MRI Methodology Workgroup

February 15, 2022

Tiering of Hospitals

Tiering of Hospitals

- Based on complexity of inpatient procedures.
- Complex cases (measured as inpatient scans with contrast/sedation)
  - Require more time
  - More common at larger hospitals
  - Most common in teaching hospitals
- No data on actual procedure times for inpatient scans across all hospitals.

Inpatient Scans with Contrast/Sedation, among Hospitals with at Least 100 Inpatient Scans, 2019

Total Inpatient Scans (Fixed and Mobile)	Average % of Scans with Contrast	
	% of IP Scans	% of Total Scans
< 100 (n=18)	46%	2%
100 - 999 (n=48)	35%	6%
1,000 + (n=33)	33%	12%
Academic medical centers* (n=4)	55%	20%

* Duke, NC Baptist, UNC Hospitals, Vidant

Compromise/Alternative

- Using 65 minutes for Inpatient with contrast/sedation will probably be sufficient for most hospitals.
- However, staff proposes a compromise/alternative to tiering that raises time to 70 minutes.
  - Takes into consideration that some of the larger hospitals have more complex scans.
- It is more appropriate for a hospital to file a summer petition if complex cases are a significant enough problem.
- Academic medical centers may be able to use AC-3 to obtain a new scanner but see next slide.

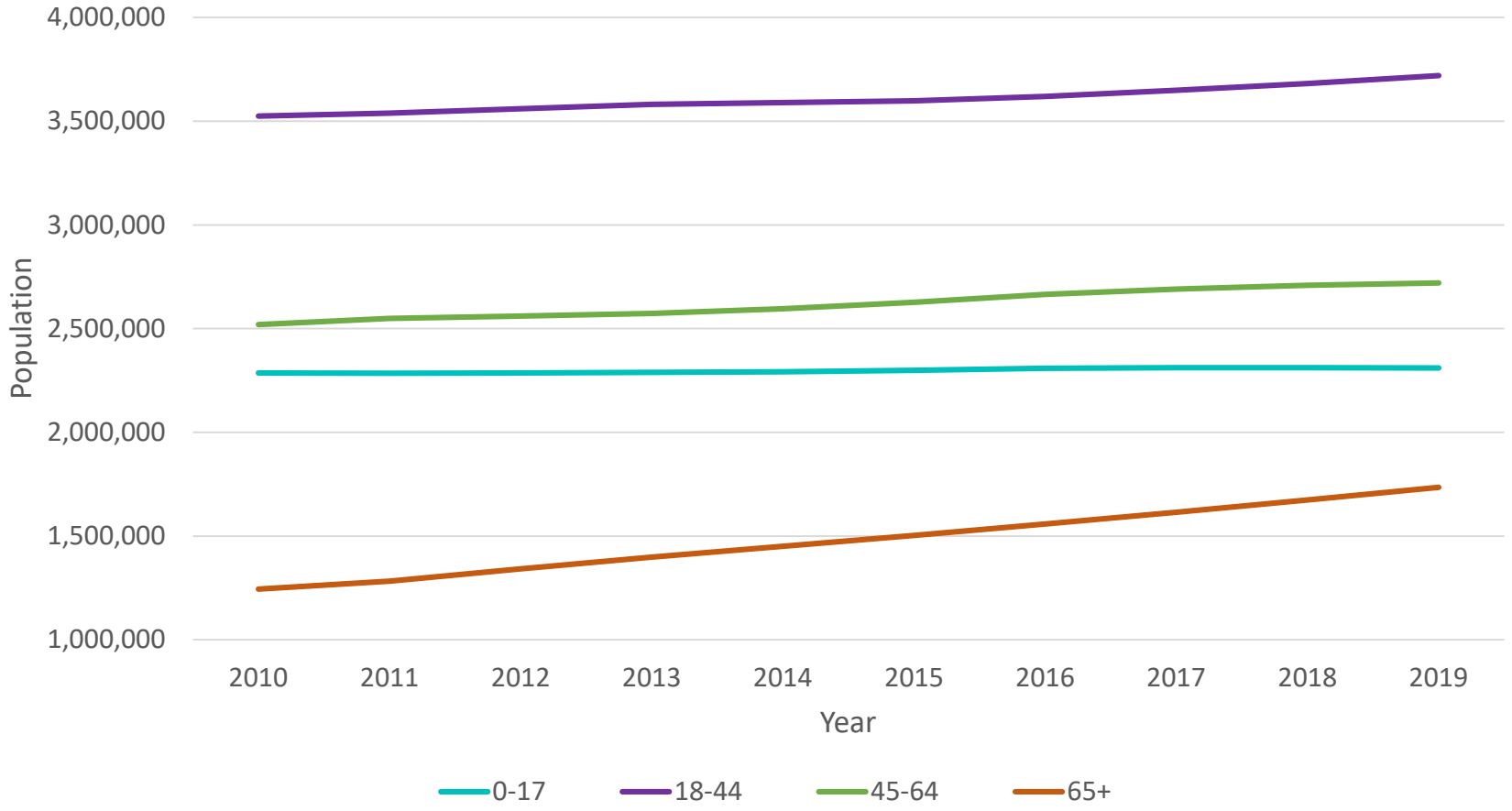
Excerpt from Policy AC-3 (2022 SMFP)

This policy does not apply to a proposed project or the portion thereof that is based solely upon the inability of the State Medical Facilities Plan methodology to accurately project need for the proposed service(s), due to documented differences in patient treatment times that are attributed to education or research components in the delivery of patient care or to differences in patient acuity or case mix that are related to the applicant's academic mission. However, the applicant may submit a petition pursuant to the State Medical Facilities Plan Petitions for Adjustments to Need Determinations process to meet that need or portion thereof (see Chapter 2).

Model Excluding Population Growth

2010-2019 Population by Age Group

10% population growth overall



6% growth

8% growth

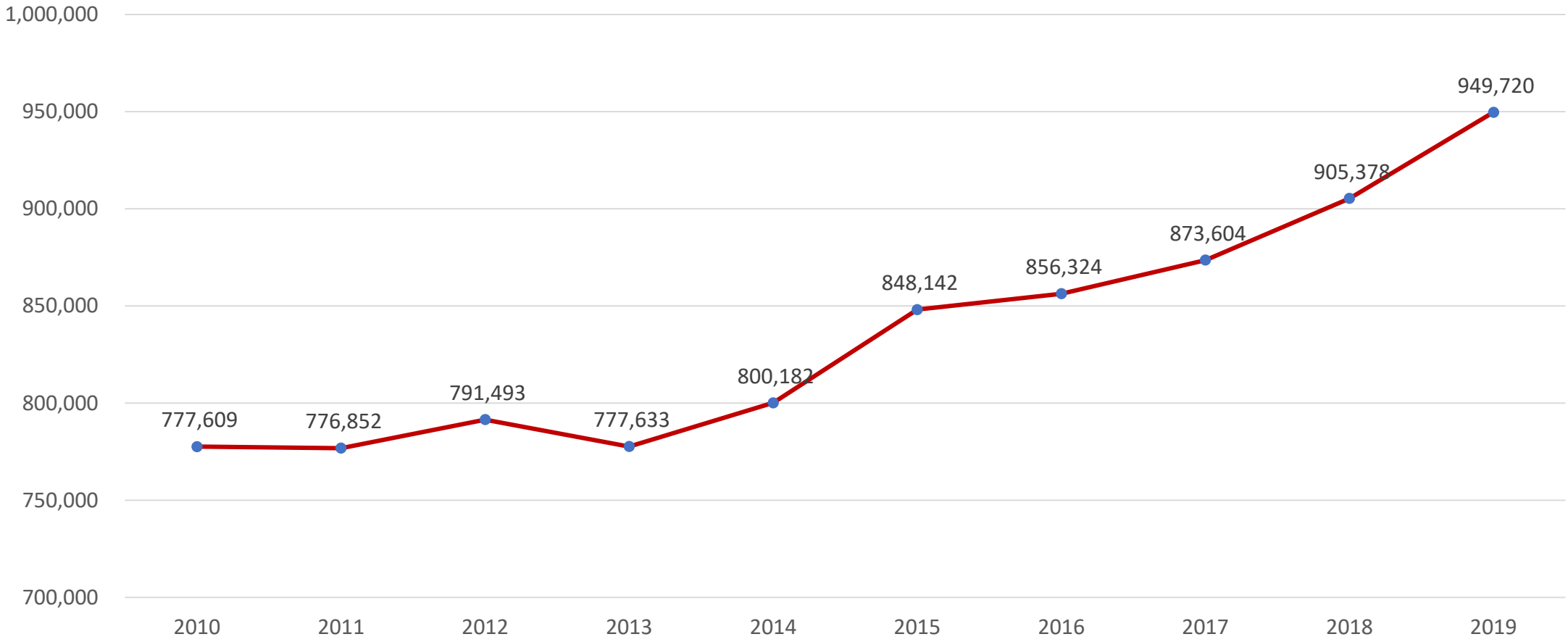
1% growth

40% growth

2019	
0-17	22%
18-44	35%
45-64	26%
65+	17%

Total MRI Scans, 2010-2019

22% overall growth



Result of Removing Population

County	2019
Buncombe, etc.	1
Burke	1
Cabarrus	1
Cleveland	1
Duplin	1
Durham, etc.	1
Forsyth	1
Guilford	1
Mecklenburg	1
Moore	1
New Hanover	2
Orange	1
Pasquotank, etc.	2
Pender	1
Randolph	6
Stanly	1
Wake	1
Total	**24**

Staff Recommendation: Include Population Growth

- Population change is a standard component of many types of projection models regarding human activities.
  - Many other methodologies in the SMFP include population growth.
- Population can temper the potential effects of volatility in utilization from one year to the next.

…but also…

- Could make need determinations more likely to occur in service areas where the growth in the 65+ population is large.

Potential Effects on Mobile Services

2019 Procedures, using Proposed Methodology

Scanner Type	Inpatient w/ Contrast	Inpatient w/o Contrast	Outpatient w/ Contrast	Outpatient w/o Contrast	Weighted Total	% of Total Weighted
Freestanding Fixed	25	72	64,715	168,838	233,704.8	22.89%
Hospital Fixed	56,609	85,004	239,931	406,188	632,912.8	56.11%
Mobile	481	698	33,358	119,176	262,676.2	17.54%

Replacing and Developing Mobiles

- Until 2005, replacing a mobile scanner with a fixed scanner was relatively straightforward.
  - Before 1999, hospitals could replace mobile with fixed when they deemed utilization warranted.
  - Beginning in 1999, applicant had to show that mobile site exceeded 2080 scans and that utilization was increasing.
  - Beginning in 2005, this ability was removed with the advent of the new methodology.
- Beginning in 2010, developing a new mobile scanner requires a summer petition.
  - No petitions for mobile scanners
  - If petition is submitted, Agency would consider
    - capacity of other scanners (fixed and mobile) in service area to provide needed services
    - support for notion that mobile scanner is best way to provide needed services (e.g., existing facilities may be poorly served by current configuration of scanners)

Preferred Model

Parameters

- Step 1 – Procedure Times

Type	Procedure Time (minutes)
Outpatient Without	40
Outpatient With	40
Inpatient Without	60
Inpatient With	70

- Step 2 – Scanner Capacity

number of weeks	52
hours per week	66
scans per hour	1.5
total capacity	5148

- Step 3 – Projection Parameters
  - 3-year projection
  - Use 3 reporting/data years
  - Do not penalize for negative population growth

- Step 4 – Planning Thresholds

Number of Fixed Scanners in Service Area	Planning Threshold	Adjusted Threshold
50	0.80	4118
3	0.80	4118
2	0.80	4118
1	0.70	3604
0	0.30	1544

2021 SMFP: Results – (2019 Reporting Year)

Service Area	Need
Buncombe, etc.	1
Duplin	1
Durham, etc.	1
Forsyth	1
Guilford	1
Mecklenburg	1
Moore	1
New Hanover	1
Orange	1
Pasquotank, etc.	1
Randolph	1
Stanly	1
Wake	1
Total	**13**

What May Happen in Year 2 of New Methodology?

Service Areas within ~10% of Need Determination, 2019 Data

Service Area	Average Scans	Threshold	Number of Average Weighted Scans Required for Need
Cabarrus	3,941	4118	177
Cleveland	3,910	4,118	207
Cumberland	3,632	4,118	485
Johnston	3,937	4,118	181

Population Threshold to Obtain First Fixed Scanner

Service Areas with no Fixed MRI Scanners

- Should there be a population threshold that would allow a service area or county to have a fixed scanner if the service area or county currently has none?
- The need determination would be competitive. Unlike TE-3, CON applications would not be limited to hospitals.
- Considerations
  - Effect on existing mobile services
  - Should we consider service area population or county population?
    - Service area – will be at least 1 hospital
    - County – may not be a hospital
- Or is it best to just stick with the petition option?

Counties without fixed MRI scanner

Service Area	2020 Population
Alleghany	11,558
Washington	12,039
Swain	14,489
Avery	18,182
Bertie	19,496
Polk *	21,923
Martin *	22,904
Anson *	23,889
Montgomery *	27,753
Bladen *	34,421
Yadkin	38,145
Alexander	38,524
Stokes	46,684
Duplin *	60,177
Pender *	63,949
Chatham *	77,061

Single county service area → hospital -100% overlap with TE-3

* County has mobile services

County	2020 Population
Tyrrell	3,767
Hyde	5,119
Graham	8,642
Jones	10,067
Camden	10,575
Clay	11,759
Gates	11,908
Pamlico	13,277
Perquimans	13,807
Yancey	18,909
Warren	19,767
Northampton	20,054
Greene	20,951
Madison	22,500
Caswell	23,462
Currituck	28,048

Counties with no hospital

Workgroup Recommendations

Recommendation 1. *Nomenclature*

- "Outpatient - No contrast/sedation" becomes "**Base Outpatient**."
  - A base outpatient scan is performed on an outpatient and does not use contrast, sedation, and/or any other additional procedure required to address the patient's needs.
- "Outpatient - with contrast/sedation" becomes "**Complex Outpatient**."
  - A complex outpatient scan is performed on an outpatient and uses contrast, sedation, and/or at least one additional procedure required to address the patient's needs.
- "Inpatient - No contrast/sedation" becomes "**Base Inpatient**."
  - A base inpatient scan is performed on an inpatient of an acute care hospital and is performed and does not use contrast, sedation, and/or any other additional procedure required to address the patient's needs.
- "Inpatient - with contrast/sedation" becomes "**Complex Inpatient**."
  - A complex inpatient scan is performed on an inpatient of an acute care hospital and uses contrast, sedation, and/or at least one additional procedure required to address the patient's needs.

Recommendations 2-7. Reflect *Steps 1-4 of the Methodology*

1. Calculation of Adjusted Scans
2. Annual Scanner Operational Capacity
3. Projection Parameters
   a. 3 year “look-back” period
   b. Project forward 3 years
   c. Use population growth
4. Planning Thresholds

Recommendation 8. *Eliminate Assumption 7*

- Assumption 7 limits the need determination allowed to one scanner in a single service area in a single year.
- It is rare that the need would exceed one scanner.
- However, if the methodology calculates a need higher than one, then it is reasonable that the need determination should reflect that calculation.
- Experience shows that a calculated need determination (once rounded) in the proposed methodology rarely exceeds 1. Thus, a cap of 2 may be reasonable.