

# Inpatient Rehabilitation

Petition:

Rex Hospital

## Petition for Adjusted Need Determination

### Petitioner:

Rex Hospital  
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DFS HEALTH PLANNING  
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MEDICAL FACILITIES  
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### Summary:

Rex Hospital petitions the State Health Coordinating Council ("SHCC") to adjust the need determination in Health Service Area IV ("HSA IV") to show a projected need for 16 Inpatient rehabilitation beds in the 2009 State Medical Facilities Plan ("SMFP"). HSA IV faces a unique set of circumstances regarding access to inpatient rehabilitation services.

The inventory of inpatient rehabilitation beds does not correspond with service areas of similar size across North Carolina. Additionally, inpatient rehabilitation providers in HSA IV have not operated the full number of licensed beds during the current planning period of October 2005 through September 2007.

Rex advocates an adjusted need determination of 16 inpatient rehabilitation beds based on the analysis of these conditions and the potentially significant number of Rex's inpatients eligible for inpatient rehabilitation services.

### Overview

A comparison of health service area populations and inpatient rehabilitation bed inventories shows that the size of the population as compared to the number of inpatient rehabilitation beds in HSA IV is inconsistent with the rest of the state. Additionally, an analysis of staffed inpatient rehabilitation beds shows a need generated for additional inpatient rehabilitation beds in HSA IV.

As shown below, certain characteristics of Rex Hospital make it the prime candidate for any additional beds to be allocated. Rex transfers a significant number of patients to inpatient rehabilitation centers. Rex has a sizeable inpatient population eligible for inpatient rehabilitation services in place. This population will expand once 12 new general medical/surgical acute care beds become operational in early 2009. The Rex stroke patient population is expected to increase once the Joint Commission stroke certification is in place by Fall 2009.

Based on the analysis presented here, the State Health Coordinating Council could reasonably add as many as 31 inpatient rehabilitation beds in order to match the accessibility in HSA IV to the rest of the state. We conservatively request half that number since Rex would clearly utilize 16 inpatient rehabilitation beds as supported by the unique set of conditions at our facility.

### **Current Methodology**

The draft 2009 SMFP provided the following:

Need for additional inpatient rehabilitation beds in any of the six Health Service Areas is determined when the total number of existing and CON approved inpatient rehabilitation beds in a Health Service Area report an overall average, annual occupancy rate of 80 percent or higher during the two fiscal years prior to developing the North Carolina State Medical Facilities Plan.

Except in response to Petition for an Adjusted Need Determination for Inpatient Rehabilitation Beds for the 2006 SMFP, no new inpatient rehabilitation beds have been allocated since this methodology was adopted in 2000.

### **Population Analysis**

As has been noted in numerous petitions and certificate of need applications, North Carolina has undergone a tremendous population surge recently and HSA IV is certainly no exception, growing 10.3% since 2005. Thanks to the area's professional and educational opportunities, this growth is expected to continue for the foreseeable future. According to the NC State Demographer, the population for HSA IV is projected to increase 10.5%, by 2012 making it the fastest growing HSA in the State.

<b>Projected Growth by Health Service Area</b>		
<b>Health Service Area</b>	<b>2008-12 Annual Growth</b>	<b>2008-12 Total Growth</b>
I	0.8%	3.1%
II	1.0%	4.2%
III	2.4%	9.9%
IV	2.5%	10.5%
V	1.3%	5.2%
VI	0.7%	2.8%
State	1.6%	6.4%

*Source: North Carolina State Demographics*

As detailed below, HSA IV is the second most populated service area behind HSA II. Yet a comparison with all other service areas shows that health service areas with less population than HSA IV have higher inpatient rehabilitation bed

inventories. Though Health Service Area IV ranks second in terms of population, it ranks fourth in total inpatient rehab beds.

Population and Bed Inventory Comparison		
Health Service Area	2008 Population	Licensed Inpatient Rehabilitation Beds
I	1,361,930	129
II	1,571,044	184
III	1,886,310	192
IV	1,751,935	155
V	1,323,227	170
VI	1,345,843	151

*Source: North Carolina State Demographics, 2008 Hospital License Renewal Applications*

In general, the health service areas fall into two categories based on their population totals, the higher populated (II, III, IV) with an average population of 1,736,430 and less populated (I, V, VI) with an average population of 1,343,667. While HSA IV is in the higher populated category, its inpatient rehabilitation bed inventory is more in line with those found in the lower populated category. In fact, HSA IV has 15 fewer beds than HSA V, which has approximately 428,000 fewer residents. The SHCC could reasonably adjust the HSA IV inventory by 29 beds to bring it in line with service areas II and III.

Further examination of health service area population and bed inventories shows that Health Service Area IV clearly lags behind the other service areas as the least accessible in terms of a residents – to – beds ratio. The table below reviews rehabilitation beds per 1000 population by HSA, sorts the areas from highest to lowest ratios, and compares each HSA with the state average. Not only does HSA IV have the lowest bed to population ratio, but its ratio is more than 16% below the state average. Also, because its population is growing at a faster rate than the rest of the state, the lack of access only gets worse by 2012, when the service area will be almost 20% below the state average bed to population ratio if beds are not added to the Plan for HSA IV.

Comparison of Beds Per Capita							
Service Area	Bed Inventory	Population		Beds Per 1000 Population		% Above (Below) State Average Beds/1000	
		2008	2012	2008	2012	2008	2012
V	170	1,323,227	1,392,680	0.1285	0.1221	21.0%	22.3%
II	184	1,571,044	1,637,229	0.1171	0.1124	10.3%	12.6%
VI	151	1,345,843	1,383,895	0.1122	0.1091	5.7%	9.3%
III	192	1,886,310	2,073,900	0.1018	0.0926	-4.1%	-7.2%
I	129	1,361,930	1,404,552	0.0947	0.0918	-10.8%	-8.0%
IV	155	1,751,935	1,936,342	0.0885	0.0800	-16.7%	-19.8%
State Average	981	9,240,289	9,828,598	0.1062	0.0998		

Source: North Carolina State Demographics, 2009 Draft SMFP

Based on the total state inventory of beds and total 2008 population, there are 9,419 residents per inpatient rehabilitation bed across North Carolina. HSA IV currently shows 11,303 residents per inpatient rehabilitation bed, or 1,884 more residents per bed than the state average. 31 inpatient rehabilitation beds must be added to HSA IV's inventory in order to reach the state average of population to beds.

### A Growing Population Over 65

Moreover, HSA IV projected to have an 18% increase over the next four years (2008 to 2012) in its 65 and over age group, which tends to be the greatest users of rehabilitation services. Over the same period Wake County, the HSA's largest county is expected to have a 25% increase in its 65 and over population. The current shortage of rehabilitation beds will only be exacerbated by this older population growth.

<b>Growth in HSA IV 65+ Population</b>			
<b>County</b>	<b>Population 65+</b>		
	<b>2008</b>	<b>2012</b>	<b>% Growth 2008 to 2012</b>
CHATHAM	9,257	10,750	16%
DURHAM	24,376	27,767	14%
FRANKLIN	6,060	6,979	15%
GRANVILLE	6,418	7,265	13%
JOHNSTON	14,910	17,632	18%
LEE	7,223	7,968	10%
ORANGE	11,570	13,432	16%
PERSON	5,254	5,698	8%
VANCE	5,468	5,826	7%
WAKE	65,254	81,720	25%
WARREN	3,346	3,514	5%
<b>HSA</b>	<b>159,136</b>	<b>188,551</b>	<b>18%</b>

Source: North Carolina State Demographics

As the HSA's 65+ population continues to grow, the number of residents suffering from strokes is expected to grow since the risk of stroke increases with age (see stroke hospitalization by age group in the table below). As the number of stroke patients increases, the need for rehabilitation services is also expected to increase, placing even greater demand on the existing rehabilitation bed capacity in the HSA.

<b>Stroke Hospitalizations 1999-2001 North Carolina Hospital Discharge Data</b>	
<b>Age Group</b>	<b>Discharge Rate Per 100,000 Population</b>
50-64	485.2
65-74	1387.3
75-84	2452.6
85+	3387.8
All	1141.4

Source: State Center for Health Statistics, A Health Profile of Older North Carolinians

### Need Based on Staffed Beds

Based on the licensure applications for 2007 and 2008, Rex believes that the capacity for inpatient rehabilitation has been overstated for HSA IV. While the providers in HSA IV may have 155 total licensed inpatient rehabilitation beds according to the 2008 and 2009 Draft State Medical Facilities Plans, the number of staffed beds actually in use is lower. According to the 2007 and 2008 Hospital Licensure Renewal Applications, two of the four inpatient rehabilitation providers (Durham Regional, Maria Parham) utilized fewer beds than shown in the current inventory for the State Medical Facilities Plan Table 8A.

Utilization based on staffed beds would have resulted in a need determination of 10 and 17 inpatient rehabilitation beds for HSA IV respectively during the past two years.

2005-06 Utilization of Staffed Beds				
Facility	Staffed Beds	Days of Care	Utilization Rate	Beds Needed
Durham Regional	20	6,869	94.1%	
UNC Hospitals	30	8,429	77.0%	
WakeMed	68	24,036	96.8%	
Maria Parham	7	2,084	81.6%	
<b>Total</b>	<b>125</b>	<b>41,418</b>	<b>90.8%</b>	

2006-07 Utilization of Staffed Beds				
Facility	Staffed Beds	Days of Care	Utilization Rate	Beds Needed
Durham Regional	17	6,758	108.9%	
UNC Hospitals	30	9,084	83.0%	
WakeMed	78	24,006	84.3%	
Maria Parham	11	2,588	64.5%	
<b>Total</b>	<b>136</b>	<b>42,436</b>	<b>85.5%</b>	

Source: 2007 and 2008 Licensure Renewal Applications

### Impact of Medicare Rule on Rehabilitation Utilization Trends

For many years, the Centers for Medicare & Medicaid Services ("CMS") attempted to implement what commonly was referred to as the "75 percent rule," in which at least 75% of the patients treated by an inpatient rehabilitation facility ("IRF") needed to have certain medical conditions. The implementation of the 75% threshold was delayed several times and the Deficit Reduction Act of 2005 implemented a gradual implementation schedule that would reach the 75% threshold in 2009. The healthcare industry anticipated continued decline in rehabilitation admissions resulting from the originally proposed 75% threshold,

and its strict eligibility requirements. However, the Medicare, Medicaid, and SCHIP Extension Act of 2007 ("2007 Act") abolished the gradual implementation schedule and permanently froze the classification criteria at 60%. The 2007 Act also continues to allow comorbid patients to count toward the 60% threshold. Because of this less stringent threshold, further decline in rehabilitation admissions due to the threshold implementation is not expected in Service Area IV or in other areas of the country. This is supported by commentary in the April 25, 2008 proposed rule to implement the rehabilitation threshold in the 2007 Act, in which CMS notes that the 60% compliance rate has been in effect for cost reporting periods beginning on or after July 1, 2005 and that the overwhelming majority of IRFs have already adjusted operations to meet or exceed the 60% compliance rate.

### **Rex Hospital**

Along with the previously noted shortcomings in access to inpatient rehabilitation care in Health Service Area IV, there are several characteristics that show a need at Rex for these new beds.

### **Rex Inpatient Rehabilitation Eligible Patient Population**

As a full service acute care hospital, Rex effectively cares for a wide range of medical conditions. An analysis of the hospital's utilization demonstrates that Rex has an eligible patient population in place to support approximately 16 inpatient rehab beds.

<b>Rehab Eligible Patient Population</b>			
<b>Medical Condition</b>	<b>FY08 Cases</b>	<b>IP Rehab Conversion Rate</b>	<b>IP Rehab Cases</b>
Amputation of Lower Extremity	16	40%	6
Fracture of Lower Extremity	231	30%	69
Neurology	99	30%	30
Non Traumatic BI	184	15%	28
Non Traumatic SCI	75	22.50%	17
Osteoarthritis	499	5%	25
Rheumatoid Arthritis	32	5%	2
Stroke	406	43%	175
Systemic Lupis	5	5%	0
Traumatic BI	6	65%	4
<b>Grand Total</b>	<b>1,553</b>		<b>355</b>

The chart above includes patient cases for 10 of the 13 conditions defined by CMS as the core population with a need for inpatient rehabilitation. Every case will not need it; each grouping of cases has been converted to the percentage most likely to receive inpatient rehabilitation.



Medical Condition	IP Rehab Cases	Average LOS	Total LOS	Number of Rooms
Amputation of Lower Extremity	6	14	90	0.31
Fracture of Lower Extremity	69	14	970	3.32
Neurology	30	14	416	1.42
Non Traumatic BI	28	15	414	1.42
Non Traumatic SCI	17	15	253	0.87
Osteoarthritis	25	13	324	1.11
Rheumatoid Arthritis	2	13	21	0.07
Stroke	175	17	2,968	10.16
Systemic Lupis	0	12	3	0.01
Traumatic BI	4	15	59	0.20
<b>Grand Total</b>	<b>355</b>		<b>5,517</b>	<b>18.89</b>

Source: Rex Internal Data, Fowler Healthcare associates, Uniform Data Systems

Each case has been multiplied by the average expected length of stay consistent with that medical condition. The following formula was used to determine the bed need by medical condition:  $((\text{Total LOS} / 365) / 80\%)$ . The 80% occupancy rate is based on the target utilization rate set by the State.

#### **Additional Acute Care Beds**

Rex Hospital is increasing the number of acute care beds as a result of a 2005 Certificate of Need (Project# J-7342-05). Construction for the project is in its final stages and all the beds will be in use by January 2009. These additional beds will increase the capacity to care for more patients, some of which will fall within the inpatient rehabilitation core population noted above.

#### **Stroke Center Designation**

The Joint Commission's Stroke Center designation is imminent and expected by the Fall of 2008. Once the designation is in place, Rex is expected to regularly receive a higher number of stroke patients. Rex conservatively expects a 5-10% increase in stroke inpatients. As noted earlier, approximately 40% of stroke patients need inpatient rehabilitation. Therefore the stroke population eligible for inpatient rehabilitation beds is expected to increase as well.

#### **Request**

Based on this petition, Rex requests that the State Health Coordinating Council grant an adjusted need determination of 16 inpatient rehabilitation beds to HSA IV for the 2009 State Medical Facilities Plan. Increasing the inpatient rehabilitation bed inventory will increase access to this crucial service for the area's residents.