

**Technology and Equipment
Committee Meeting**

**Cardiac Catheterization
Material**

April 29, 2009

Cardiac Catheterization Equipment

Definitions

“Cardiac catheterization equipment”, as defined in G.S. §131E-176(2f), “means the equipment used to provide cardiac catheterization services.”

“Cardiac catheterization services”, as defined in G.S. §131E-176(2g), “means those procedures, excluding pulmonary angiography procedures, in which a catheter is introduced into a vein or artery and threaded through the circulatory system into the heart specifically to diagnose abnormalities in the motion, contraction, and blood flow of the moving heart or to perform surgical therapeutic interventions to restore, repair, or reconstruct the coronary blood vessels of the heart.”

A cardiac catheterization (fixed or shared) equipment's service area is the cardiac catheterization equipment planning area in which the equipment is located. The cardiac catheterization equipment planning areas are the same as the Acute Care Service Areas defined in Chapter 5, Acute Care Beds, and contained in Figure 5.1. The cardiac catheterization equipment service area is a single county, except where there is no hospital located within the county, in which case, the county or counties without a hospital are combined in a multi-county grouping with a county that has a hospital. Multi-county groupings are determined based on the county in which the hospital or hospitals are located that provide the largest number of inpatient days of care to the residents of the county that has no hospital.

Facility Inventory-Service Volume

There were 44 hospitals with fixed cardiac catheterization programs in North Carolina during FY 2007-08. The reported number of adult cardiac catheterization procedures for the years ending 9/30/94 through 9/30/08, and the reported number of pediatric cardiac catheterization procedures for the years ending 9/30/96 through 9/30/08 are presented in Tables 9N and 9O. Table 9R displays **fixed** cardiac catheterization equipment capacity and volume based on a capacity of 1,500 procedures.

Cardiac Catheterization Equipment Need Determination Methodology

The North Carolina State Health Coordinating Council defines capacity of an item of cardiac catheterization equipment as 1,500 diagnostic-equivalent procedures per year, with the trigger of need at 80 percent of capacity. One therapeutic cardiac catheterization procedure is valued at 1.75 diagnostic-equivalent procedures. One cardiac catheterization procedure performed on a patient age 14 or younger is valued at two diagnostic-equivalent procedures. All other procedures are valued at one diagnostic-equivalent procedure.

~~1. The need for additional fixed cardiac catheterization equipment (i.e., equipment that is not moved to provide services at two or more sites) is determined as follows:~~

~~Step 1: For each county, determine the total planning inventory of all fixed cardiac catheterization equipment, immediately prior to publication of the annual State Medical Facilities Plan, by summing:~~

~~a. equipment in operation,~~

~~b. equipment for which a CON was issued, but is pending development, and~~

~~c. equipment for which no CON has been issued because the decision on a need determination in a previous SMFP is under review or appeal.~~

~~Step 2: Determine the number of procedures performed on each unit of fixed cardiac catheterization equipment using the number of procedures reported for the 12-month period reflected in the 2009 Hospital License Renewal Application or the 2009 Registration and Inventory of Cardiac Catheterization Equipment.~~

~~Step 3: For each facility, determine the number of units of fixed cardiac catheterization equipment required for the number of procedures performed by dividing the number of cardiac catheterization procedures performed at each facility by 1,200 procedures (i.e., 80 percent of capacity, which is 1,500 procedures).~~

~~Step 4: Sum the number of units of fixed cardiac catheterization equipment required, for all facilities in the same county. (NOTE: The sum is rounded to the nearest whole number.)~~

~~Step 5: Subtract the number of units of fixed cardiac catheterization equipment required in each county from the total planning inventory for each county. The difference is the number of units of fixed cardiac catheterization needed.~~

~~2. A need also exists for shared fixed cardiac catheterization equipment (i.e. fixed equipment that is used to perform both cardiac catheterization procedures and angiography procedures) in a county served by a mobile cardiac catheterization unit when:~~

~~a. The number of cardiac catheterization procedures as defined in 10A NCAC 14C .1601(5) performed at any mobile site exceeds 240 (300 X 80 percent) such procedures per year for each eight hours per week mobile equipment is operated at that site during the 12-month period reflected in the 2009 Hospital License Renewal Application or the 2009 Registration and Inventory of Cardiac Catheterization Equipment on file with the NC Division of Health Service Regulation; and~~

~~b. No other fixed or mobile cardiac catheterization service is provided within the same county.~~

The standard methodologies used to determine need for additional fixed cardiac catheterization equipment are calculated as follows:

Methodology 1:

Step 1: Determine the planning inventory for each facility that has fixed cardiac catheterization equipment, immediately prior to publication of the annual State Medical Facilities Plan, to include: existing equipment in operation, approved equipment for which a CON was issued but is pending development, and pending equipment for which no CON has been issued because the

decision on a need determination in a previous SMFP is under review or appeal. For each cardiac catheterization equipment service area, calculate the total number of existing, approved and pending units of cardiac catheterization equipment located in the cardiac catheterization equipment service area.

Step 2: Determine the number of adult diagnostic, pediatric diagnostic and interventional procedures performed at each facility as reported for the 12-month period reflected in the 2009 Hospital License Renewal Application or the 2009 Registration and Inventory of Cardiac Catheterization Equipment.

Step 3: For each facility, calculate the total weighted (diagnostic-equivalent) cardiac catheterization procedures by multiplying adult diagnostic procedures by 1.0, interventional cardiac catheterization procedures by 1.75, and pediatric diagnostic procedures performed on patients age 14 or younger by 2.00.

Step 4: For each facility, determine the number of units of fixed cardiac catheterization equipment required for the number of procedures performed by dividing the number of weighted (diagnostic-equivalent) cardiac catheterization procedures performed at each facility by 1,200 procedures (i.e., 80 percent of capacity, which is 1,500 procedures). (NOTE: Round the result to the nearest hundredth.)

Step 5: Sum the number of units of fixed cardiac catheterization equipment required for all facilities in the same cardiac catheterization equipment service area as calculated in Step 4. (NOTE: The sum is rounded to the nearest whole number.)

Step 6: Subtract the number of units of fixed cardiac catheterization equipment required in each cardiac catheterization equipment service area from the total planning inventory for each cardiac catheterization equipment service area. The difference is the number of units of fixed cardiac catheterization equipment needed.

Methodology 2:

For cardiac catheterization equipment service areas in which a unit of fixed cardiac catheterization equipment is not located, need exists for one shared fixed cardiac catheterization equipment (i.e. fixed equipment that is used to perform both cardiac catheterization procedures and angiography procedures) when:

- a. The number of cardiac catheterization procedures as defined in 10A NCAC 14C .1601(5) performed at any mobile site in the cardiac catheterization equipment service area exceeds 240 (300 X 80 percent) procedures per year for each eight hours per week the mobile equipment is operated at that site during the 12-month period reflected in the 2009 Hospital License Renewal Application or the 2009 Registration and Inventory of Cardiac Catheterization Equipment on file with the NC Division of Health Service Regulation; and
- b. No other fixed or mobile cardiac catheterization service is provided within the same cardiac catheterization equipment service area.

There is adequate capacity and geographical accessibility for cardiac catheterization equipment in the State, and therefore there is no need for any additional mobile cardiac catheterization equipment.

Need Determination

It is determined that there is no need for any additional fixed cardiac catheterization equipment anywhere in the State and no CON reviews will be scheduled. It is determined that there is no need for additional units of shared fixed cardiac catheterization equipment anywhere in the State and no CON reviews will be scheduled. It is determined that there is no need for additional units of mobile cardiac catheterization equipment anywhere in the State and no reviews will be scheduled.

It is further determined that fixed cardiac catheterization equipment and services shall only be approved for development on hospital sites. It is further determined that mobile cardiac catheterization equipment and services shall only be approved for development on hospital sites.

Table 9R: Fixed Cardiac Catheterization Equipment, Capacity and Volume

Cardiac Catheterization Equipment Service Areas	Facility	Current Inventory	CON Issued/ Pending Development	Pending Review or Appeal	Total Planning Inventory	F o o t n o t e	2008 Procedures (Weighted Totals)	Machines Required based on 80% utilization	Total No. of Additional Machines Required by Facility	No. of Machines Needed
Alamance	Alamance Regional	1			1	b	1,299	1.08	0	
	Pending Review/ Appeal				0					
	TOTAL				1			1		0
Buncombe	Mission Hospitals	5	1		6	a	6,163	5.14	0	
					0	c				
	Pending Review/ Appeal				0					
	TOTAL				6			5		0
Cabarrus	CMC-NorthEast	2			2	b	2,031	1.69	0	
	Pending Review/ Appeal			0	0					
	TOTAL				2			2		0
Catawba	Catawba Valley	1			1	b	557	0.46	0	
	Frye Regional	3	1		4	b	5,482	4.57	1	
	Pending Review/ Appeal				0					
	TOTAL				5			5		0
Cleveland	Cleveland Regional	1			1	c	390	0.33	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Craven	Craven Regional	2			2	b	2,211	1.84	0	
	Pending Review/ Appeal			0	0					
	TOTAL				2			2		0
Cumberland	Cape Fear Valley	2	1		3	b	3,818	3.18	0	
	Pending Review/ Appeal			0	0					
	TOTAL				3			3		0
Durham	Duke	7			7	a	8,055	6.71	0	
	Durham Regional	2	0	0	2	b	1,129	0.94	0	
	Pending Review/ Appeal			0	0					
	TOTAL				9			8		0

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Forsyth	Forsyth Memorial Hospital	6	2		8	b	5,702	4.75	0	
	N. C. Baptist	5	0		5	a	3,601	3.00	0	
	Pending Review/ Appeal				0					
	TOTAL				13			8		0
Gaston	Gaston Memorial	3	1		4	b	3,699	3.08	0	
	Pending Review/ Appeal			0	0					
	TOTAL				4			3		0
Guilford	High Point Regional	4	0		4	b	8,460	7.05	3	
	Moses Cone	7	2		9	b	5,244	4.37	0	
	Pending Review/ Appeal			0	0					
	TOTAL				13			11		0
Halifax	Halifax Regional		1		1		NR		0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Haywood	Haywood Regional	1			1	c	151	0.13	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Iredell	Iredell Memorial	1			1	c	445	0.37	0	
	Davis Regional	1			1	c	295	0.25	0	
	Lake Norman Regional	1	0		1	c	156	0.13	0	
	Pending Review/ Appeal			0	0					
	TOTAL				3			1		0
Johnston	Johnston Memorial	1	0		1	c	826	0.69	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			1		0
Lenoir	Lenoir Memorial	1			1	c	430	0.36	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0

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Mecklenburg	Carolinas Med. Center	7			7	a	7,561	6.30	0	
	CMC Mercy-Pineville	4			4	b	1,332	1.11	0	
	Presbyterian	4			4	b	3,918	3.26	0	
	CMC-University	1	0		1	c	220	0.18	0	
	Presbyterian-Matthews	1			1	c	415	0.35	0	
	Pending Review/ Appeal			0	0					
	TOTAL				17			11		0
Moore	First Health Moore	4	1	0	5	b	5,882	4.90	0	
	Pending Review/ Appeal				0					
	TOTAL				5			5		0
Nash	Nash General	2			2	c	882	0.74	0	
	Pending Review/ Appeal			0	0					
	TOTAL				2			1		0
New Hanover	New Hanover Regional Medical Center	3	2		5	b	6,421	5.35	0	
	Pending Review/ Appeal			0	0					
	TOTAL				5			5		0
Onslow	Onslow Memorial	1			1	c	29	0.02	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Orange	UNC	4	0	0	4	a	3,614	3.01	0	
	Pending Review/ Appeal			0	0					
	TOTAL				4			3		0
Pasquotank	Albemarle	1			1	c	948	0.79	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			1		0

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Pitt	Pitt County Memorial	5	2		7	a	4,948	4.12	0	
	Pending Review/ Appeal			0	0					
	TOTAL				7			4		0
Robeson	Southeastern Regional	1			1	b	1,213	1.01	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			1		0
Rowan	Rowan Regional	1			1	c	541	0.45	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Scotland	Scotland Memorial		1		1		NR	0.00	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Stanly	Stanly Reg. Medical Center	1			1	c	19	0.02	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Union	CMC-Union	1			1	c	413	0.34	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Wake	Rex	3	1		4	b	3,527	2.94	0	
	WakeMed	9	1		10	b	12,312	10.26	0	
	WakeMed Cary Hospital	1			1	c	393	0.33	0	
	Duke Raleigh Hospital	1	0		1		262	0.22	0	
	Pending Review/ Appeal			0	0					
	TOTAL				16			14		0
Watauga	Watauga Medical Center	0	1		1	c	148	0.12	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0

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Wayne	Wayne Memorial	1			1	c	362	0.30	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Wilkes	Wilkes Regional	1			1	c	5	0.00	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
Wilson	Wilson Medical Center	1			1	c	396	0.33	0	
	Pending Review/ Appeal			0	0					
	TOTAL				1			0		0
NORTH CAROLINA TOTALS		115	18	0	133		115,902	97		0

a Adult procedures plus angioplasty x 1.75 plus pediatric procedures x 2.

b Adult procedures plus angioplasty x 1.75.

c Adult procedures.