

Petition for Adjusted Need Determination for One Additional Linear Accelerator in Service Area 18

PETITIONER

Southeastern Regional Medical Center, Inc.
d/b/a Southeastern Health
300 West 27th Street
Lumberton, NC 28358

Reid Caldwell
Government Affairs/Policy Management Officer
910.671.5052

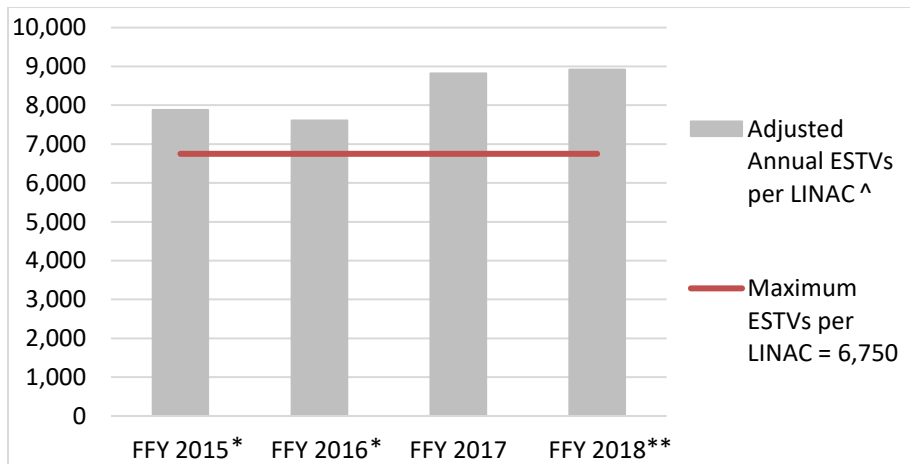
STATEMENT OF REQUESTED ADJUSTMENT

Southeastern Health (SeH) respectfully petitions the State Health Coordinating Council (SHCC) to create an adjusted need determination in the *2019 State Medical Facilities Plan (2019 SMFP)* for one additional linear accelerator (linac) in Service Area 18 designated for Robeson County.

EXECUTIVE SUMMARY

SeH is experiencing radiation therapy treatment volumes well above the 6,750 Equivalent Simple Treatment Visit (ESTV) threshold set forth by the state. For 2018, the facility is currently operating at an ESTV rate of 9,000 and has reported 8,788 ESTVs in the *Proposed 2019 SMFP*. (See Figure 1 below).

Figure 1: Adjusted Annual ESTV Procedure Volumes



Source: SeH historical data and 2017-Proposed 2019 SMFP

* ESTV volume July 2015 - March 2016 were affected due to closure from a fire.

SeH monthly data for the affected years were used to annualize and adjust projected ESTVs for months of closure.

**Projection based on historical proportion of annual ESTVs through March.

^Adjusted Annual ESTV= SeH monthly procedures converted to ESTV weighted values per SMFP guidelines and annualized for total annual ESTVs.

Key Findings:

In summary, Robeson County has a need for an additional linear accelerator that is unique to its community:

- The one linear accelerator in Robeson County has consistently operated above 6,750 ESTVs during the last four years, excluding the period of time it was non-operational because of a catastrophic fire.
- The one linear accelerator in Robeson County is the third busiest linear accelerator in the state, per *SMFP* ESTV calculations, behind only two other linear accelerators both of which operate in Mecklenburg County which has 10 operational linear accelerators.
- The one linear accelerator in Robeson County is arguably the busiest linear accelerator in the state, if its ESTV volume is adjusted for the stereoscopic X-ray guidance procedures performed on the linear accelerator.
- The one linear accelerator in Robeson County is the busiest among all other counties with only one linear accelerator.
- Utilization of the one linear accelerator in Robeson County, combined with its population size, would have already generated a need under the standard methodology were Robeson County treated like other, single county service areas created since the *2006 SMFP*.

BACKGROUND

SeH is a non-profit health system that has served the residents of Robeson County and surrounding communities for more than 100 years. SeH is currently licensed for 452 beds, including acute care, psychiatric, inpatient hospice, and long-term care beds. The system employs more than 2,200 people and has 115 active medical staff. During fiscal year 2017, despite the horrendous toll of Hurricane Matthew on the facility itself and on the community at large, SeH cared for almost 13,000 acute care patients, had more than 60,000 emergency visits and over 1,300 live births. SeH provides advanced services in cardiology, cardiac surgery, pulmonology, and oncology, among others.

SeH's oncology services are housed in the Gibson Cancer Center, which offers radiation oncology, medical oncology, and blood disorder treatments. Also available are the comprehensive support services of an on-site pharmacy and laboratory, information resource library, oncology therapist and dietitian. In cooperation with the local chapter of the American Cancer Society, the Gibson Cancer Center offers support groups and educational programs. Affiliations with Duke Medicine for medical oncology services and Southeastern Radiation Oncology for radiation oncology services bring world class clinical care to Gibson Cancer Center; accreditation by the American College of Surgeons, Commission on Cancer ensures that care is on par with the best community cancer programs in the country.

The Gibson Cancer Center currently has one linear accelerator. As described more fully below, SeH's linear accelerator is operating well above the threshold of 6,750 ESTVs, equating to a deficit of 0.30 indicating a need for one additional linear accelerator at SeH.

REASON FOR THE REQUESTED ADJUSTMENT

SeH's linear accelerator volume has increased over the past three years necessitating additional capacity, which cannot be achieved without the requested need determination. As shown in Table 1, SeH's linear accelerator operated well above 6,750 ESTVs in FFY 2014 (*2016 SMFP*) and in FFY 2017 (*Proposed 2019 SMFP*). SeH's linear accelerator would have operated above 6,750 ESTVs in both FFY 2015 and FFY 2016 had it not been forced out of operation for nearly a year because of a catastrophic fire in the facility which required renovation and replacement of the linear accelerator. Specifically, the linear accelerator was not operational from June 27, 2015 to March 23, 2016, which impacted the reported ESTV volumes in the *2017 SMFP* and *2018 SMFP*. SeH reported¹ an increase in the number of patients utilizing linear accelerator services from 289 in FFY 2014 to 380 in FFY 2017, a compound annual growth rate of 10 percent over that time.

Table 1: Linear Accelerator Utilization

	2016 SMFP (FFY 14)	2017 SMFP (FFY 15)	2018 SMFP (FFY 16)	Proposed 2019 SMFP (FFY 17)
SeH ESTVs per Unit	7,475	5,910	4,099	8,788

Source: *2016-Proposed 2019 SMFP*.

At the time of the fire, SeH had 35 radiation therapy patients on active treatment. To ensure continued treatment for these patients, SeH arranged for and provided transportation for patients to the radiation therapy services at Cape Fear Valley Health System (CFVHS) for the duration of their treatment. In addition, SeH continued to accept new referrals during the non-operational period and assumed responsibility for coordinating treatment options for these patients at an outside facility. CFVHS, in turn, hired some of SeH's radiation oncology staff during this period of time to support the increase in patient volume as CFVHS did not have the staff to support the influx of patients². Despite the efforts to coordinate care between SeH and CFVHS, many of the patients transferred for treatment because of the fire had to redo physics and dosimetry testing prior to continuing radiation therapy treatment due to differences in linear accelerator machines between facilities; for some, this resulted in treatment delays of up to two weeks.

If ESTV volumes are annualized for the non-operational period using data from the period of time that SeH was operational, the linear accelerator operated above 6,750 ESTVs in all of the last four years (See Table 2).

¹ See SeH's 2015 and 2018 Hospital License Renewal Applications.

² Of note, the ESTV volume at CFVHS appears to have spiked in FFY 2016, which would represent those Robeson County patients who were treated at CFVHS during this non-operational period.

Table 2: Annualized Linear Accelerator Utilization

	FFY 2015*	FFY 2016*	FFY 2017	FFY 2018**
SeH Annualized ESTVs per Unit	7,880	7,607	8,788	8,917

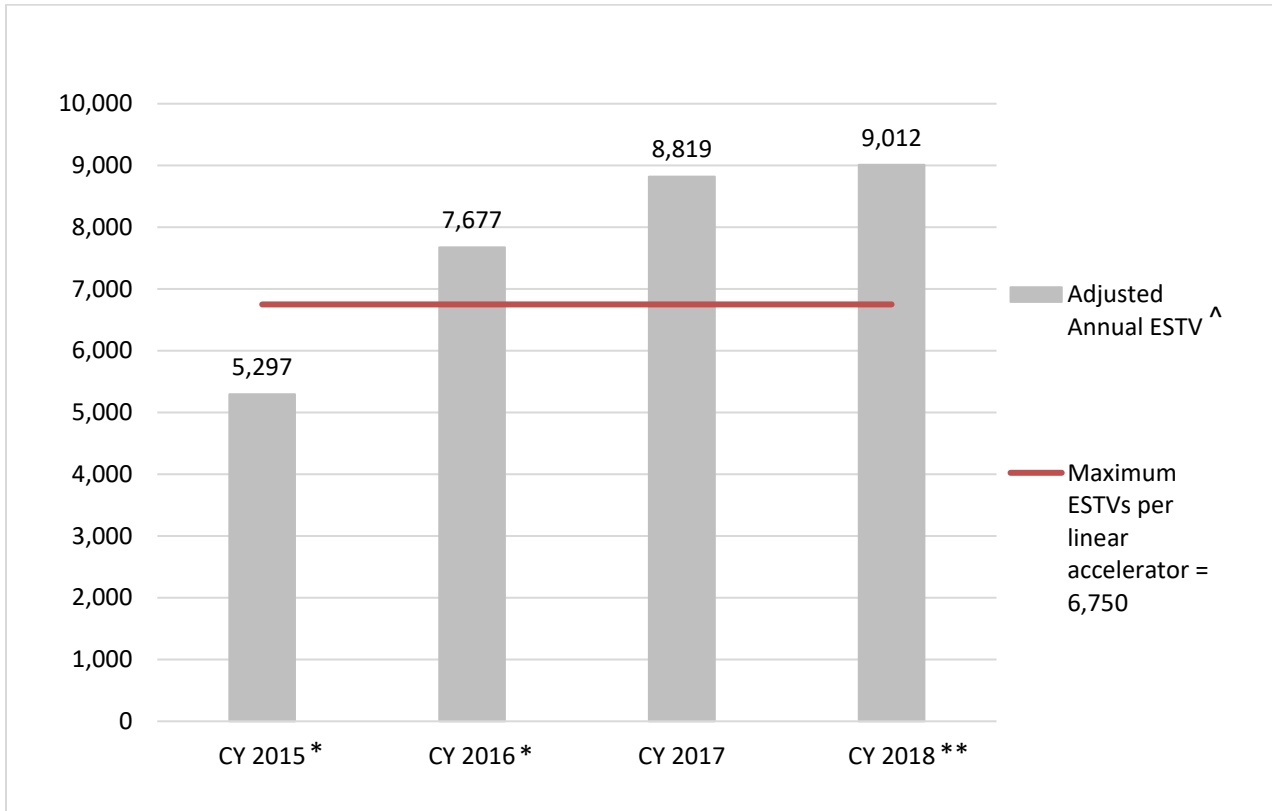
Source: SeH Historical Data and 2017-Proposed 2019 SMFP.

* ESTV volumes July 2015 - March 2016 were affected due to closure of SeH radiation therapy services from a fire. SeH monthly data for the affected years were used to annualize and adjust projected ESTVs for the months of closure.

** Projection based on historical proportion of annual ESTVs through May.

Moreover, if SeH continues its year-to-date utilization trend, it estimates that 9,000 ESTV procedures will be performed in CY 2018 alone (See Figure 2), resulting in more than 2,000 ESTVs over the ESTV threshold and a compound annual growth rate of nearly 20 percent from 2015 to 2018 - all of which are unsustainable without the adjusted need determination.

Figure 2: Southeastern Health Adjusted Annual ESTV Procedure Volume



Source: SeH historical ESTV data.

*ESTV volume July 2015 - March 2016 were affected due to closure from a fire. SeH monthly data for the affected years were used to annualize and adjust projected ESTVs for months of closure.

** Projection based on historical proportion of annual ESTVs through March.

^Adjusted Annual ESTV= SeH monthly procedures converted to ESTV weighted values per SMFP guidelines and annualized for total annual ESTVs.

Moreover, SeH’s existing linear accelerator routinely accommodates more than 30 patients a day and often treats as many as 40 to 60 per day. By operating above the established 6,750 threshold SeH remains at higher risk for equipment failure and equipment unavailability for necessary patient treatments. Furthermore, SeH routinely uses the linear accelerator for stereoscopic X-ray guidance procedures in lieu

of field checks adding to linear accelerator utilization. These procedures are equivalent to CPT code 77421(a)/77387 with an estimated ESTV weight of 0.5. Currently these procedures are not captured by the *SMFP* ESTV volume calculations, thereby under-representing SeH’s linear accelerator utilization. More specifically, SeH performed 3,160 stereoscopic X-ray guidance procedures in FFY 2017 resulting in an additional 1,580 ESTVs not reported in the *Proposed 2019 SMFP*.

Based on the reported ESTVs in the *Proposed 2019 SMFP*, SeH operates the 3rd busiest linear accelerator in North Carolina (See Table 3). Only two linear accelerators are currently operating at higher capacity and both reside in Mecklenburg County. Mecklenburg County currently has 10 linear accelerators in seven different facilities and distributed in multiple locations across the county. Utilization of those linear accelerators ranges from 599 to 10,070 ESTVs annually, with the overall average of 5,333 ESTVs per accelerator. All but two of Mecklenburg County’s linear accelerators operate at less the 6,750 ESTVs, providing available access for area residents. In contrast, Robeson County has only one linear accelerator, currently operating at a rate of 9,000 ESTVS per year, and the next closest alternative is over 30 miles away. Moreover, if the 1,580 ESTVs from the stereoscopic X-ray guidance procedures are attributed to SeH then the facility’s reported ESTV values would increase from 8,788 to 10,368 representing a higher ESTV value than the reported busiest linear accelerator in the *Proposed 2019 SMFP*.

Table 3: Rank Order of the Top 10 Busiest Linear Accelerators in North Carolina by Average ESTVs per Unit

<i>Rank by ESTV Volume</i>	<i>Facility Name</i>	<i>Service Area</i>	<i>County</i>	<i>Number of Linear Accelerators in County</i>	<i>Average Number of Procedures per Unit</i>
1	Pineville Radiation Therapy Center	7	Mecklenburg	10	10,070
2	Matthews Radiation Oncology Center	7	Mecklenburg	10	10,015
3	Southeastern Regional Medical Center	18	Robeson	1	8,788
4	FirstHealth Moore Regional Hospital	17	Moore	2	8,346
5	Carolinas HealthCare System Union	7	Union	1	8,072
6	UNC Lenoir HealthCare	23	Lenoir	1	7,526
7	Lake Norman Radiation Oncology Center	8	Iredell	3	6,841
8	Cone Health	12	Guilford	6	6,794
9	Carolinas HealthCare System Northeast	9	Cabarrus	2	6,777
10	North Carolina Radiation Therapy Management Services	27	Pitt	4	6,663

Source: *Proposed 2019 SMFP*.

There are 33 counties in North Carolina with only one linear accelerator³, and among those Robeson County is unique by several measures. Robeson County has the highest ESTV volume at 8,788. In fact, there are only three “single linear accelerator” counties in North Carolina that are currently performing above the 6,750 ESTV threshold: Robeson, Union, and Lenoir. (See Table 4).

Table 4: Rank Order of Single Linear Accelerator Counties by ESTV Volume

<i>Rank by ESTV Volume</i>	<i>County</i>	<i>Number of Linear Accelerators</i>	<i>Number of Procedures (ESTVs)</i>
1	Robeson	1	8,788
2	Union	1	8,072
3	Lenoir	1	7,526
4	Wayne	1	6,073
5	Pasquotank	1	5,840
6	Rowan	1	5,693
7	Cleveland	1	5,628
8	Carteret	1	5,481
9	Rockingham	1	4,614
10	Haywood	1	4,304
11	Onslow	1	4,084
12	Brunswick	1	4,005
13	Randolph	1	3,911
14	Vance	1	3,898
15	Stanly	1	3,802
16	Rutherford	1	3,783
17	McDowell	1	3,640
18	Surry	1	3,476
19	Davidson	1	3,415
20	Scotland	1	3,266
21	Beaufort	1	3,225
22	Dare	1	3,134
23	Transylvania	1	3,117
24	Sampson	1	2,975
25	Watauga	1	2,951

³ Historically, Brunswick County was listed separately as a county with only one linear accelerator; however, the *Proposed 2019 SMFP* indicates that the Brunswick County linear accelerator has been combined with those of New Hanover Regional Medical Center but is still located in Brunswick County. To account for Brunswick County’s linear accelerator utilization, ESTV values specific to Brunswick County’s linear accelerator were pulled from New Hanover Regional’s 2018 HLRA in this analysis.

<i>Rank by ESTV Volume</i>	<i>County</i>	<i>Number of Linear Accelerators</i>	<i>Number of Procedures (ESTVs)</i>
26	Halifax	1	2,682
27	Wilson	1	2,091
28	Caldwell	1	1,932
29	Hertford	1	1,728
30	Jackson	1	1,496
31	Macon	1	1,472
32	Franklin	1	8
33	Harnett	1	0

Source: Proposed 2019 SMFP.

Of the 33 single linear accelerator counties, only nine have populations of more than 120,000, Robeson among them. (See Table 5).

Table 5: Rank Order of Single Linear Accelerator Counties by Population Size

<i>Rank by Population Size</i>	<i>County</i>	<i>Population Size</i>
1	Union	232,425
2	Onslow	197,455
3	Davidson	168,107
4	Randolph	145,633
5	Rowan	142,862
6	Brunswick	135,464
7	Harnett	133,065
8	Robeson	131,384
9	Wayne	125,509
10	Cleveland	98,862
11	Rockingham	91,731
12	Caldwell	83,919
13	Wilson	82,408
14	Surry	72,844
15	Carteret	70,620
16	Rutherford	67,880
17	Franklin	67,586
18	Stanly	63,069
19	Sampson	62,821
20	Haywood	62,780

Rank by Population Size	County	Population Size
21	Lenoir	57,366
22	Watauga	57,348
23	Halifax	51,468
24	Beaufort	47,444
25	McDowell	45,915
26	Vance	44,785
27	Jackson	43,662
28	Pasquotank	40,805
29	Dare	37,172
30	Macon	35,779
31	Scotland	35,598
32	Transylvania	34,814
33	Hertford	23,855

Source: Proposed 2019 SMFP

More critically related to this petition, of the seven counties with more population than Robeson, four are single county linear accelerator service areas: Onslow, Davidson, Randolph, and Harnett. Thus, if and when linear accelerator volume in these counties increases beyond the 6,750 threshold, the standard methodology will generate a need for an additional linear accelerator, regardless of utilization in any other county.

In 2006, the *SMFP* added the current “Criterion 4, Step 11” to the linear accelerator need methodology which states:

“Regardless of the results of Steps 1-10 above, if a county has a population of 120,000 or more and there is not a linear accelerator counted in Step 2 for that county, a need is determined for one linear accelerator for that county. As a result, the county becomes a separate, new linear accelerator service area.”

This change in methodology was in response to a 2005 petition on behalf of Onslow Memorial Hospital that aimed to improve access to radiation therapy treatment services for patients across North Carolina and resulted in four new single county linear accelerator service areas in the *2006 SMFP*: Davidson, Johnston, Onslow, and Randolph (See Exhibit 1). Subsequently, Harnett County was created as its own service area in 2014. Although Robeson County met the county population of over more than 120,000 persons criterion in 2005 at 125,885 persons, the county already housed one linear accelerator and thus Step 11 was not applied to Robeson County. At present, Robeson County continues to be part of Service Area 18, which includes Cumberland and Sampson counties.

There are only five counties in the state that have only one existing linear accelerator and a population of more than 120,000 but are still included in a multi-county linear accelerator service area: Robeson, Wayne, Union, Brunswick and Rowan. Thus, these five counties are treated differently than those created by the 2006 and subsequent *SMFPs* and remain at a disadvantage in accessing more capacity once their existing linear accelerator volume grows beyond the 6,750 threshold. This is extremely significant because if Robeson County were treated like other similar counties and designated as a single county service area, the county would have already generated a need for one additional linear accelerator under the standard methodology. Specifically, Robeson County satisfies Criterion 1 as the county has greater than 120,000 persons per linear accelerator, **131,384** persons per linear accelerator. Robeson County also satisfies Criterion 3 with the deficit of linear accelerators needed greater than or equal to 0.25; Robeson County's deficit is currently **0.30**. Linear accelerator deficit = $(8,788 \text{ total ESTVs} / 6,750 \text{ ESTV threshold}) - (1 \text{ linear accelerator}) = 0.3019$

In summary, Robeson County has a need for an additional linear accelerator that is unique to its community:

- The one linear accelerator in Robeson County has consistently operated above 6,750 ESTVs during the last four years, excluding the period of time it was non-operational because of a catastrophic fire.
- The one linear accelerator in Robeson County is the third busiest linear accelerator in the state, per *SMFP* ESTV calculations, behind only two other linear accelerators both of which operate in Mecklenburg County which has 10 operational linear accelerators.
- The one linear accelerator in Robeson County is arguably the busiest linear accelerator in the state, if its ESTV volume is adjusted for the stereoscopic X-ray guidance procedures performed on the linear accelerator.
- The one linear accelerator in Robeson County is the busiest among all other counties with only one linear accelerator.
- Utilization of the one linear accelerator in Robeson County, combined with its population size, would have already generated a need under the standard methodology were Robeson County treated like other, single county service areas created since the 2006 *SMFP*.

The *SMFP* allows for petitions to adjust the standard need methodology for situations just as those present in Robeson County: unique circumstances that do not exist statewide and that cannot be addressed by, or wait for resolution from, the standard methodologies. When those unique circumstances exist, the SHCC has used the petition process to address these issues. Exhibit 2 provides a list of past actions by the SHCC in similar circumstances, most notably the approval of a special need determination for an additional linear accelerator in Service Area 20 (Wake and Franklin counties) despite the existence of operational or approved linear accelerators and without the significant demographic and socioeconomic factors that exist in Robeson County and contribute to extreme health disparities.

Adverse Impact to Patients

Without the approval of this petition, the adverse impact on patients will be magnified. SeH is already extending normal operational hours to meet the increased patient demand - an adjustment that is unsustainable long term as many of these already-compromised patients find off-hours scheduling to be difficult to manage on a daily basis. Without sufficient access to radiation therapy services locally, Robeson County residents may be forced to choose between traveling at least 30 to 40 miles for treatment or foregoing treatment altogether. Travel for this patient population is often difficult, and travel for many in Robeson County is simply not possible. The nearly 40 SeH primary care or specialist providers distributed throughout Robeson County reported a total of 15,000 patient “no shows” last year alone, strongly indicating the difficulty patients with limited transportation and financial resources have accessing care even in their home county. The nature of radiation therapy, specifically daily treatments for multiple consecutive weeks, prevents many patients from having radiation therapy, even when it is the preferred treatment method for their cancer site. Single mothers, breadwinners, elderly, those without caregivers, and those with limited incomes often are unable to travel out of town for daily treatment for several weeks or are unable to afford flexibility in their schedules, even it means they must be treated using a less-effective method. As a result, patients may postpone or forego treatment if the linear accelerator is at capacity or treatment requires out of town travel. Even assuming that transportation is available, the lost wages for most of these patients is just one more burden the citizens of one of the poorest counties in the state must bear at a time they are literally fighting for their lives.

According to the National Cancer Institute (NCI), radiation therapy is currently one of the major treatment modalities for cancer and is used in most cases as either a stand-alone treatment or in combination with other cancer treatment courses. Linear accelerators are routinely used to deliver radiation therapy treatments and are therefore necessary to ensure effective cancer treatment options are available to patients. Moreover, NCI discusses cancer disparities among population groups which typically include differences in incidence rates, prevalence (all existing cases), mortality rates, morbidity (cancer-related health complications), survivorships, burden of cancer or related health conditions, screening rates, and stage of diagnosis. These disparities are thought to reflect the interconnection between population health factors and reported health outcomes.

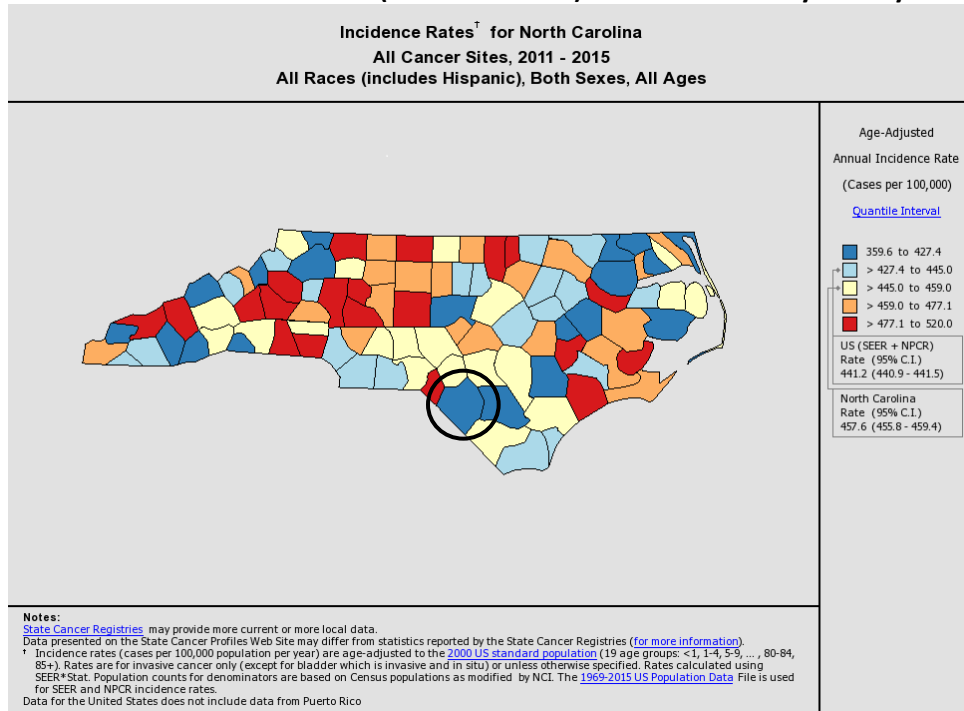
Unfortunately, Robeson County exhibits high levels of health disparity. Dignity Health and Truven Health created the nation’s first standardized Community Health Need Index (CNI) to identify the severity of health disparity for every zip code in the U.S. based on multiple social and economic factors known to limit health care access. Indicator scores are obtained for the areas of income, culture, education, insurance, and housing and a barrier score of 1.0 (low need) to 5.0 (high need) is applied. Robeson County received a CNI score of 4.8 indicating a high community health need, with many communities in the county scoring a 4.8 or higher⁴. Further, out of the 100 North Carolina counties, Robeson County ranked last (100th) in both the 2017 health factors and the 2017 health outcomes County Health Rankings⁵.

⁴ Dignity and Truven Health Community Need Index, Robeson County.

⁵ Robert Wood Johnson Foundation, 2017 County Health Rankings.

In 2015, the State Center for Health Statistics found cancer to be the second leading cause of death in Robeson County. According to the American Cancer Society 2010-2014 Cancer Incidence Rates by County report, Robeson County has a higher incidence rate of prostate, colon/rectum, and lung cancer than North Carolina as whole⁶. Interestingly, while Robeson County ranks in the lower quantile in North Carolina for cancer incidence rates (all cancer sites) (See Figure 4), it is among the highest in the state for cancer mortality rates (See Figure 5) suggesting there are unmet treatment needs for this population⁷. The unique demographic and socioeconomic attributes present in Robeson County exacerbate the need for an additional linear accelerator in the county.

Figure 4: North Carolina Cancer Incidence (All Cancer Sites) Rates Stratified by County

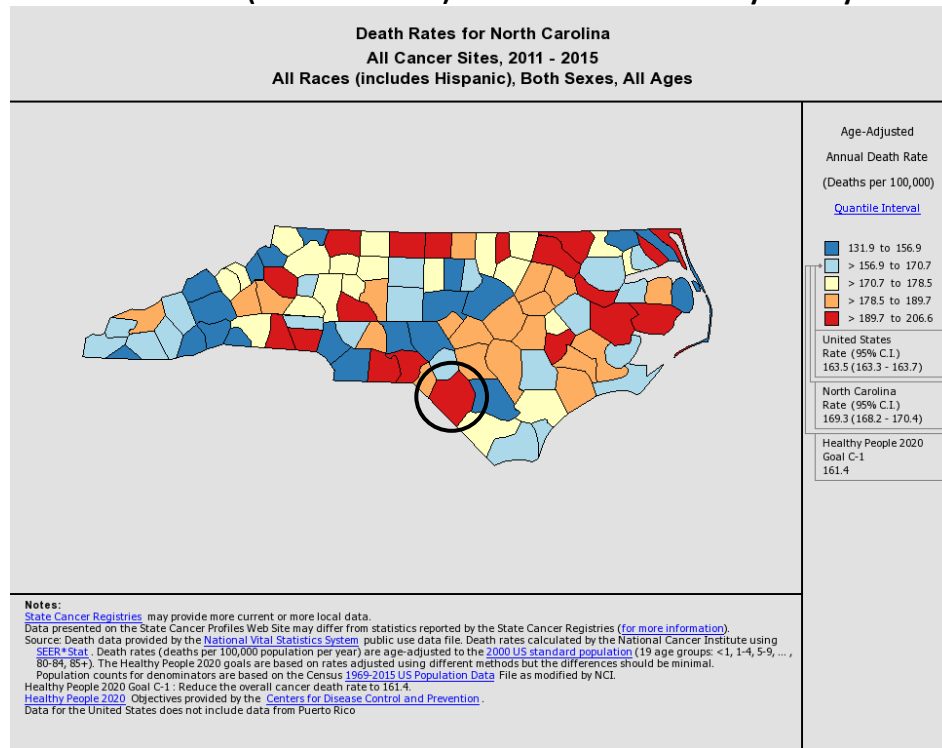


Source: National Cancer Institute. State Cancer Profiles.

⁶ American Cancer Society. *Cancer Facts & Figures 2015*. Atlanta: American Cancer Society; 2015.

⁷ National Cancer Institute. State Cancer Profiles: North Carolina Counties, All Ages, Both Sexes, All Cancer Sites.

Figure 5: North Carolina Cancer (All Cancer Sites) Death Rates Stratified by County



Source: National Cancer Institute. State Cancer Profiles.

Robeson County is a federally designated healthcare professional shortage area and is recognized as a medically underserved area by the U.S. Department of Health and Human Services. The county is majority-minority with 41.3 percent American Indian and Alaskan Native and 23.9 percent Black persons (See Table 6), with the highest percentage of minority residents within the state at 68.8 percent.

Table 6: Service Area 18 Race Profiles as compared to North Carolina.

Race	Robeson County % of Total	Sampson County % of Total	Cumberland County % of Total	North Carolina % of Total
White	31.2%	67.0%	51.8%	70.8%
Black	23.9%	26.6%	38.6%	22.2%
American Indian and Alaskan Native	41.3%	3.3%	1.8%	1.6%
Asian	0.7%	0.6%	2.8%	3.1%
Hispanic	0.2%	0.3%	0.4%	0.1%
Other	2.7%	2.2%	4.6%	2.2%
Total	100.0%	100.0%	100.0%	100.0%

U.S. Census Bureau 2017 Population Estimates.

Minority populations are more likely to be poor and medically underserved and demonstrate a higher cancer burden when compared to non-minority populations. As highlighted in the table above, one characteristic of the service area population that is strictly unique among all North Carolina counties is

the high percentage of American Indians and Alaskan Natives (AI/AN) that reside in this area, particularly in Robeson County. This fact is significant in that, according to the *American Journal of Public Health*, there is a “substantial burden of disease borne by American Indian and Alaska Native people” and “overall, non-Hispanic AI/AN people have almost a 50% higher death rate than non-Hispanic White people...with diabetes, intentional and unintentional injury, and chronic liver disease taking a particularly devastating toll.”⁸

Further, the *CA: A Cancer Journal for Clinicians* for the American Cancer Society reported the relative risk of death after a cancer diagnosis is 33 percent higher in black patients than in white patients and 51 percent higher in AI/AN patients than white patients in their Cancer Statistics 2018 publication⁹. These statistics mean that in North Carolina, minority group residents are more likely to die from cancer and related conditions than the majority group residents.

In addition to the unique demographics, socioeconomic factors also explain the compromised health status of residents within Robeson County. Common risk factors associated with a higher incidence of preventable cancer include: tobacco use, sun exposure, radiation exposure, chemicals and other substances, alcohol, poor diet, lack of physical activity and being overweight.

According to the CDC, the following socioeconomic factors correlate to health disparities in cancer:

- Access to Health Care Services
 - Racial and ethnic minorities are less likely to have health insurance
 - Lower income levels can prevent access and utilization of health services
 - Language barriers
 - Lack of transportation¹⁰
 - Inability to take time off to see a doctor
 - Inability to pay for services
- Behaviors
 - The lower the income,
 - the more likely to smoke
 - the more likely to eat unhealthy food
 - the less likely to engage in physical activity
 - the more likely to engage in risky sexual activity
- Social and Built Environments

⁸ Bauer, U.E., & Plescia, M. (2014, June). Addressing Disparities in the Health of American Indian and Alaska Native People: The Importance of Improved Public Health Data. *American Journal of Public Health*. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4035867/>

⁹ Siegel, R. L., Miller, K. D., & Jemal, A. (2018, January 04). Cancer Statistics, 2018. *CA: A Cancer Journal for Clinicians*, 68(1). Retrieved from <https://onlinelibrary.wiley.com/doi/full/10.3322/caac.21442>

¹⁰ Community Health Needs Assessment. Robeson County Health Department, Southeastern Health, Healthy Robeson Task Force. 2014. The 2014 CHNA identified transportation as one of the top five leading factors affecting families seeking medical treatment.

- Lower income populations have less access to quality objects such as sidewalks, transportation, playgrounds, and parks
- Rural residents are more likely to be poor than people who live in cities
- Exposure to Carcinogens
 - Those that live in close exposure to carcinogens are at a higher risk of getting cancer. Certain carcinogen contributors in communities include:
 - Smelters
 - Foundries
 - Chemical factories
 - Coal mines

As such, income and education levels can be a reliable predictor of many lifestyle behaviors and health indicators. Robeson County's 2010 per capita income ranked 99th out of 100 counties in North Carolina – \$15,321 per capita. Sampson and Cumberland Counties rank much higher in per capita income at 70th and 36th respectively in the same linear accelerator Service Area. This drastic difference in income levels demonstrates the unique characteristics of the residents in Robeson County. Moreover, according to the 2016 American Community Survey (ACS) and the Small Area Income and Poverty Estimates (SAIPE), 27.8 percent of Robeson County residents are living below the poverty level, compared to an average of 15.4 percent of North Carolina residents. As a result, Robeson County residents are more likely to smoke, be overweight, and lead a sedentary lifestyle – all risk factors for developing preventable cancers.

Moreover, Robeson County residents display cultural beliefs and behaviors that influence their care. The rural isolation along with the large minority populations in the county contribute to a trust factor that is unique to these populations; residents are more likely to stay within their home county or with their primary provider than migrate to outside facilities for treatment. This coupled with the extremely high utilization of its lone linear accelerator creates a unique situation in this vulnerable community.

Alternatives

If the adjusted need determination is not approved, SeH will be forced to attempt to support the growing ESTV volume with its capacity limited to one linear accelerator. At some point soon, capacity will be completely maximized, and patients will be forced to delay treatment, travel for treatment, or forego radiation therapy treatment altogether. In the meantime, the continued overuse of SeH's one linear accelerator will likely lead to catastrophic equipment failure, with an estimated six-month non-operational period for a replacement, or at the very least a significantly shortened useful life.

SeH currently does not see any other alternatives outside of the status quo or for the SHCC to approve the request for an additional linear accelerator in Service Area 18, designated for Robeson County, to meet the needs of area cancer patients.

EVIDENCE THAT THE PROPOSED CHANGE WOULD NOT RESULT IN UNNECESSARY DUPLICATION

As discussed previously, if Robeson County were treated like other counties under Criterion 4, Step 11 of the linear accelerator methodology for determining need, it would have already generated a need under the standard methodology. A deficit of more than 0.25 linear accelerators in Robeson County demonstrates that the adjusted need determination—designated for Robeson County—would not result in unnecessary duplication.

While there are underutilized linear accelerators in Cumberland County and Sampson County in Service Area 18, they are not readily available to serve Robeson County patients. Patients would have to travel 40 miles to CFVHS or 64 miles to Sampson Cancer Center. In addition, traveling to Sampson Cancer Center (SCC) would require patients to change radiation oncologists as SCC is currently served by 21st Century Oncology as opposed to the Southeastern Radiation Oncology Group, which serves SeH and CFVHS. Although the Southeastern Radiation Oncology Group supplies radiation oncologists for both SeH and CFVHS, the providers are dedicated to their respective facilities; thus, in either circumstance, continuity of care is likely to be disrupted if the patient has to be transferred to SCC or CFVHS.

EVIDENCE OF CONSISTENCY WITH THE THREE BASIC PRINCIPLES

SeH believes the petition is consistent with the three basic principles: safety and quality, access, and value.

Safety and Quality

Quality and safety are clearly enhanced through the addition of a second linear accelerator by allowing additional capacity in Robeson County. Without sufficient capacity, particularly for a service often used as a primary treatment to destroy cancer cells, quality can suffer, and patient care may not be optimal. Without this adjusted need determination, SeH could operate its linear accelerator equipment at high utilization levels indefinitely without any possibility of acquiring additional capacity. Several studies show that patient noncompliance with radiation therapy has a significant impact on cancer outcomes. Specifically, non-compliant patients have inferior survival rates and an increase in recurrence risk. Adding a second linear accelerator in Robeson County would help ensure patients do not become non-compliant due to insufficient capacity.

If patients and physicians are forced to access care at another facility which has available capacity, they may encounter disruptions in the continuity of care. Physicians and providers work every day to improve the systems of care which leverage information technology, multidisciplinary teams, and processes of care to deliver the right care at the right time to the right person. SeH's electronic medical record allows providers to access the entirety of a patient's records including relevant diagnostic tests that can provide vital information to guide the care of the patient. A facility under the control of another healthcare system cannot provide that same system of care to an unfamiliar physician and patient. As a result, safety and quality will be enhanced with the proposed adjusted need determination.

Access

Additional linear accelerator capacity is needed to provide sufficient access for SeH patients. SeH is the leading provider of linear accelerator care to the residents of Robeson County and serves a substantial number of patients from Columbus and Bladen counties. An additional linear accelerator will enable SeH to better serve these patients and potentially reduce the number of patients that leave Robeson County for care or that may forgo care due to the current barriers. SeH provides a significant percentage of its services to minority and underserved populations. Minority populations need sufficient access to linear accelerator services as they are at an increased risk to develop cancer. Further, there are increased socioeconomic challenges with their care such as lack of funds to seek treatment outside of their home town or inadequate transportation. For this reason, linear accelerator services must be available to patients of all demographics and socioeconomic status affording them the same access to safe and effective treatment courses.

Value

The petition also promotes value. Overutilization of linear accelerator capacity sometimes results in inconvenient scheduling, long wait times, and missed or foregone treatments. With no sustainable, accessible alternative for Robeson County residents to seek radiation therapy treatment as demonstrated by the catastrophic fire, SeH carries an increased risk for equipment failure and equipment unavailability for necessary patient treatments due to its high utilization. Additional linear accelerator capacity will ensure patients have a higher probability of uninterrupted treatments by receiving care in a timely manner, preventing time away from patients' home and community, and delays in needed treatment. Delays in treatment can have detrimental effects to the patient's survival and disease progression potentially compounding the treatment course resulting in unanticipated admissions and adding to healthcare expenditures.

The proposed petition will provide Robeson County with additional linear accelerator capacity to meet the needs of area cancer patients and ensure health equity across the state. Southeastern Health appreciates your careful consideration of this petition. Please let us know if we can assist the Council, its committees, and the staff during the process.

Thank you very much.