FINGER LAKES REGION
MRI CAPACITY AND UTILIZATION REPORT, 2014

Data from January 2013 – December 2013

December 15, 2014

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Section One: Summary

The Finger Lakes Health Systems Agency (FLHSA) undertook a survey of the Finger Lakes region's MRI services in 2014 in order to inventory the services available in the region, to monitor the effect of additions of capacity made in recent years, and to track the pace of MRI utilization. The majority of the information included in this report comes from responses from providers during the 2014 survey, and includes utilization data for calendar year 2013 and inventory data as of December 31st, 2013. To allow for consistent analysis, however, data from earlier surveys or estimates was used for the few non-responding facilities.

Number of Machines

Presently there are 30 MRI service sites in the 9-county Finger Lakes region, with the equivalent of 38.0 full-time machines. All hospital sites in the region except two subsidiary campuses have on-site MRI availability. One freestanding machine was added in 2013.

Utilization

Based on the survey responses, MRI utilization increased by 2.6% in 2013 compared to 2012. This compares to the 3.8% increase in utilization between 2011 and 2012, and follows the general trend of slow growth since 2004.

As shown in tables 8 through 11, the region's 38.0 full-time units experienced average utilization of 3,056 exams per unit in 2012; this is a slight decrease from 2012. There is variation in average utilization rates based on the type of unit used (e.g. mobile, stationary). Hospital-based stationary units completed an average of approximately 3653 exams. An average of 1389 exams was completed on mobile MRI units. Freestanding (but fixed) units completed an average of 3082 exams per unit.

National Comparisons

With 88.2 MRI procedures per 1000 population in 2012, the Finger Lakes region is below the 2012 U.S. average of 102.7 scans per 1000 population. This may reflect both the effect of review of clinical appropriateness and the control of new MRI capacity in this region.

Regional Need

Based on the benchmark chosen and on current utilization (116,144 procedures in 2013) one could postulate a current regional demand for 22 to 30 full-time machines. This compares to the current 38.0 regional machine capacity.

Future Demand

Based on the projections below, the current stock of 38.0 MRI machines will accommodate up to a 10% increase in demand over the coming years. At this time, there is no need for additional machines. Table 1 provides projections using a consistent growth rate (e.g. 5%/year) in 2013 and 2014.

Table 1: Number of MRI Machines Needed in Finger Lakes Region at End of 2015

Number of Machines Required			
Projected Annual Utilization Increase*	**Use Rate Per Machine**		
	3625	**4000**	**5000**
5%	35.3	32.0	25.6
7.5%	37.0	33.5	26.8
10%	38.8	35.1	28.1
12.5%	40.5	36.7	29.4

* Above the 2013 utilization of 116,144 procedures

Present resource = 38.0 FTE MRI Units

Section Two: Capacity

Table 2 lists the MRI sites in the region. Table 3 describes the manufacturer, magnet type, type of installation and magnet strength for the MRI units of each respondent

Table 2: Inventory of MRI Machines in the Finger Lakes Region, End of Calendar Year 2013

	Facility	Units	Fixed/ Mobile	CON-Approved	Ownership
Hospital-Stationary	Arnot-Ogden	1.0	F	X	Hospital
	FF Thompson	1.0	F	X	Hospital
	Geneva General	1.0	F	X	Finger Lakes Radiology
	Highland	1.0	F	X	University Imaging
	Unity	1.0	F		Borg & Ide Imaging
	Rochester General	2.3#	F	X	Rochester Diagnostic Imaging
	Rochester General	1.0	F	X	Hospital
	St. Joseph's	1.0	F	X	Hospital
	Strong	4.0	F	X	Hospital
Hospital-Mobile	Arnot-Ogden	0.5	M		InSight Health Corp.
	Corning Community	1.0	M	X	Alliance Imaging
	Clifton Springs	1.0	M	X	King's Medical Group
	Ira Davenport	1.0	M	X	King's Medical Group
	Strong West	1.0	M	X	InSight Health Corp.
	Newark-Wayne	1.0	M		Alliance Imaging
	NH Noyes	1.0	M		Northern Lights Imaging
	St. James Mercy	1.0	M		InSight Health Corp.
	Schuyler	1.0	M	X	King's Medical Co.
Freestanding	Culver Road	1.0	F		Borg & Ide Imaging
	Elizabeth Wende B.C.	1.0	F		E.W.B.C.
	Hagen Drive	1.0	F		Borg & Ide Imaging
	Lac de Ville Blvd	4.0	F		University Medical Imaging
	S. Clinton	1.0	F		University Medical Imaging
	Lattimore Rd	1.0	F		Borg & Ide Imaging
	Open MRI of Elmira*	1.0	F		Open MRI of Elmira
	Ridgeway Ave	1.0	F		Borg & Ide Imaging
	Senator Keating Blvd	2.0	F		Borg & Ide Imaging
	White Spruce Blvd	1.0	F		Borg & Ide Imaging
	Guthrie Clinic	0.2	M		Medicoaches
	Nine Mile Point Rd	1.0	F		URMC
	Science Park	1.0	F		University Medical Imaging
	TOTAL	38.0	F= 29.3 M= 8.7	13 sites with CON approval	

one unit is used on a limited basis, for selected patients only
* Most recent information is from 2006

Table 3: MRI Equipment in the Finger Lakes Region, 2013

Machine Type	Facility	Manufacturer	Magnet Type*	Stationary or Mobile	Power (Tesla)
Hospital-Stationary	Arnot-Ogden	Philips	S	Stationary	1.5
	FF Thompson	Philips	P	Stationary	1.5
	Geneva General	Siemens	S,O	Stationary	1.5
	Highland	GE	S	Stationary	1.5
	Unity	GE	S	Stationary	1.5
	Rochester General	GE	O	Stationary	0.3
	Rochester General	GE	P	Stationary	1.5
	Rochester General	GE	P	Stationary	1.5
	Rochester General	GE	S	Stationary	1.5
	St. Joseph's	Philips	P	Stationary	1.5
	Strong	GE	P	Stationary	3.0
	Strong	Philips	P, O	Stationary	1.0
	Strong	GE	P	Stationary	1.5
	Strong	GE	P	Stationary	1.5
Hospital-Mobile	Arnot-Ogden	Siemens	S	Mobile	1.5
	Corning Community	Siemens	S,O	Mobile	1.5
	Clifton Springs	GE	S	Mobile	1.5
	Ira Davenport	Siemens	S	Mobile	1.5
	Strong West	GE	S	Mobile	1.5
	Newark-Wayne	GE	S	Mobile	1.5
	NH Noyes	Siemens	P	Mobile	1.5
	St. James Mercy	GE	S	Mobile	1.5
	Schuyler	Philips	S	Mobile	1.5
Freestanding	Culver Road	GE	S	Stationary	1.5
	Elizabeth Wende B.C.	Siemens	S	Stationary	1.5
	Hagen Drive	Siemens	S	Stationary	1.5
	Lac de Ville Blvd	GE	S	Stationary	1.5
	Lac de Ville Blvd	Siemens	S	Stationary	3.0
	Lac de Ville Blvd	GE	S	Stationary	1.5
	Lac de Ville Blvd	GE	S	Stationary	3.0
	S. Clinton**	Siemens	S	Stationary	3.0
	Lattimore Rd	GE	S, O	Stationary	1.2
	Open MRI of Elmira	Hitachi	P, O	Stationary	0.3
	Ridgeway Ave	GE	S	Stationary	1.5
	Senator Keating Blvd	GE	S	Stationary	3.0
	Senator Keating Blvd	GE	S	Stationary	1.5
	White Spruce Blvd	GE	S	Stationary	1.5
	Science Park	GE	S	Stationary	3.0
	Nine Mile Point Rd	GE	S	Stationary	3.0
	Guthrie Clinic	Siemens	S	Mobile	1.5

*S= Superconducting O= Open Architecture P= Permanent
**New in 2013

Staffing

Table 4 describes by respondent the total number of hours and days per week the equipment is staffed. With some expansion of capacity and minimal growth in volume, many units are still operating more hours per week than in previous years; total staffed hours increased by 4.1% between 2012 and 2013. Almost all units are operating more than 8 hours per day and approximately 40% are open on at least some weekend hours. Nationally less than 30% of hospital fixed sites were open over 13 hours per weekday (at an average of 11.0 scheduled hours), and about 47% did not have scheduled hours on weekends.

Table 4: MRI Service Staffing

	Facility Name	Days/Week	Hours/Week	Hours / Year
Hospital Stationary	Arnot-Ogden*	7	102	5304
	FF Thompson	6	67	3484
	Geneva General	6	68	3536
	Highland	6	78	4056
	Unity	7	102	5304
	Rochester General	7	116	6032
	St. Joseph's*	5	55	2860
	Strong 1	7	168	8736
	Strong 2	5	70	3640
	Strong 3	7	112	5824
	Strong 4	7	112	5824
	RGH / RDIA 1	5	70	3640
	RGH / RDIA 2	5	70	3640
	RGH / RDIA 3	5	40	2080
Hospital – Mobile	Arnot-Ogden*	5	50	2600
	Corning Community *	5	70	3640
	Clifton Springs*	5	40	2080
	Ira Davenport	5	40	2080
	Strong West	5	45	2340
	Newark-Wayne	5	48	2496
	NH Noyes	6	68	3536
	St. James Mercy*	6	45	2340
	Schuyler*	5	43	2236
Freestanding	Culver Road	5	49	2548
	Elizabeth Wende B.C.	5	48	2496
	Hagen Drive	5	49	2548
	Lac de Ville Blvd	6	85	4420
	S. Clinton	5	40	2080
	Lattimore Rd	5	49	2548
	Open MRI of Elmira*	5	60	3120
	Ridgeway Ave	5	75	3900
	Senator Keating Blvd	5	41	2145
	Senator Keating Blvd	5	41	2145
	White Spruce Blvd	5	43	2236
	Guthrie Clinic*	1	10	520
	Nine Mile Point Rd	5	45	2340
	Science Park	7	81	4212

*Data were provided in surveys from previous years 124,566

A measure of whether there is sufficient capacity to provide a medical care service is how long a potential patient must wait to obtain the service. The current survey provides information on wait time, both for urgent and routine service. Previous surveys expressed variability of waiting times, sometimes indicating an extended wait for service and at other times little or no wait. The current survey indicates there is a relatively short wait time for service, suggesting a relatively robust capacity compared to demand.

Table 5: Average Waiting Time to Schedule an MRI exam

	Facility Name	Emergent Cases (Days)	Non-emergent cases (Days)
Hospital - Stationary	Arnot-Ogden*	0	1.5
	FF Thompson	0	5.0
	Geneva General	0	1.5
	Highland	1	1.0
	Unity	0	0.0
	Rochester General	0	1.0
	St. Joseph's*	0	1.0
	Strong 1	0	5.0
	Strong 2	0	5.0
	Strong 3	0	5.0
	Strong 4	0	5.0
	RGH / RDIA 1	0	1.0
	RGH / RDIA 2	0	1.0
	RGH / RDIA 3	0	1.0
Hospital - Mobile	Arnot-Ogden*	0	3.5
	Corning Community *	0	0.0
	Clifton Springs*	0	2.0
	Ira Davenport	0	1.0
	Strong West	0	1.0
	Newark-Wayne	0	3.0
	NH Noyes	0	0.0
	St. James Mercy*	0	1.0
	Schuyler *	0	0.0
Freestanding	Culver Road	0	0.0
	Elizabeth Wende B.C.	0	3.0
	Hagen Drive	0	0.0
	Lac de Ville Blvd	0	2.0
	Lac de Ville Blvd - 3.0T MRI only	0	8.5
	S. Clinton	1	2.0
	Lattimore Rd	0	0.0
	Open MRI of Elmira*	0	0.0
	Ridgeway Ave	0	0.0
	Senator Keating Blvd	0	0.0
	Senator Keating Blvd	0	0.0
	White Spruce Blvd	0	0.0
	Guthrie Clinic	0	0.0
	Nine Mile Point Rd	1	1.0
	Science Park	1	1.0

*Data were provided in surveys from previous years

Table 6 provides each respondent's estimate of the average number of minutes of machine time a patient spends per exam. Despite increasingly complex technique, exam times have remained stable over time.

Table 6: Average Number of Minutes per Exam

	Facility name	Minutes per Exam
Hospital Stationary	Arnot-Ogden*	45
	FF Thompson	45
	Geneva General	35
	Highland	45
	Unity	37
	Rochester General	45
	St. Joseph's*	33
	Strong 1	60
	Strong 2	60
	Strong 3	60
	Strong 4	60
	RGH / RDIA 1	45
	RGH / RDIA 2	45
	RGH / RDIA 3	60
Hospital Mobile	Arnot-Ogden*	45
	Corning Community*	40
	Clifton Springs*	45
	Ira Davenport	45
	Strong West	60
	Newark-Wayne	40
	NH Noyes	40
	St. James Mercy*	32
	Schuyler*	30
Freestanding	Culver Road	37
	Elizabeth Wende B.C.	17
	Hagen Drive	37
	Lac de Ville Blvd*	35
	S. Clinton	60
	Lattimore Rd	52
	Open MRI of Elmira*	52
	Senator Keating Blvd	37
	White Spruce Blvd	37
	Guthrie Clinic	25
	Nine Mile Point Rd	45
	Science Park	37

*Data were provided in surveys from previous years

The information in Table 6, when used in conjunction with the staffing information in Table 4, can be used as a baseline for development of capacity estimates for MRI. For example:

Table 7: Potential Capacity Standard per MRI Unit

Potential Capacity / MRI						
Operational Hours/Year	Average Hours/Week	Minutes / Exam				
		25	34	43	53	64
116,058	**2,231.9**	4,691	3,402	2,669	2,196	1,821
117,621	**2,261.9**	4,754	3,448	2,705	2,225	1,845
119,184	**2,292.0**	4,818	3,494	2,741	2,255	1,870
120,747	**2,322.1**	4,881	3,540	2,777	2,284	1,894
122,310	**2,352.1**	4,944	3,586	2,813	2,314	1,919
124,566	**2,395.5**	5,031	3,699	2,925	2,373	1,965

Section Three: Utilization

Analysis

The largest relatively recent increase in total MRI procedures in the Finger Lakes region occurred between 2003 and 2004 when utilization increased 22.7% (77,407 procedures in 2003 to 94,961 procedures in 2004). Since then, perhaps influenced by more stringent utilization review including health plan pre-authorization, the rate of change has remained relatively flat, increasing only 22.4% between 2004 and 2013 (94, 961 to 116,114 procedures), or 1.2% per year.

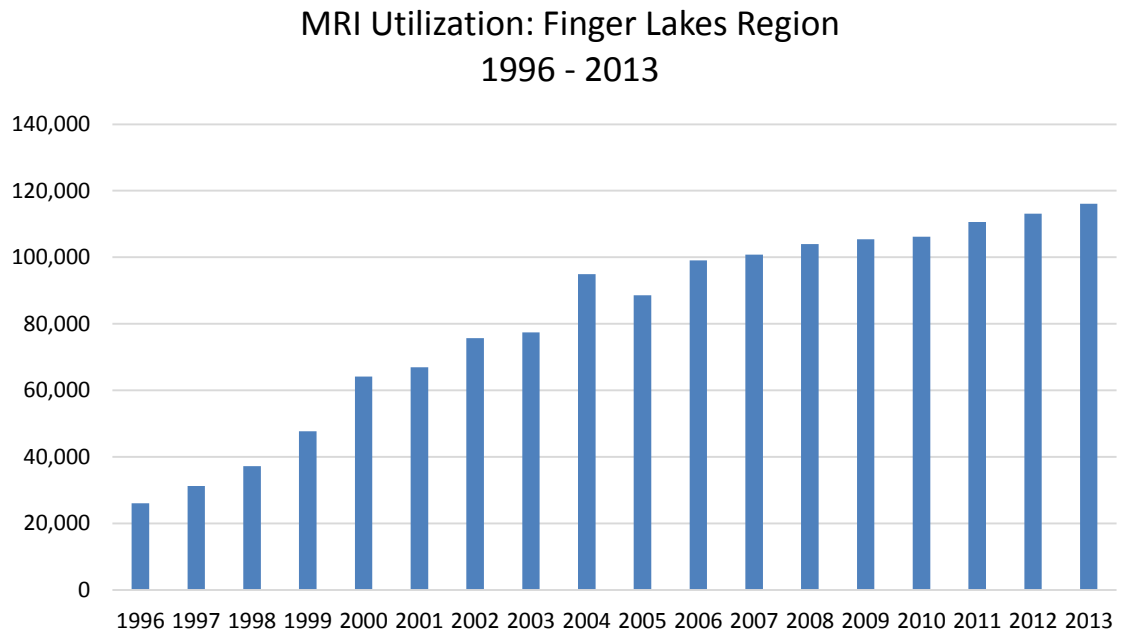

Figure 1: MRI Utilization in the Finger Lakes Region

In the 16 years between 1996 and 2013, MRI volume more than quadrupled, and as shown in the figure below, volume exhibited a compound growth rate of approximately 11.6% from 1990 to 2013. In 2001, clinical and financial restraints were put in place for HMOs in and around Monroe County, sharply reducing the growth of MRI use. There was concern at that point in time that growth might continue at the previously recorded rate. However, over the past nine years growth rates have demonstrated slower annual growth (approximately 1.25% annually).

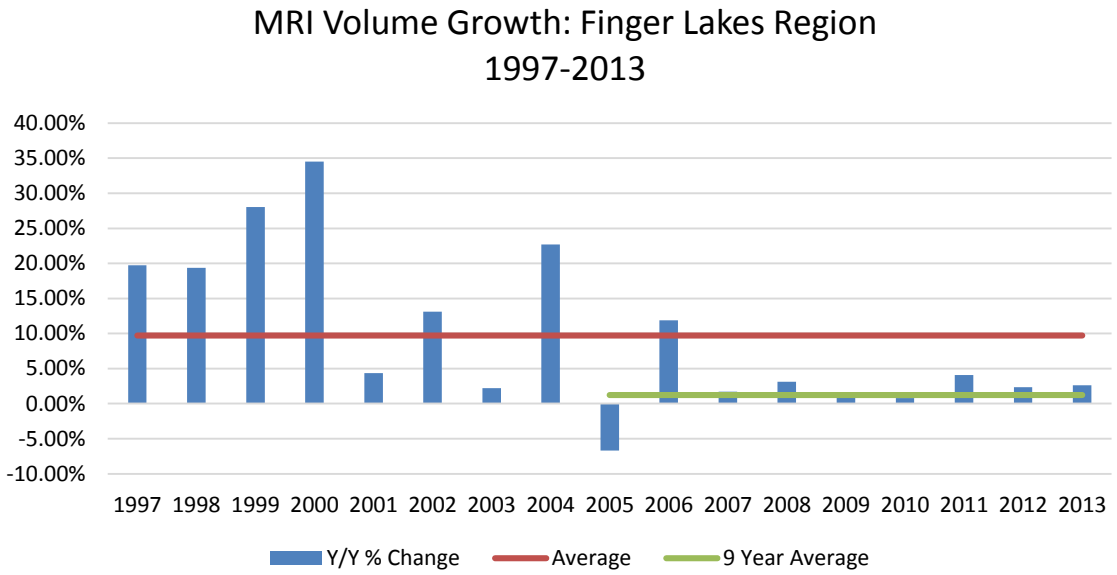

Figure 2. Growth in MRI Utilization in the Finger Lakes Region

Utilization by Facility Type

The growth of total MRI Volume in the region from 1996 through 2013 by MRI site type is presented in Figure 3.

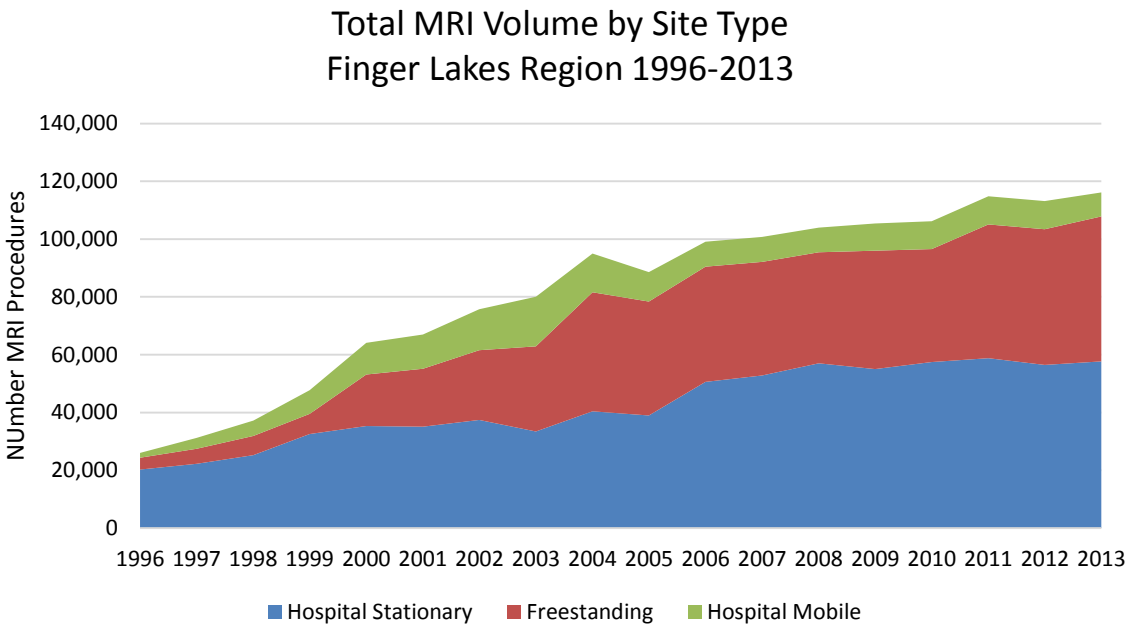

Figure 3: Total MRI Procedure Volume by Site Type

As seen in Tables 8, below, MRI procedures per unit have declined compared to the first half of this decade, coinciding with installation of a number of units in 2007 and expansion of days per mobile unit. Nationally, IMV reports average use per unit of 3,355 for hospital-based units and 3,275 for non-hospital units. As seen in Table 7, use of 3,625 per unit or higher is consistent with local use patterns of hours and time per MRI procedure. These data would suggest that there is no need for additional MRI capacity at this time in the region.

Table 8: Average Number of Exams per MRI (Regional Total)

Year	Total Utilization	# of Units Reporting	Average exams/unit
1996*	26061	9.5	2743
1998	37229	10.1	3686
2000	64156	19.1	3359
2002	75729	22.3	3396
2004	94961	27.8	3416
2006	99114	28.0	3540
2008	102998	34.6	2977
2009	105384	36.7	2871
2010	106975	35.8	2988
2011	111092	35.8	3103
2012	112706	37.0	3046
2013	116114	38.0	3056

* Excludes a freestanding unit which was said to be “mothballed.”

Table 9: Average number of Exams per MRI (Hospital-Stationary)

Year	Total Utilization	# of Units Reporting	Average exams/unit
1996	20289	7.0	2898
1998	25303	7.0	3615
2000	35374	9.0	3930
2002	37448	10.0	3745
2004	40429	12.0	3369
2006	50596	14.3	3538
2008	55881	16.7	3346
2009	55281	16.8	3291
2010	57416	15.8	3634
2011	58768	15.8	3719
2012	56471	15.8	3574
2013	57724	15.8	3653

Table 10: Average number of Exams per MRI (Hospital-Mobile)

Year	Total Utilization	# of Units Reporting	Average exams/unit
1996	1172	1.5	1141
1998	5313	2.1	2530
2000	11020	4.1	2688
2002	14152	5.3	2670
2004	13351	5.6	2384
2006	8615	3.1	2779
2008	8678	4.9	1771
2009	8803	5.9	1492
2010	9713	6.0	1619
2011	9807	6.0	1635
2012	9725	6.0	1621
2013	8334	6.0	1389

Table 11: Average number of Exams per MRI (Freestanding)

Year	Total Utilization	# of Units Reporting	Average exams/unit
1996	4060	1.0	4060
1998	6613	1.0	6613
2000	17762	6.0	2960
2002	24129	7.0	3447
2004	41181	10.2	4037
2006	39903	10.6	3764
2008	38338	13.0	2949
2009	40930	14.0	2924
2010	39104	14.0	2793
2011	42269	14.0	3305
2012	46966	15.2	3090
2013	50086	16.2	3092

Utilization by body section

The utilization by body section reported in calendar year 2012 survey showed the following trends:

- A steady increase in breast scans since 2004
- A decline in MRI spectroscopy from levels observed in 2006-2007
- A steady increase in scans of the extremities
- A relative plateau in head and neck as well as spine and pelvis scans.

Figure 4 illustrates these findings.

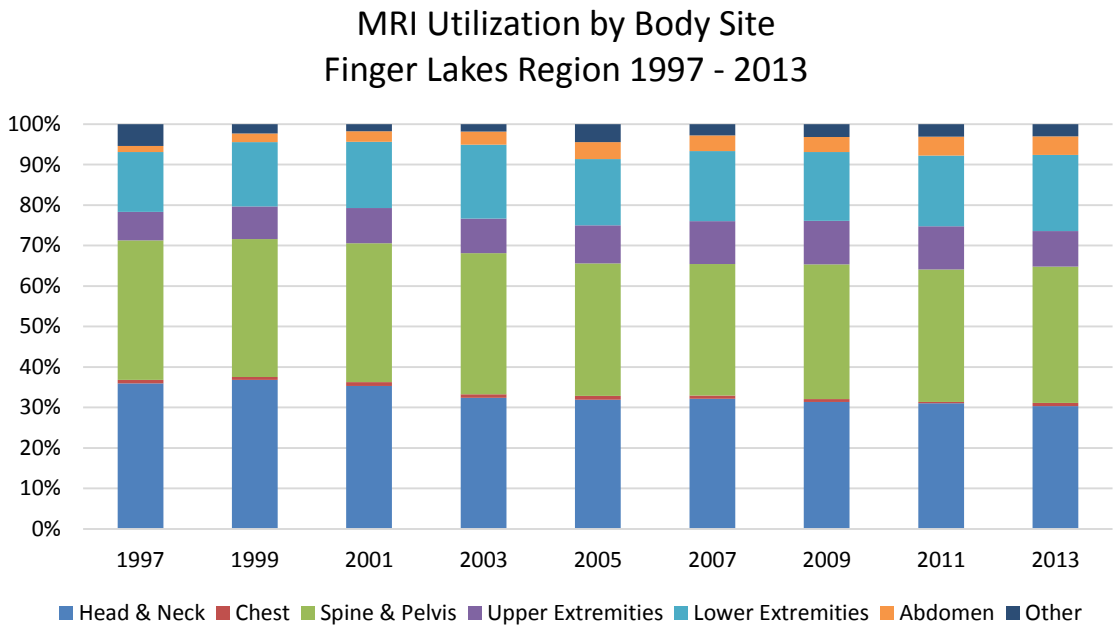

Figure 4: Regional Utilization by Body Site, 100 percent graph

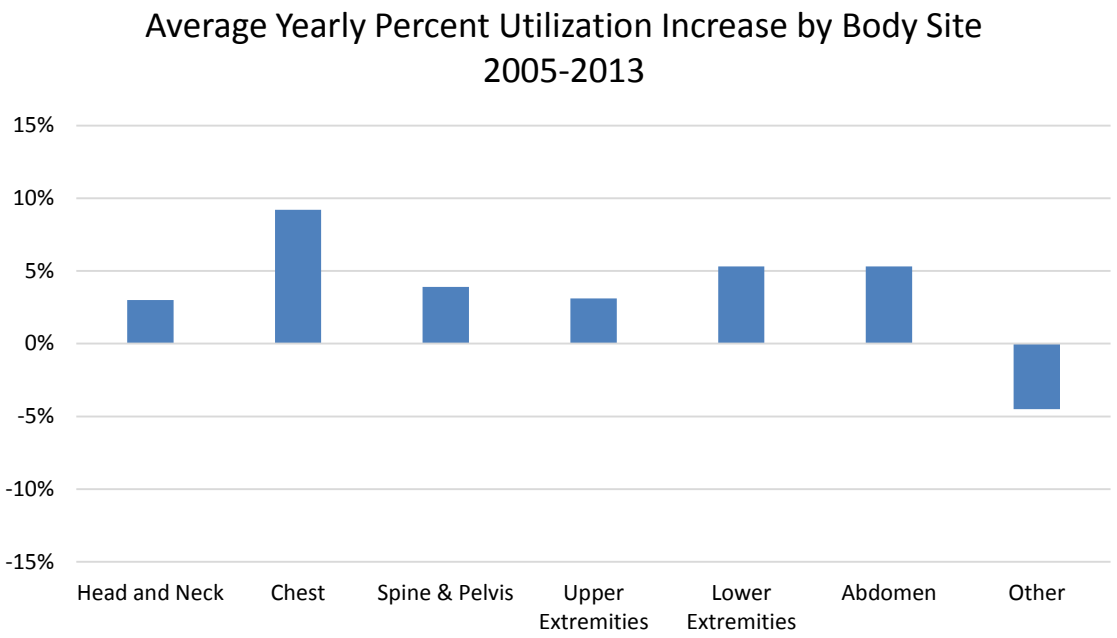

Figure 5: Average Annual Percent Changes by Body Site, 2004-2013

The distribution of MRI procedures in the Finger Lakes region is similar to IMV's national findings. The largest proportion of scans was completed in the head and neck categories, followed by the spine and pelvis (including the brain). Procedures performed on the lower and upper extremities accounted for 14% and 12% of the procedures nationally.

Tables 12 through 14 present the total numbers of MRI procedures by body section, each section as a percentage of the total, and the growth rate for each body section. Note, in Table 12, the body section figures may not add to the Total due to missing respondent data.

Table 12: Total Utilization by Body Section

Body Section	1996	1998	2000	2002	2004	2006	2008	2010	2012	2013
Head & Neck	8044	11267	22561	25756	30875	33183	32722	33023	33606	34959
Chest	178	5	604	702	677	735	670	930	835	861
Spine & Pelvis	7260	10991	21950	26897	30792	31662	33162	34601	37286	38905
Upper Extr.	1456	240	5810	6326	9074	9335	11071	11040	12519	10117
Lower Extr.	2928	2173	10784	11970	15710	16384	17833	18627	19884	21606
Abdomen	381	32	1768	2016	4062	4411	3853	4267	5080	531
Breast	-	-	-	-	391	761	1564	1872	2257	2599
MR Spectro.	-	-	-	-	230	331	293	113	56	88
Other	1122	681	678	1341	2395	5232	1086	990	770	765
Total	**26061**	**37229**	**64156**	**75729**	**94961**	**99114**	**102998**	**106975**	**112706**	**111092**

Table 13: Percent of Total Utilization by Body Section

Body Section	1996	1998	2000	2002	2004	2006	2008	2010	2012	2013
Head & Neck	30.9%	30.2%	35.2%	34.0%	32.5%	32.7%	33.9%	31.3%	29.9%	30.3%
Chest	0.7%	0.8%	0.9%	0.9%	0.7%	0.8%	0.8%	0.9%	0.7%	0.7%
Spine & Pelvis	27.9%	29.5%	34.2%	35.5%	32.4%	32.2%	32.1%	32.8%	33.2%	33.8%
Upper Extr.	5.6%	6.7%	9.1%	8.4%	9.6%	9.6%	9.7%	10.5%	11.1%	8.8%
Lower Extr.	11.2%	13.2%	16.8%	15.8%	16.5%	17.1%	15.9%	17.7%	17.7%	18.7%
Abdomen	1.5%	1.8%	2.8%	2.7%	4.3%	4.4%	3.8%	4.0%	4.5%	4.6%
Breast	-	-	-	-	0.4%	0.8%	1.5%	1.7%	2.0%	2.2%
MR Spectro.	-	-	-	-	0.2%	0.3%	0.3%	0.1%	0.0%	0.1%
Other	4.3%	4.3%	1.1%	1.8%	2.5%	1.1%	2.8%	0.9%	0.7%	0.7%

Table 14: Total Utilization Annual Growth Rate by Body Section

Body Section	96-97	98-99	00-01	02-03	04-05	06-07	08-09	10-11	12-13	Total 96-13	Annual 96-13
Head & Neck	16.8%	35.0%	4.0%	-3.6%	-1.3%	-2.9%	-3.7%	5.7%	4.0%	335%	8%
Chest	34.3%	-3.4%	4.9%	-9.2%	21.5%	5.9%	4.6%	-58.5%	3.1%	384%	9%
Spine & Pelvis	24.0%	28.0%	3.7%	-0.5%	2.5%	2.7%	4.8%	1.4%	4.3%	436%	10%
Upper Extr.	27.1%	33.4%	-0.4%	3.4%	-1.3%	14.0%	0.5%	5.7%	-19.2%	595%	12%
Lower Extr.	31.6%	33.1%	1.1%	16.9%	-0.2%	5.7%	0.5%	3.1%	8.7%	637%	12%
Abdomen	1.6%	36.7%	-2.7%	24.6%	-2.8%	-12.4%	-1.4%	20.0%	4.9%	1299%	17%
Breast	-	-	-	-	66.0%	56.0%	23.9%	24.5%	15.1%	565%	21%
MR Spectro.	-	-	-	-	2.2%	46.5%	-24.9%	-42.5%	57.1%	-61%	-6%
Other	25.8%	-41.2%	69.4%	1.8%	26.4%	-78.7%	0.1%	-1.0%	-0.6%	-68%	-4%
Total	**19.7%**	**19.4%**	**4.3%**	**2.2%**	**1.3%**	**1.7%**	**1.0%**	**3.8%**	**2.6%**	**332%**	**8%**

Payer Analysis

Table 15 describes MRI utilization by payer by respondent type. Notably, both mobile and stationary hospital sites have a higher proportion of Medicaid-paid procedures than freestanding sites (often due to insurance rules)

Table 15: MRI Service Utilization by Payer for 2013

Payer	Percentage
Local Commercial	31%
Local HMOs	25%
Other Commercial	11%
Medicare	18%
Medicaid	8%
Workman's comp.	6%
Private Pay	1%
Others	1%
Total	100%

Table 16 provides information from the surveys on the proportion of MRI studies done on an outpatient basis. The overall proportion outpatient was near the lowest recorded, driven by continued declines in the use of hospital-based units for general outpatient exams. This may also reflect the effects of utilization management programs put in place by area insurance companies.

These data are consistent with, and continually approaching national trends report by IMV that 78% of all MRI procedures are performed on an out-patient basis.

In the Finger Lakes Region, the percentage of MRI procedures done for Emergency Department patients accounted for 5% of the exams completed on stationary hospital units and 10% of the exams completed on mobile hospital units. Overall, 2.3% of all MRI exams were completed on Emergency Department patients (data not shown). Only 15 hospital-based MRI units reported ED percentages (88% of responding hospital units).

Table 16: Proportion of MRI Exams Performed on Outpatient Basis

Unit Type	1996	1998	2000	2002	2004	2006	2008	2010	2011	2012	2013
Hospital Fixed	84.8%	84.2%	81.8%	74.8%	80.7%	80.5%	77.3%	80.3%	77.3%	75.6%	74.4%
Hospital Mobile	94.6%	94.1%	90.2%	94.2%	93.1%	92.1%	92.2%	88.9%	86.4%	93.9%	89.3%
Freestanding	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Combined			89.7%	86.1%	91.5%	90.8%	89.6%	90.1%	87.7%	87.1%	86.8%

Section Four: Capacity Analysis

Use Rate per Capita

The analysis presented in this report has been a "demand" analysis: Given the current use or demand for MRI studies, how many units of capacity are needed? This assumes that all current use is clinically appropriate. That question is a clinical one, not within the FLHSA's jurisdiction, but perhaps addressed by the existing clinical and financial controls. We can get a glimpse, however, of whether the area's population is using more or less MRI service than the U.S. by comparing our use rate per capita to that of the entire country.

The 2012 MRI Benchmark Report provides the needed data for this analysis. In its report, IMV uses the data from approximately 7,800 hospital and non-hospital sites to extrapolate nationwide utilization rates for procedures performed through 2011.

Since 2004, the Finger Lakes Region's per capita rate has remained below the national utilization rate. With 88.2 MRI procedures per 1000 population in 2012, the Finger Lakes region is below the 2011 U.S. average of 102.7 scans per 1000 population.

In its 2012 report, IMV did not provide state-by-state estimates of MRI use. Thus, one can only compare regional use rates to national rates. While our regional rate has increased, it has done so more slowly than at the national level: Our regional use rate has increased by 6.5% since 2008, while the national rate has increased by 12.6% since 2008.

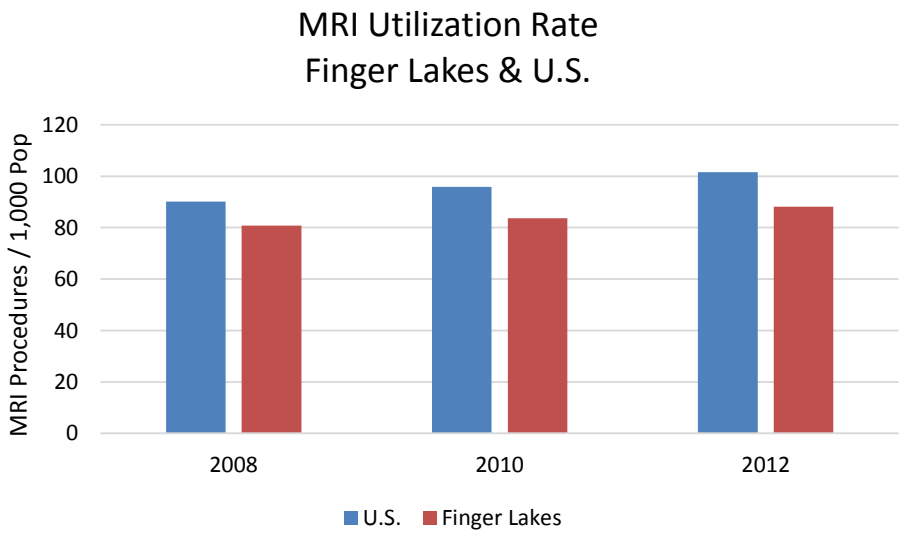

Figure 6: MRI Use Rates Per Capita

Need for MRI Capacity

Based on the current MRI utilization (116,144 total scans) within the Finger Lakes Region, it is possible to estimate future need for Monroe County, the Central Finger Lakes, and the Southern Tier.

Assuming various projected increases, MRI need for 2013 and 2014 would not surpass current operational and approved capacity for the 38.0 existing machines in the region. The current operational capacity and projected need for Monroe County, the Central Fingers Lakes and the Southern Tier are presented in Figures 7-9. As illustrated in Figure 7, the only subarea that may approach current capacity is Monroe County: At standardized current capacity of 98,000 total scans, the 2015 maximum projection totals 95,500 scans assuming a highly unlikely annual growth rate of 12.5% per year from the 2013 total. The Central Finger Lakes is well within its current capacity in 2015, with a maximum of 18,900 projected scans versus a standardized current capacity of 21,000 scans. The Southern Tier is also projected to be within current capacity in 2015, with 25,365 scans projected as the maximum for 2015 and a capacity of 31,475 scans in the subarea. It is unlikely any additional capacity will be required in the next few years.

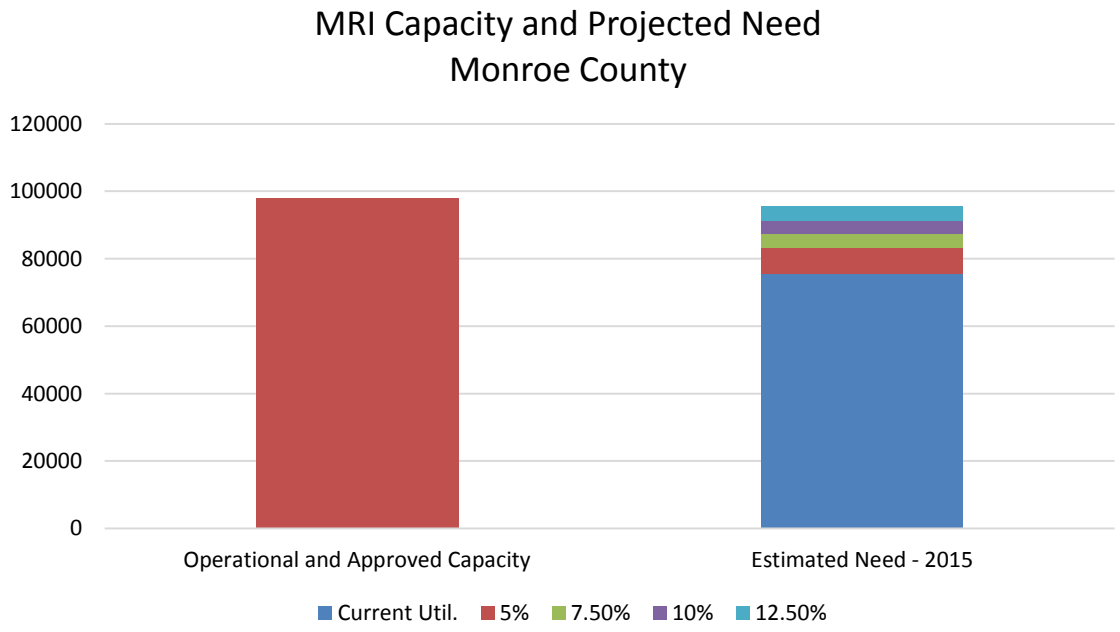

Figure 7: MRI Capacity and Projected Need: Monroe County

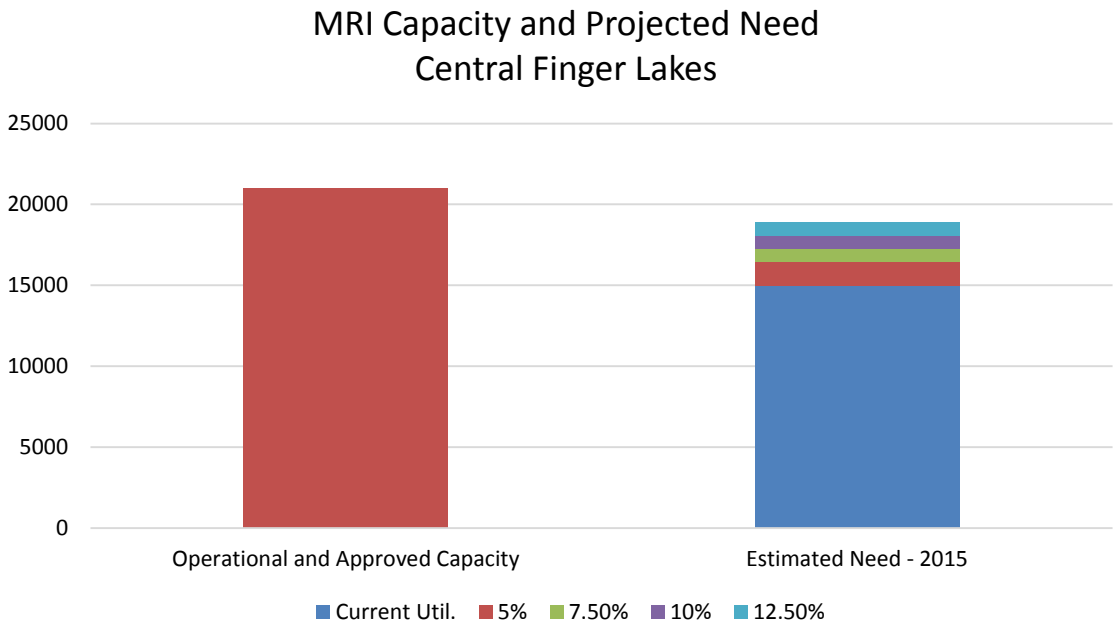

Figure 8: MRI Capacity and Projected Need: Central Finger Lakes

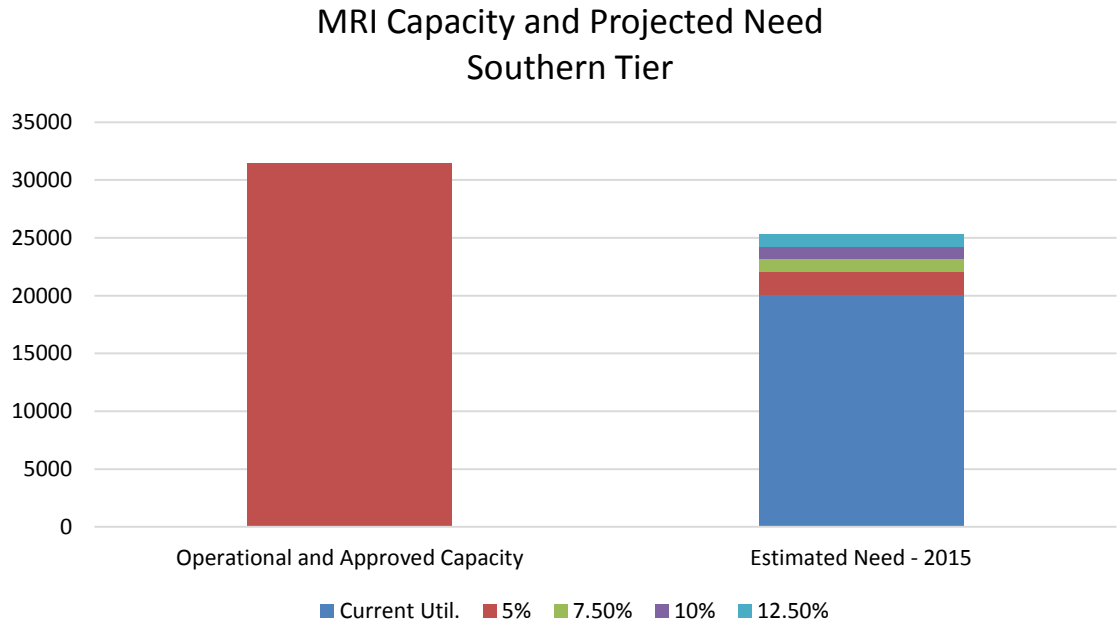

Figure 9: MRI Capacity and Projected Need: Southern Tier

Section 5: Claims Data

As part of the Agency's ongoing effort to increase the amount of data available to the community, a multiple payer claims database has been developed with support of the primary commercial payers in the region. For the second year we are reporting aggregated claims data for MRI utilization. The aggregated claims account for approximately 50% of the Finger Lakes population and do not include data for Medicare and Medicaid Fee for Service patients.

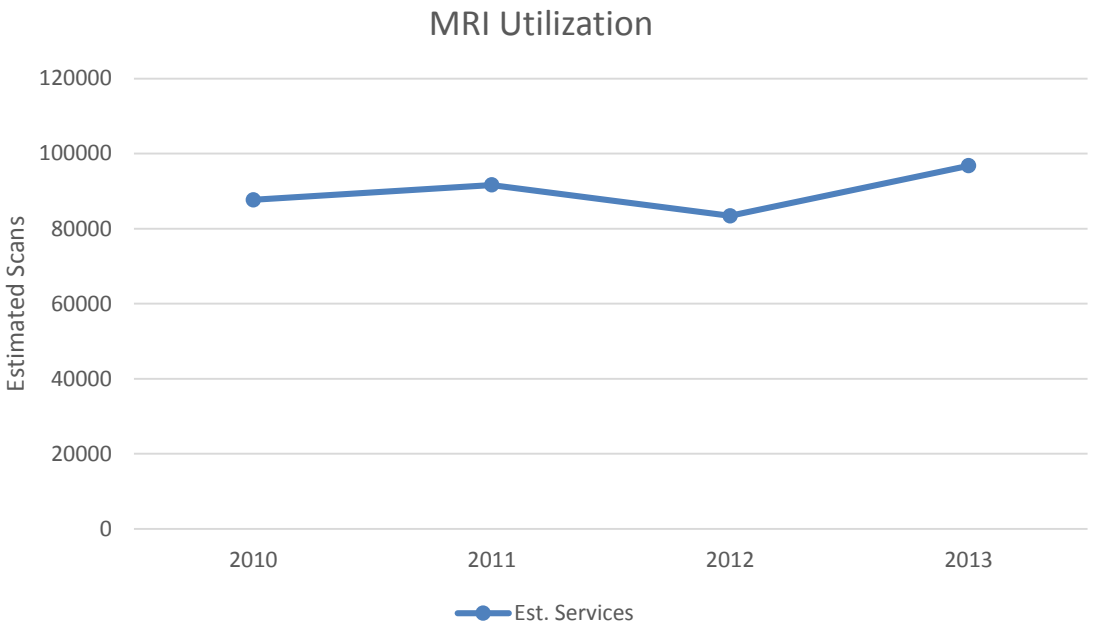

Figure 10: Claims utilization for the Finger Lakes Region, 2010-2013

"Est. Services" accounts for multiple claim lines associated with unbundled claims (professional and technical components billed separately).

Generally, the utilization in the claims data has remained stable in the past several years (data prior to 2010 are not available). Variations in the trend may be due to the variation in patient demographics not represented in the claims data. Future work should incorporate claims data in order to increase the specificity of the analysis and assist in planning programs.

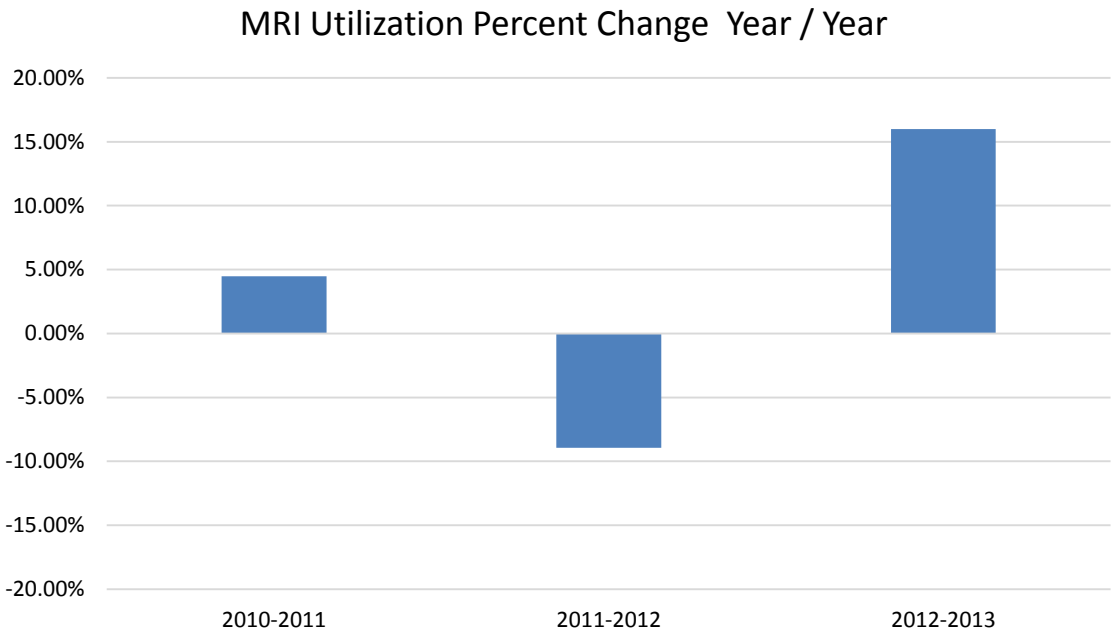

Figure 11: Percent change in utilization, year-to-year, 2010-2013

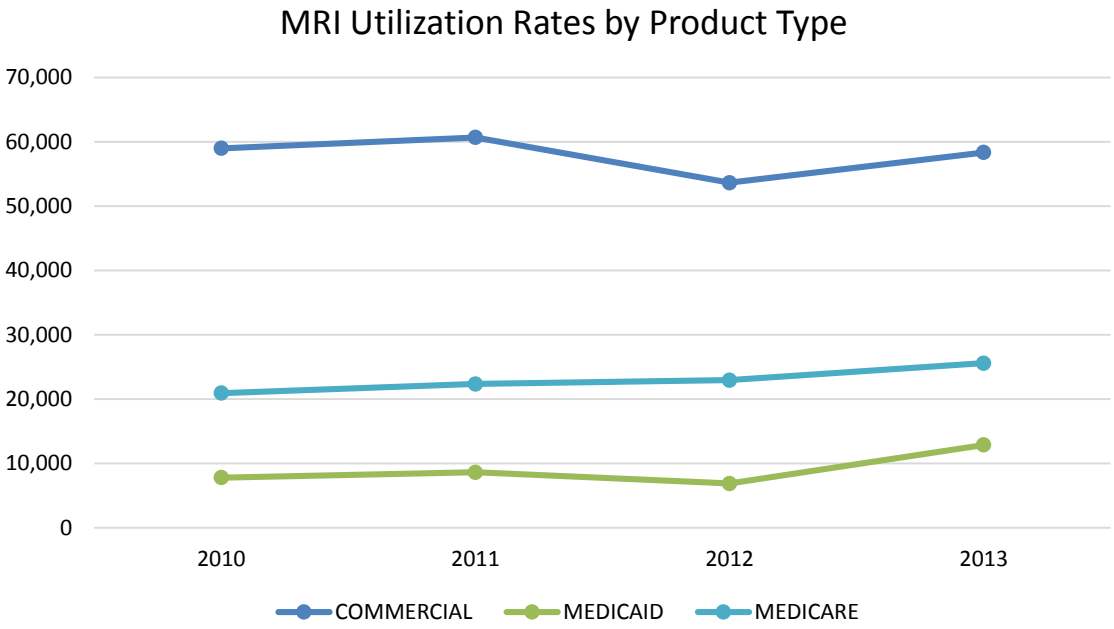

Figure 12. MRI Util. by Product Type

Section 6: High Field Strength and Ultra-High Field Strength MRI

Throughout the most recent decade, 3.0T MRI's have become more pervasive and have demonstrated advantages to the 1.5T machines in numerous aspects, including better images and shorter scan durations. Most recently, 7T MRI are being researched to determine whether the increasing the strength of the magnet will have a significant clinical benefit.

High Field Strength – 3.0T

Any unit with magnet strength greater than 1.5T is considered a high frequency MRI Unit. The majority of commercially available units in this range are 3.0T. There are currently four 3.0T MRIs operating in the Finger Lakes region. Utilization on these machines accounted for just over 12,000 scans in 2012 (10.7%). The breakdown of the scan location is in Figures 12 and 13. Of note, brain and head scans and MR spectroscopy represent much higher proportions of the 3.0T utilization than non-3.0T units.

3.0T magnets have demonstrated clinical advantages over lower strength units for both angiography and neurological applications due to the increase in resolution possible with the higher field strength. In general, the higher field strength allows for greater anatomic resolution which may result in the clinical benefit of identifying abnormal tissue that may go undifferentiated at lower field strengths.

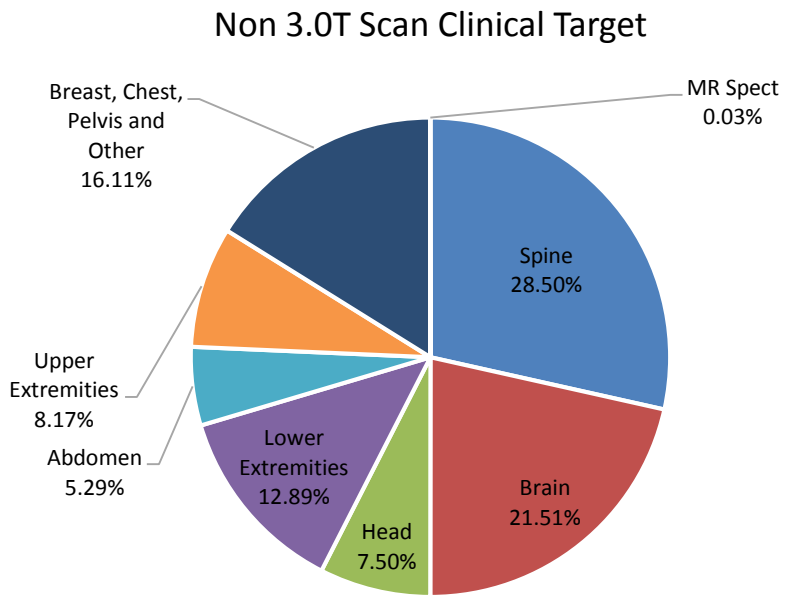

Figure 13: Clinical location percentages of non-3.0T MRI utilization

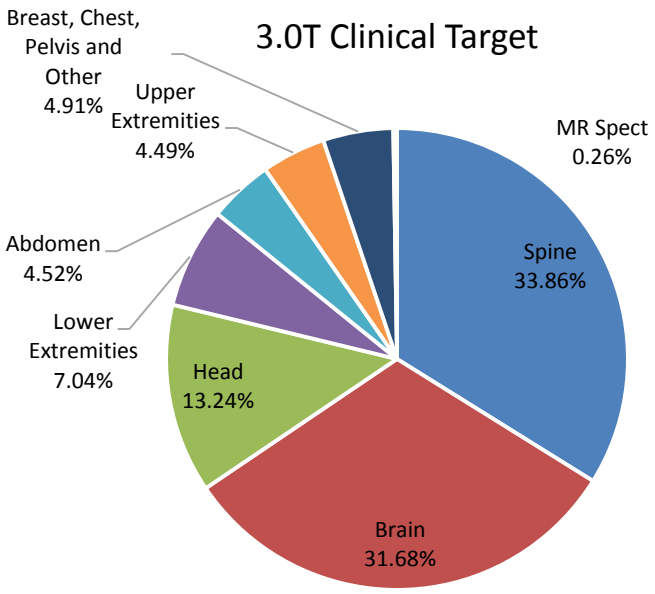

Figure 14: Clinical location percentages of 3.0T MRI Utilization

Ultra High Field Strength - 7.0T

7.0 Tesla MRI scanners are being utilized in research capacities in an increasing number of academic institutions across the United States and world-wide. These machines are demonstrating some potential advantages over machines with weaker field strengths, specifically in the fields of neurology and cardiology. However, there are still numerous technical, safety and economic barriers to overcome. Any current utilization should be considered experimental pending FDA 510k approval of a 7.0T MRI. Should approval be granted, needed capacity should be determined based on only those indications where additional clinical advantage is proven over current, less powerful units.

Prudent healthcare planning involves balancing cost with patient experience and outcomes. Given that local capacity studies demonstrate system capacity to absorb additional scans over the next several years, even at aggressive trend rates, it does not seem efficient to increase the number of total MRI scanners within the region. However, as research continues on 7.0T machines, patients receiving scans that may have been performed at lower field intensities may be better served with a stronger field MRI.

Therefore it is the recommendation of this agency that pending FDA approval of a 7.0T MRI for clinical use, needed capacity should be determined based on only those indications where additional clinical advantage is proven over current, less powerful units. Once approved, because of the limited indications for 7.0T, it would be advised that CTAAB petition for requests to replace an existing 1.5T or 3.0T MRI with a 7.0T scanner. CTAAB would be provided with the opportunity to weigh the various merits and detractions from multiple applicants and provide the community with the most efficient placement of a 7.0T MRI, both in terms of cost and care quality.