growing. The Radiation Oncology service line at Carteret Healthcare is growing even more quickly. I have been here for over 6 years. During my tenure, the ESTVs on our linear accelerator have increased from under 4000 in 2014 to a pace for over 7000 in 2021. Our growth is outpacing the rates for the state of North Carolina and for the nation as a whole. For example, a study in the radiation oncology literature published in the fall of 2020 reported a 32% decrease in radiation oncology volume during the COVID pandemic compared to baseline rates. By contrast, the volume at our facility increased by 5% in 2020 compared to 2019. Year to date, Radiation Oncology at Carteret Healthcare is up nearly 10% over 2020, which was our previous busiest year.

In addition to clinical growth, the oncology program at Carteret Healthcare has experienced meaningful recent improvements in quality assurance and achieved program certification. Since 2013, our cancer program, which I chair, has been accredited by the American College of Surgeons Committee on Cancer. In 2019 we achieved accreditation with Silver commendation. In Radiation Oncology, we added full-time, on-site physics in 2015 and enhanced our treatment plan QA protocols to be in accordance with American College of Radiology accreditation standards. In addition, we commissioned a stereotactic body and brain radiosurgery program in 2015, and have experienced rapid incremental growth. In the past year, we did 275 stereotactic radiation treatments at Carteret Healthcare.

Discussion of our need for an additional linear accelerator CON relates to the unique features of Carteret County. Our county is older. Our median age is nearly 10 years older than the state median. We are 12 years older than our neighbor to the North, Craven County, and 23 years older than Onslow County to the West. Consistent with Urban-Rural disparities research, our internal data shows a trend

toward more advanced stage at diagnosis compared to state benchmarks. As a result, we have high rates of combined modality therapy use for locoregionally advanced cancer presentations and of palliative treatment for metastatic disease.

Carteret County is also geographically unique. It is wide; approximately 66 miles across. We have vast low-lying wetlands in the East, numerous bridges and limited transportation infrastructure. A drive from Cedar Island in the East to Cedar Point in the West takes over 90 minutes.

The aforementioned transportation barriers to care would become even more relevant if we were to exceed capacity on our existing linear accelerator and patients were forced to out-migrate to adjacent facilities for treatment. The closest Radiation Oncology facility to Carteret Healthcare is in New Bern, 38 miles away and 50 minutes by car. The drive time to that facility from Cedar Point is 55 minutes; from Beaufort is 75-90 minutes and from Cedar Island is 100-120 minutes. Keep in mind, these are one-way drive times without traffic, meaning that some patients would need to travel 2-4 hours round-trip per day for 3-9 weeks to receive a curative course of radiation at an adjacent center.

In addition to travel time, outmigration also disrupts the coordination and integration of care between medical and radiation oncology due to the patient being forced to have providers in two different health systems. This is particularly relevant to our patient population, given the high proportion of patients receiving chemoradiation or palliative treatment. Finally, many of our patients are also burdened with significant socioeconomic barriers, which would further limit their ability to out-migrate for care.

Our existing linear accelerator is already approaching capacity. Over the past several weeks, we have been treating a 12-hour day with no breaks and numerous special procedures, including stereotactic radiation. During the Summer, all of these patients are treated during daylight hours. However, in

December, when daytime is just under 10 hours per day, 18% of these patients would be treated before sunrise or after sunset. When our volume increases by 10% in 2023, that proportion would increase to 25% and by 2025, the figure would be 33%. The treatment day on our linear accelerator in 2025 would extend from 5:45 am to 8:15 pm, and that's without any emergencies or down-time.

Linear accelerator down-time increases on high volume machines once capacity is reached. These down-times can result in treatment delays, particularly when maintenance events cluster. Treatment delays are associated with decreased survival in various malignancies, including head and neck, cervix and anal canal cancer. A second, fine-energy matched linear accelerator in our department would allow patients to switch seamlessly between machines, if there was down-time on one of the two units. This would prevent adverse disease outcomes, disruptions to care and the need for time consuming re-planning if treatment had to be transferred to another facility.

In summary, I do not feel that it is reasonable to ask elderly patients with more advanced disease presentations, many of whom are receiving concurrent chemoradiation or palliative care, to come in for treatment at 5:45 am or 8:15 pm. It is even less realistic to ask these patients to travel 2-4 hours daily for 1-2 months for curative treatment at an adjacent facility. As such, I feel that an additional linear accelerator CON is critical to maintain access to life-saving radiation therapy for the patients of Carteret County.