

**Technology and Equipment Committee
Agency Report
Petition for Adjusted Need Determination for
One Linear Accelerator (LINAC) in Service Area 24
2022 State Medical Facilities Plan**

Petitioner:

Carteret Health
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Request:

Carteret Health requests an adjusted need determination for one additional linear accelerator (LINAC) in Service Area 24, to be designated for a licensed acute care hospital in Carteret County, in the *2022 State Medical Facilities Plan (SMFP or "Plan")*.

Background Information:

Chapter Two of the SMFP provides that “[a]nyone who finds that the North Carolina State Medical Facilities Plan policies or methodologies, or the results of their application, are inappropriate may petition for changes or revisions. Such petitions are of two general types: those requesting changes in basic policies and methodologies, and those requesting adjustments to the need projections.” The SMFP annual planning process and timeline allow for submission of petitions for changes to policies and methodologies in the spring and petitions requesting adjustments to need projections in the summer. Any person may submit a certificate of need (CON) application for a need determination in the Plan. The CON review could be competitive and there is no guarantee that the Petitioner would be the approved applicant.

The standard LINAC methodology in the SMFP incorporates a geographic accessibility criterion (a population base of 120,000), a criterion aimed at assuring efficient use of megavoltage radiation facilities (when Equivalent Simple Treatment Visits (ESTV) procedures divided by 6,750 minus the number of existing linear accelerators equals at least .25) and, a patient origin criterion that indicates when a service area has 45 percent or more of its patients coming from outside the service area. A need determination is generated when two of the three criteria are met within a service area. Application of the methodology to utilization data in the Proposed 2022 SMFP did not generate a need determination for one additional LINAC in Service Area 24.

Counties are the basic units for the formation of linear accelerator service areas, based on proximity, utilization patterns, and patient origin data. A small percentage of the population lives some distance from a linear accelerator, but the sparsity of population in and around these areas does not provide the population required to support a linear accelerator.

Carteret Health submitted a petition for an adjusted need determination to add a LINAC scanner in Service Area 24 for the following reasons: 1) unique cancer program at Carteret Health; 2) SMFP methodology will not generate a need for several more years; 3) a growing older population will sustain more demand for LINAC services; and 4) Carteret County has unique geography that creates transportation challenges.

Analysis/Implications:

Carteret Health is one of two LINAC service providers in Service Area 24, which consists of Carteret, Craven, Jones and Pamlico Counties. Carteret Health operates one of the three LINACs in the service area. In 2020, its utilization was 6,870 procedures (ESTVs), which exceeds the 6,750 ESTV need threshold. CarolinaEast Medical Center in Craven County operates the other two LINACs.

The Proposed SMFP shows that Carteret Health does have a high volume of LINAC procedures. Carteret Health has experienced a growth trend over the past few years but even with that trend, the service area still has no new need for an additional LINAC (see Table 1). As reported in the Proposed 2022 SMFP, Carteret Health has experienced a 149% growth in procedures over the past five years, while Service Area 24 has experienced a 50.29% increase in procedures over the same period. Carteret Health has also demonstrated high utilization in their facility, and their compound annual growth rate (CAGR) of 25.73% is substantially higher than the complete service area's CAGR of 10.72% (see Table 1). Table 1 also shows that Carteret Health's utilization at 6,870 ESTVs is about 30% higher than CarolinaEast Medical Center's utilization of an average of 4,825 ESTVs per LINAC, although utilization has been increasing at both facilities.

Table 1: Service Area and Statewide Trends in LINAC ESTVs, Data Years 2016 – 2020

	2018 SMFP	2019 SMFP	2020 SMFP	2021 SMFP	Proposed 2022 SMFP	Total % Change	CAGR
Carteret General	2,749	5,481	6,241	6,427	6,870	149%	25.73%
CarolinaEast Medical Center (2 LINACs)	8,243	8,253	9,801	9,813	9,650	17.07%	4.02%
CarolinaEast MC Average Per Unit	4,123	4,127	4,901	4,907	4,825		
Service Area Totals	10,992	13,734	16,042	16,240	16,520	50.29%	10.72%
Service Area Annual Change		24.95%	16.81%	1.23%	1.72%		

Source: 2017 – 2021 License Renewal Applications

Note: The data in the SMFP is two years earlier than the publication year of the SMFP.

According to the Proposed 2022 SMFP, Service Area 24 reported a total population of 197,469 with a CAGR of 0.08% over the past 5 years Carteret County has a positive CAGR of 0.40%. Although growth is modest, Carteret County has experienced more growth than the service area as a whole.

Table 2: Population Trends in Service Area 24, 2017 – 2021

	Population					Total % Change	CAGR
	2017	2018	2019	2020	2021		
Carteret County	70,401	70,620	71,084	71,640	71,536	1.61%	0.40%
Service Area 24	196,837	198,064	198,058	199,100	197,469	0.32%	0.08%
Service Area Annual Change		6.23%	-0.003%	0.53%	-0.82%		

Source: 2017 – 2022 SMFP

Note: The data in the SMFP is two years earlier than the publication year of the SMFP.

The LINAC methodology in the SMFP uses geography, population and reported ESTV procedures to determine whether additional scanners are needed in a service area. In the Proposed 2022 SMFP, Service Area 24 does not meet the requirements to obtain a need determination for an additional LINAC scanner. However, Carteret Health, independently from the other facilities in the service area, produces enough reported ESTV procedures to generate a need determination for one additional LINAC. In addition, Carteret County substantially exceeds other counties with similar populations operating one LINAC (see Table 3).

Table 3: County Population Comparison of Procedures Performed, Data Year 2020-2021

County	ESTV Procedures	2021 Population	County	ESTV Procedures	2021 Population
Carteret	6,870	71,536	Surry	4,508	73,394
Wilson	1,721	83,893	Stanly	2,917	64,841
Sampson	3,303	63,904	Caldwell	3,207	84,512
Rockingham	6,254	91,634			

Source: 2022 Proposed SMFP

Note: The data in the SMFP is two years earlier than the publication year of the SMFP.

The Petitioner cites three characteristics of Carteret County in its rationale for the need for an additional LINAC. First, Carteret County is a coastal community with natural transportation barriers. Thus, traveling to obtain LINAC treatments outside of Carteret County can be difficult for patients. Healthcare Planning’s Patient Origin Reports (2019 data) show that 73% of the LINAC patients at Carteret Health are residents of Carteret County; 13% are residents of Craven County. Similarly, 78% of Craven County’s LINAC patients are residents of that county; 6% come from Carteret County. About 93% of Pamlico County’s 47 LINAC patients receive treatment in Craven County. About 70% of Jones County’s 107 LINAC patients receive treatment outside Service Area 24 (primarily in Orange County); about 31% go to Craven County. These figures indicate that Carteret Health primarily treats patients from Carteret and Craven counties. This observation may partially reflect the transportation challenges associated with a coastal county.

Second, Carteret County is a growing retirement community, with an attendant growing aging population. Census figures from the NC Office of State Budget and Management show an approximately 12% growth in the 65-and-older population from 2016-2020, compared to a 2% overall growth in county population during the same period. Population projections from 2021 through 2025 anticipate a 10% increase in the 65-and-older population, compared to a 2.9% growth in the overall population during the same period.

Finally, the Petitioner claims that the growing aging population will have higher LINAC usage rates. While this may be true, the estimates they give are for the total number of cancer patients, roughly half of whom may be expected to receive LINAC treatment.¹ Even so, by 2025 Carteret County may have about 300 additional residents who may need LINAC treatment.

Agency Recommendation:

The Agency supports the standard methodology for LINAC equipment in the Proposed 2022 SMFP. However, of the data analysis above demonstrates, that Carteret Health has the attributes needed to support an additional LINAC in Service Area 24. Given available information submitted by the August 11, 2021 deadline date for comments and in consideration of factors discussed above, the Agency recommends approval of the petition for an adjusted need determination for an additional LINAC in Carteret County in the 2022 SMFP.

¹ Baskar R, Lee KA, Yeo R, Yeoh KW. Cancer and Radiation Therapy: Current Advances and Future Directions. *Int J Med Sci* 2012; 9(3):193-199. doi:10.7150/ijms.3635. Available from <https://www.medsci.org/v09p0193.htm>