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Green Mountain Care Board:

VT Hospital Quality Review and Capacity Planning in Preparation for Value-Based Care

October 27, 2021

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Agenda

- Motivation/Background
- Key Findings from Data Analysis: Capacity & Quality
- Reimagining Care Delivery to Address Capacity & Quality Opportunities
- Methodology/Criteria
- Opportunities

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Motivation/Background

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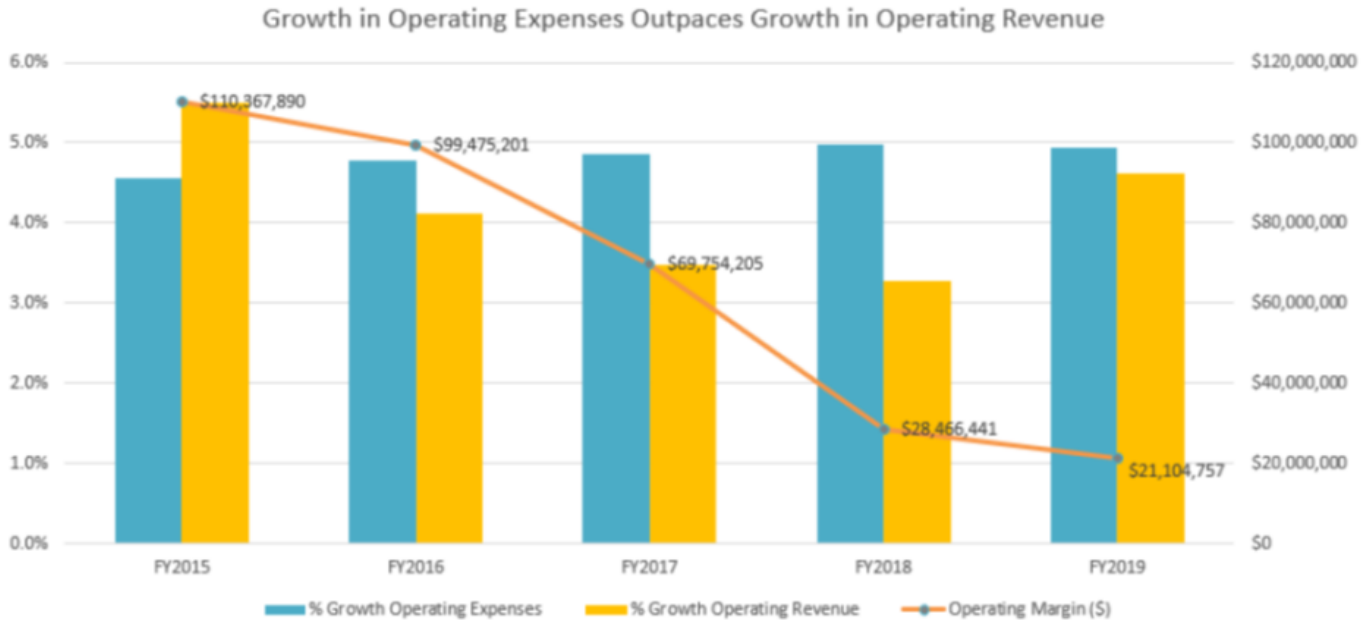
Hospital Sustainability in a Value-Based world

- Hospital sustainability is an important issue given current economic headwinds
  - Across the U.S., **181 rural hospitals have closed since 2005**, according to the Cecil G. Sheps Center for Health Services Research
  - Last year, 20 of those hospitals closed, making 2020 a record year for rural hospital closures

- Growing challenges rural hospitals face
  - Declining populations
  - Rising costs
  - Workforce shortages
  - Rural bypass for larger community hospitals or Academic Medical Centers
  - Aging plants
  - Needed investments in population health under value-based care models
  - Technological and clinical innovation requirements

Sustainability



Source: Green Mountain Care Board

- Vermont hospitals have seen erosion in operating margins prior to the COVID-19 pandemic
- Value-based care initiatives must be balanced with access to care for patients across the state
  - Within existing facilities
  - Through alternative methods that provide access to quality care

Transitioning to Value-Based Care

- Hospitals will increasingly be held accountable for the cost and quality of care being provided
- This accountability may also be extended to the communities served by the hospital, not just those patients admitted to the facility
- In value-based payment models, excess hospital capacity can lead to unnecessary costs being locked into the system and low volume programs have the potential to provide lower quality of care.
- Potential excess capacity needs to be balanced to ensure appropriate access to care.
- Poor quality outcomes impact population health, potentially threatening reimbursements and compromising financial sustainability.

Why Value-Based Care?

- In a recent article from the Centers for Medicare and Medicaid Services (CMS) Administrator and the Director of the Center for Medicare and Medicaid Innovation (CMMI), CMS listed their priorities going forward:
  - Drive accountable care
  - Advance health equity
  - Support innovation
  - Address affordability
  - Partner to achieve system transformation.

All supportive of driving value-based payment models

- In addition, commercial payers continue to move payments away from fee-for-services into value-based models, including Accountable Care Organizations, Bundled Payments, and increasing amounts of financial and clinical risk for participating providers

Key Findings from Data Analysis: Capacity & Quality

Factors in the Analysis

- BRG's analysis focused on CY 2019
  - Although COVID-19 has caused changes to the healthcare delivery system and patient use patterns, it is unclear how many of these trends are temporary vs permanent.
  - Due to this ambiguity, BRG believes that utilizing CY 2019 is a reasonable approach when considering longer-term capacity needs.

- As part of the analysis, BRG did not have insight into the following factors that could potentially impact the conclusions:
  - Clinical delivery model innovations occurring across providers and communities
  - Strategic planning efforts of Vermont's hospitals
  - Specific state policies that may have an impact on current hospital capacity and future planning efforts

- The considerations highlighted in this presentation are intended to provoke robust discussion within the Vermont provider community regarding future needs, resources, and facility disposition. Additional discussion and analysis by Vermont policy makers will be required before any definitive decisions are made.

Key Findings – Emergency Department Use

- The emergency room continues to be the source for more than 60% of acute care volume at both critical access hospitals (CAH) and at general community hospitals
- This represents a potential opportunity for improvement to the degree that this care is potentially avoidable or could be treated in a lower cost setting

	2019 Vermont Inpatient Discharges			
Hospital Service Area	ER Admit Discharges	Non ER Admit Discharges	Total Discharges	% ER Admit
Barre	3,456	1,717	5,173	66.81%
Bennington	2,209	648	2,857	77.32%
Brattleboro	1,045	476	1,521	68.70%
Burlington	7,825	4,348	12,173	64.28%
Middlebury	1,149	922	2,071	55.48%
Morrisville	1,032	873	1,905	54.17%
Newport	992	675	1,667	59.51%
Randolph	739	398	1,137	65.00%
Rutland	4,648	1,571	6,219	74.74%
Springfield	988	435	1,423	69.43%
St. Albans	2,139	1,559	3,698	57.84%
St. Johnsbury	816	494	1,310	62.29%
White River Jct	418	498	916	45.63%
Total:	27,456	14,614	42,070	65.26%

Data Source: VUHDDS Research File
Note: Excluded Neonatal and Newborn

Key Findings – Occupancy Rates

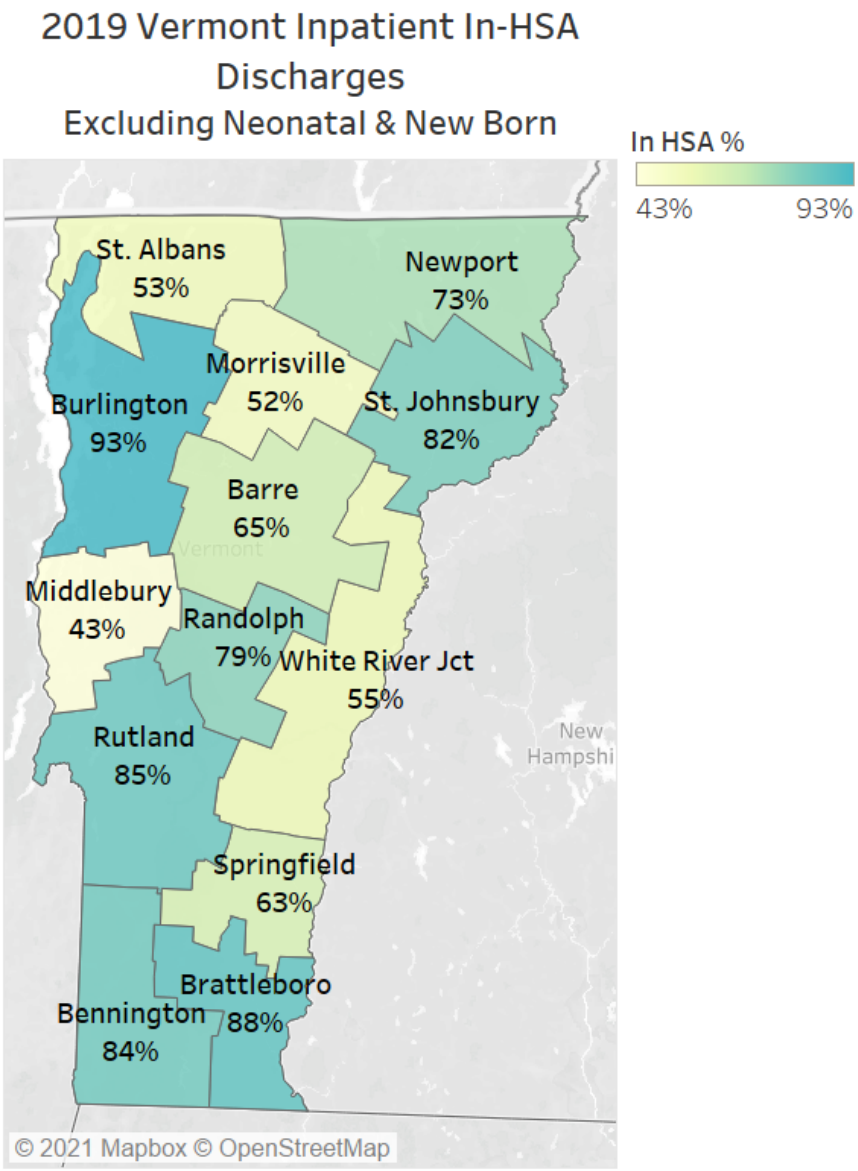
- BRG determined that overall occupancy rates for Vermont hospitals have remained relatively stable, but several Vermont hospitals are operating around ≤40% occupancy
  - Brattleboro
  - Northwestern
  - Southwestern
  - Springfield

- While the overall occupancy rate for Vermont's CAHs (64.5%) is above the national average (33.2%), there is still excess bed capacity at individual Vermont CAHs.

- Low occupancy rates may decrease efficiency and increase costs.

Key Findings – Hospital Service Areas

- Of the total 42,000 admissions for Vermont residents, approximately 77% of admissions were served within-HSA and 23% of admissions were served outside the HSA
- Nearly a quarter of the patients admitted bypassed the hospital within their HSA.



Key Findings – Population-Driven Bed Need: Year 2026

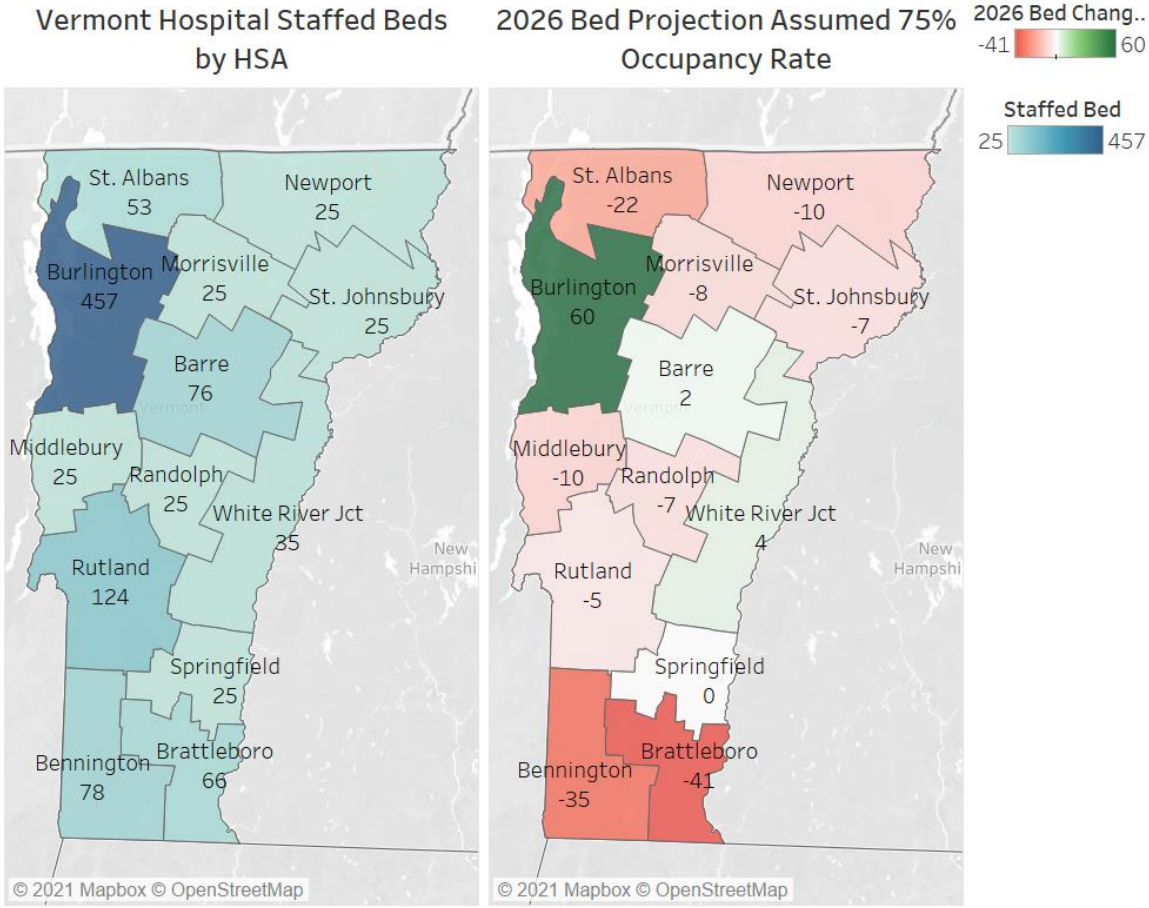
- While the overall population is projected to decline, ***the elderly population is projected to increase by 2.6% per year***. As a result, total discharges are projected to increase from approximately 48,000 to 51,000 discharges.
- Assuming stable discharge rates and stable length of stay across all Vermont residents, the total number of occupied beds will increase from a census of 676 to 719 (+ 43 occupied beds).
- This projection assumes that outmigration of Vermont residents to out-of-state hospitals will continue at the same level as in CY2019.
- This projection also assumes that inmigration will continue to account for 6,220 total discharges at Vermont hospitals.

	2019 Actual			2026 Projection		
	Age 0-64	Age 65+	Total	Age 0-64	Age 65+	Total
POPULATION						
Estimated population	501,596	121,441	623,038	477,982	143,506	621,488
% Change, 2019-2026				-4.7%	18.17%	-0.25%
VERMONT RESIDENTS						
Discharges per 1,000	42.32	171.61	67.52			
# Discharges, Vermont Residents	21,230	20,840	42,070	20,235	24,723	44,958
Average length of stay	4.94	5.17	5.06	4.95	5.20	5.09
# Patient days	104,966	107,797	212,763	100,262	128,503	228,765
Average daily census, VT	288	295	583	275	352	**627**
NON-VERMONT VOLUME						
# Discharges, Non-Vermont	3,321	2,899	**6,220**	3,321	2,899	**6,220**
Average length of stay	5.36	5.52	5.44	5.36	5.52	5.44
# Patient days	17,797	16,013	33,810	17,797	16,013	33,810
Average daily census, Non-VT	49	44	93	49	44	93
TOTAL HOSPITAL VOLUME						
# Discharges	24,551	23,739	**48,290**	23,556	27,622	**51,178**
Average length of stay	5.00	5.22	5.11	5.01	5.23	5.13
# Patient days	122,763	123,810	246,573	118,059	144,516	262,575
Average daily census	**337**	**339**	**676**	**323**	**396**	**719**
BED NEED						
# Staffed Beds, Year 2019			**1,039**			
Assume improved occupancy rate, Year 2026						
# Staffed Beds Required @ 70% Occupancy						**1,028**
# Staffed Beds Required @ 75% Occupancy						**959**

Key Findings – Future Projections

- While the overall population in Vermont is projected to decline, the aging of the population will drive a significant increase in Vermont resident discharges by the Year 2026. Assuming stable discharge rates, stable length of stay, and a stable number of out of State patients, the total number of occupied beds by Vermont residents is projected to increase from 676 occupied beds to 719 beds (+43 occupied beds, or a 6% increase).

- Absent consolidation of inpatient capacity or extension of specialty programs, several of the smaller Vermont hospitals are projected to have excess capacity in the range of 20-30 beds.



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Key Findings – Year 2026: Bed Need By Hospital

- The below demand forecast assumes that:
  - Discharge rates remain stable
  - Length of stay remains stable
  - The number of out-of-state patients remains stable
  - The distribution of discharges from each HSA across hospitals remains stable
  - The outmigration rate to out-of-state hospitals remains stable

- The model highlights that the need for additional acute care bed capacity is heavily concentrated at the University of Vermont Medical Center, with additional bed need projected for Central Vermont Medical Center and Mt Ascutney.

Year 2026
Population-Based Projection for Acute Care Bed Need, by Hospital
Assumes stable use rate, stable length of stay and stable distribution across hospitals
Assumes stable number of out-of-state discharges

	UVMC	Rutland	CVMC	Copley	Gifford	Grace Cott	Mt Ausc	N Country	NEastern	NWestern	Porter	Brattleb	SWestern	Springfield	TOTAL
Average Daily Census, 2026	388	89	58	12	13	1	29	11	13	24	11	17	33	19	719
Average Daily Census, 2019	359	87	55	12	12	1	28	11	13	22	10	17	32	18	676
Change in ADC, 2019-2026	29	2	3	1	1	0	1	1	1	2	1	1	1	1	44
Current Licensed Beds	457	124	76	25	25	19	35	25	25	53	25	47	78	25	1,039
2026 Bed Reqt @ 70% occup	554	127	83	18	19	2	42	16	19	34	16	25	46	27	1,028
2026 Bed Reqt @ 75% occup	517	119	78	17	18	2	39	15	18	31	15	23	43	25	959
# Bed Need, (Excess) @ 70%	97	3	7	(7)	(6)	(17)	7	(9)	(6)	(19)	(9)	(22)	(32)	2	(11)
# Bed Need, (Excess) @ 75%	60	(5)	2	(8)	(7)	(17)	4	(10)	(7)	(22)	(10)	(24)	(35)	(0)	(80)
# Bed Need, (Excess) @ 80%	28				-										

Key Findings – Impact of Length of Stay on Bed Need

- Vermont hospitals show a longer length of stay relative to benchmarks. In particular, the University of Vermont Medical Center shows a markedly high length of stay relative to benchmarks (1.73 days longer relative to benchmark).

- As bed need is projected, it will be important to factor in hospitals' improvement toward the benchmark, or reduction in avoidable hospital days. These avoidable hospital days are referred to here as "excess days."

- The reduction in excess days could translate into a significant reduction in average daily census. The table below shows the impact of a 30% reduction in the differential and the impact of a 50% reduction in the differential.

    - 30% reduction in excess days — 53 fewer occupied beds
    - 50% reduction in excess days — 84 fewer occupied beds

- This reduction in length of stay would likely require investment in home care resources and other alternative delivery models.

Key Findings – Impact of Dartmouth Hitchcock Bed Expansion on Need

- Dartmouth Hitchcock (DH) has announced a $130 million expansion with a new tower that could house up to 112 new beds.
  - DH currently has 396 licensed beds
  - The tower would include 64 new beds with shell space for an additional 48 as need arises

- 2019 Data
  - Dartmouth Hitchcock (DH) had total discharges of 18,752
  - VCHURES data show that 4,353 DH discharges were from Vermont
    - 822 were under 65 years old
    - 3,531 were 65 or older

- Assumptions
  - The percentage of patient migration for out-of-state care would increase; DH expansion would likely draw more patients from the state, further reducing needed bed capacity
  - 32 new DH beds are online by 2026
  - The number of VT discharges increases proportionally across VT HSAs

Key Findings – Impact of Dartmouth Hitchcock Bed Expansion on Need

- The table below presents the demand forecast for bed capacity by hospital. It is a population-driven forecast only, and assumes that:
  - Discharge rates remain stable
  - Length of stay remains stable
  - The distribution of discharges from each HSA across hospitals remains stable
  - The outmigration rate to out-of-state hospitals reflects the increase in beds planned at Dartmouth Hitchcock, assuming that 32 new beds are online with a proportional increase in discharges from Vermont
- Assuming 75 percent occupancy, Vermont would need 8 fewer beds than under the projection that outmigration is stable, with the largest effect on Rutland

Year 2026
Population-Based Projection for Acute Care Bed Need, by Hospital
Assumes stable use rate, stable length of stay and stable distriution across hospitals
Assumes additional number of out-of-state discharges proportional to licensed bed increase

	UVMC	Rutland	CVMC	Copley	Gifford	Grace Cottage	Mt. Ausc	N Country	NEastern	NWestern	Porter	Brattleb	SWestern	Springfield	TOTAL
Average Daily Census, 2026 with stable outmigration	388	89	58	12	13	1	29	11	13	24	11	17	33	19	719
Additional bed reductions due to increased outmigration to D-H if 32 beds opened	0	2	0	0	0	0	1	0	1	0	1	1	0	0	6
Average Daily Census, 2026 new of D-H effect	388	87	58	12	13	1	28	11	12	24	10	16	33	19	713
Current Licensed Beds	457	124	76	25	25	19	35	25	25	53	25	47	78	25	1039
Revised 2026 Beds Needed @ 70% occupancy	554	124	83	17	19	1	40	16	17	34	14	23	47	27	1019
Revised 2026 Bed Needed @ 75% occupancy	517	116	77	16	17	1	37	15	16	32	13	21	44	25	951
# Bed Need, (Excess) @ 70%	**97**	**0**	**7**	**(8)**	**(6)**	**(18)**	**5**	**(9)**	**(8)**	**(19)**	**(11)**	**(24)**	**(32)**	**2**	**(20)**
# Bed Need, (Excess) @ 75%	**60**	**(8)**	**1**	**(9)**	**(8)**	**(18)**	**2**	**(10)**	**(9)**	**(21)**	**(12)**	**(26)**	**(35)**	**0**	**(88)**
# Bed Need, (Excess) @ 80%	**28**														

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Key Findings – Total Impact of Projected Bed Need

- Some VT hospitals have significant projected declines compared to current licensed beds

Hospital	Current Licensed Beds	Projected Reduction
Brattleboro	47	-26
Grace Cottage	19	-18
North Country	20	-10
Northeastern	21	-9
Northwestern	53	-21
Porter	25	-12
Southwestern	68	-35

- These reductions should be balanced against current lower occupancy rates at many of these facilities

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CMS Quality Pay for Performance Programs

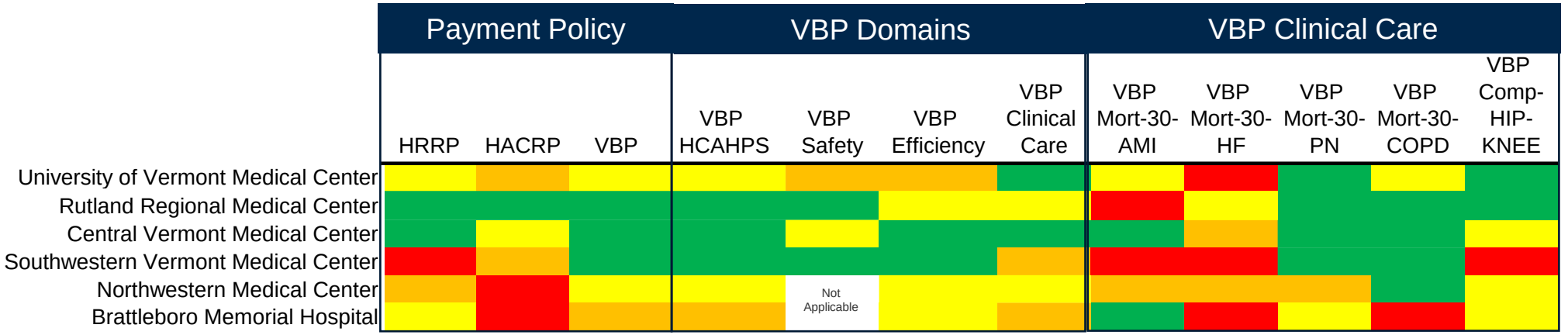
		Medicare FFS Revenue
Value Based Purchasing (VBP)	• Mortality and Complications • Patient Perception HCAHPS • Infections • Efficiency – Cost per Beneficiary	+/-2%
Hospital Readmission Reduction Program (HRRP)	• 30-day, all-cause Readmissions • 6 clinical conditions	-3%
Hospital Acquired Condition Reduction Program (HACRP)	• AHRQ Patient Safety Indicator Composite • CDC/NHSN Healthcare Associated Infections	-1%

CAH do not participate in VBP, HRRP or HACRP. CAH do participate in MBQIP – Medicare Beneficiary Quality Improvement Project. Data was not publicly available for the measures included in the project.

Key Findings – Hospital Quality Performance

- Under CMS Pay for Performance Programs, half of the Vermont hospitals have net rewards while half have net penalties (does not include CAHs)
  - 5 of 6 Hospitals have HRRP penalties
  - 5 of 6 Hospitals have HVBP rewards
  - 2 hospitals have HACRP penalties
- Within VBP, Vermont hospitals perform well on HCAHPS
- Areas of opportunity for improvement include:
  - 30-Day Mortality for AMI and 30-Day Mortality for Heart Failure
  - 3 of 6 Hospitals are worse than Peer Group performance for 30 Day Readmissions for THA/TKA
  - 2 of 6 Hospitals are worse than Peer Group performance for 30 Day Readmissions for AMI, COPD and Heart Failure
- CAH are exempt from Pay for Performance Programs but voluntarily participate in a quality program specific to CAH; data was not available to review these results

Key Findings
Summary of Performance for Publicly Reported Programs – FY 2021



- National Best Quartile
- National 2nd Quartile
- National 3rd Quartile
- National Worst Quartile

- All but 1 hospital received a penalty for readmissions in HRRP
- All but 1 hospital received a reward under VBP
- 2 Hospitals received penalties in HACRP

FY 2021 Payment Impact	HRRP Penalty only	HACRP Penalty only	VBP
University of Vermont Medical Center	($155,000)	$0	$176,000
Rutland Regional Medical Center	$0	$0	$166,000
Central Vermont Medical Center	($7,000)	$0	$297,000
Southwestern Vermont Medical Center	($214,000)	$0	$116,000
Northwestern Medical Center	($57,000)	($124,000)	$16,000
Brattleboro Memorial Hospital	($10,000)	($85,000)	($1,000)
Critical Access Hospitals	Not applicable		

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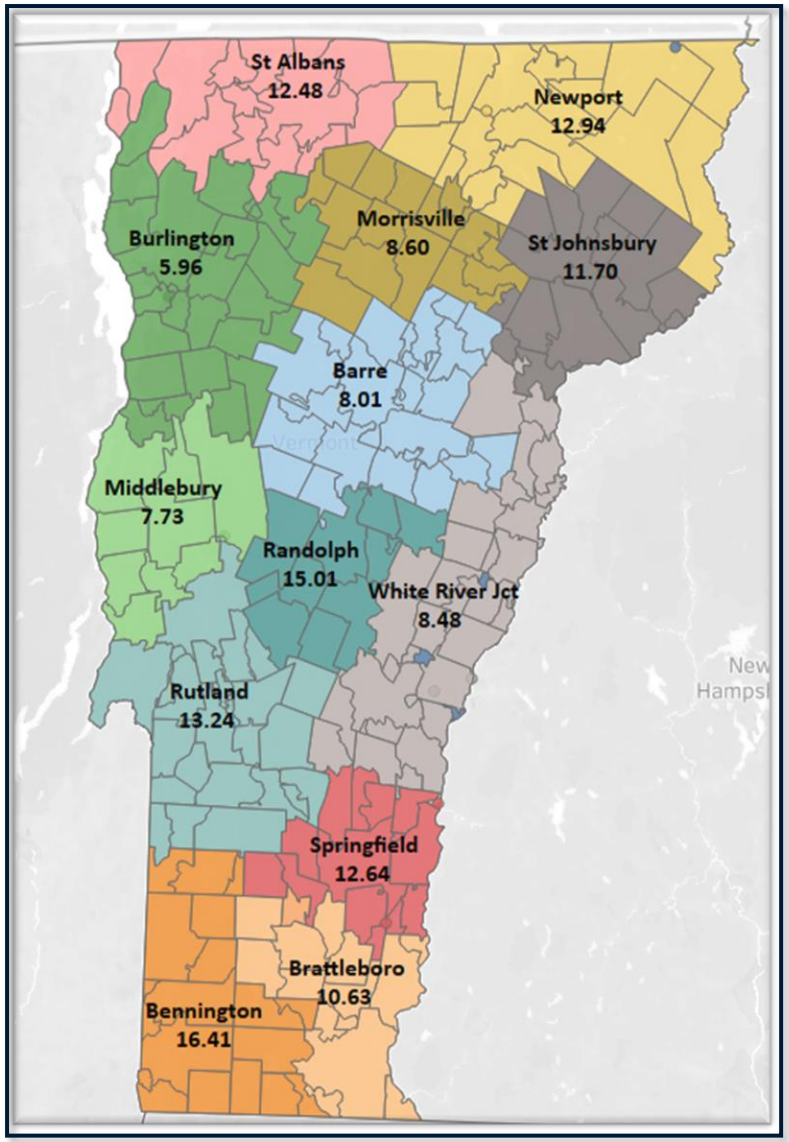
Key Findings – Prevention Quality Indicators
PQI 90 Overall Composite



- Vermont's 10.71 PQIs/1000 residents is below (favorable) AHRQ benchmark of 13.06
- 3 HSAs are above the AHRQ benchmark

PQI 90 - Overall Composite

HSA	PQI Count	Population 18+	HSA PQI / 1k residents	AHRQ Benchmark
Bennington	509	31,011	16.41	13.06
Randolph	178	11,855	15.01	13.06
Rutland	636	48,043	13.24	13.06
Newport	296	22,866	12.94	13.06
Springfield	284	22,476	12.64	13.06
St Albans	428	34,288	12.48	13.06
St Johnsbury	251	21,460	11.70	13.06
Brattleboro	275	25,863	10.63	13.06
Morrisville	191	22,218	8.60	13.06
White River Jct	325	38,303	8.48	13.06
Barre	430	53,668	8.01	13.06
Middlebury	199	25,736	7.73	13.06
Burlington	908	152,222	5.96	13.06
Grand Total	5,054	510,610	10.71	13.06

https://www.qualityindicators.ahrq.gov/Modules/pqi_resources.aspx#techspecs

https://www.qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2020/Version_2020_Benchmark_Tables_PQI.pdf

Source: Vermont Health Care Uniform Reporting and Evaluation System (VHCURES)

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Reimagining Care Delivery to Address Capacity & Quality Opportunities

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Reimagining Care Delivery Models

- Although BRG's analysis reflected projections based on existing need and future demographic changes, other clinical delivery models exist that could meet the needs of Vermont's residents while also providing care in a more cost-effective and clinically appropriate setting
- BRG believes there is opportunity to provide care to Vermont's residents utilizing some of these alternative clinical delivery models
- In many cases this could be done by reimagining the current role of an acute care hospital in the community and how to best meet the needs of the community that it serves

Hospital at Home

- In March 2020, CMS announced the **Hospitals Without Walls** program
  - Hospitals were able to transfer patients to outside facilities, such as ambulatory surgery centers, inpatient rehabilitation hospitals, hotels, and dormitories, while still receiving hospital payments under Medicare
- In November 2020, CMS created the **Acute Hospital Care at Home** program
  - Participating hospitals are required to have appropriate screening protocols before care at home begins to assess both medical and non-medical factors, including working utilities, assessment of physical barriers and screenings for domestic violence concerns
  - Beneficiaries will only be admitted from emergency departments and inpatient hospital beds, and an in-person physician evaluation is required prior to starting care at home
- Hospital at Home has the potential to reduce total cost of care (by 30-40%), reduce labs and other services, increase patient satisfaction and reduce readmission rates
- As hospital at home models increase, there will be less need for bed capacity so current projected bed needs are likely overstated.

Source: (https://pubmed.ncbi.nlm.nih.gov/31842232/; https://pubmed.ncbi.nlm.nih.gov/29411238/; https://link.springer.com/article/10.1007/s11606-021-07052-5).

Reimagining Acute Care

- **Micro hospitals**
  - Small-scale, inpatient facilities with eight to 15 short-stay beds
  - They perform many of the same acute-care and emergency services done at larger hospitals (lower acuity), but are cheaper to operate
  - Began appearing as an outgrowth of freestanding emergency departments

- **Freestanding Emergency Departments**
  - Emergency facility that is not physically connected to inpatient services
  - Must be affiliated (satellite) with a hospital in order to be reimbursed by CMS
  - Varying definitions and regulatory structures around the country

- **Freestanding Medical Facilities (Outpatient Hospitals)**

Freestanding Medical Facilities (Outpatient Hospitals)

- Regulatory designation in Maryland to allow former acute care facilities to be decommissioned and transitioned into a different clinical delivery model

- Services include an emergency department, observation beds, mental health, and robust outpatient services

- Example – Bon Secours Hospital in Baltimore City
  - Rapidly aging physical plant
  - Government payers and uninsured patients comprised vast majority of volume
  - State subsidies were annually required to keep the hospital operating
  - Located in an underserved area of Baltimore City
  - Transformed and reopened as Grace Medical Center

Freestanding Medical Facilities (cont.)

- Grace Medical Center offers:
  - emergency care
  - inpatient and outpatient mental health
  - renal dialysis
  - diagnostic services
- Offsite locations provide:
  - primary care
  - drug treatment
  - outpatient mental health services

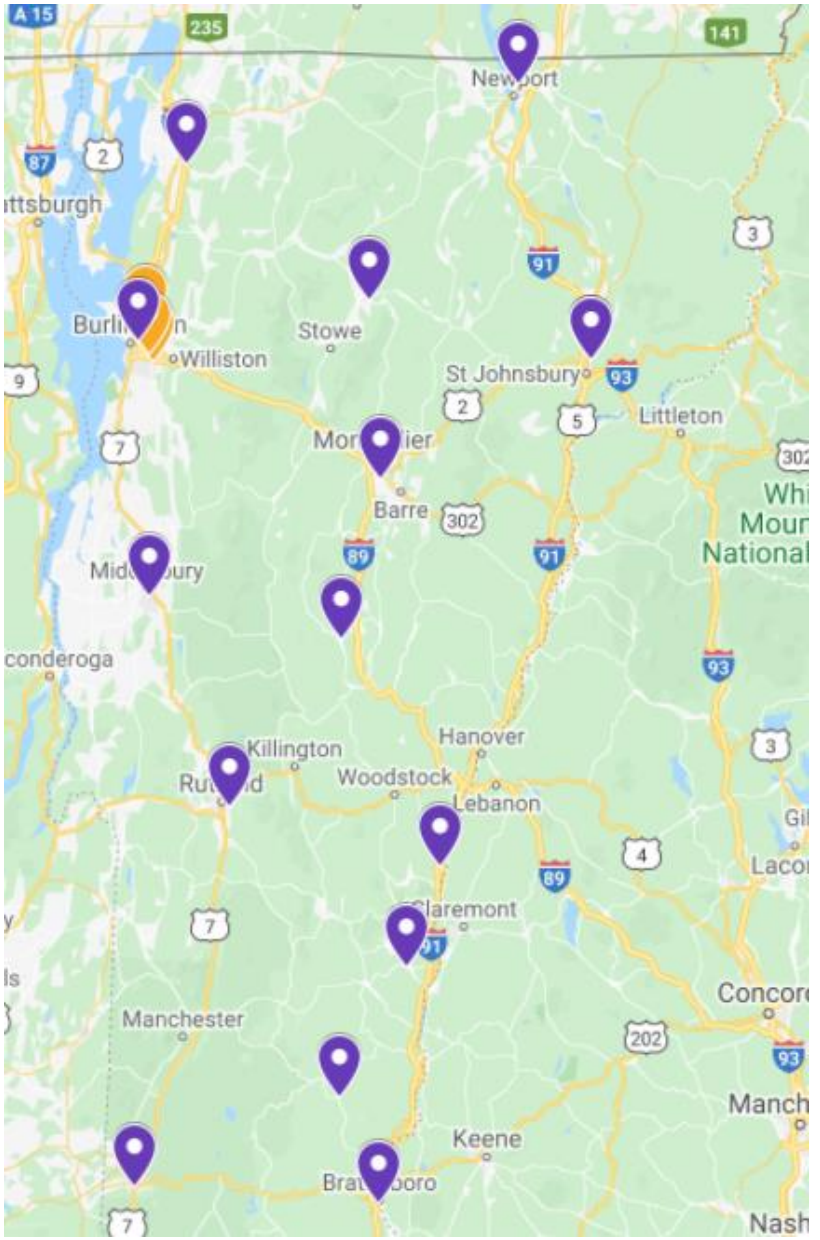
Rural Emergency Hospital

- New designation being proposed by CMS; regulations have not yet been established
- Eligibility
  - Eligible hospitals include CAHs and hospitals with 50 beds or less that are located in a county (or equivalent unit of local government) that is in a rural area defined using the Office of Management and Budget (OMB) designation of non-metropolitan statistical area (MSA), or a hospital with 50 beds or less that is re-classified by CMS as rural
- REH's must:
  - not exceed an annual per patient average length of stay of 24 hours
  - be staffed 24 hours-a-day, seven days-a-week by a physician, nurse practitioner, clinical nurse specialist, or physician assistant
  - meet the licensure requirements and staffing responsibilities of an ED
  - have a transfer agreement in place with a level I or II trauma center
  - meet conditions of participation applicable to CAH emergency services and hospital EDs (as determined applicable by the Secretary of the Department of Health and Human Services)
  - meet the distinct part unit (DPU) requirements if the REH has a skilled nursing facility (SNF) DPU.

Source: https://www.shepscenter.unc.edu/programs-projects/rural-health/

Ambulatory Surgery Centers

- Vermont has the lowest number of ASCs in the country
- Factors influencing the growing number of Medicare-certified ASCs:
  - Medicare beneficiaries' coinsurance is typically lower in ASCs than hospital outpatient departments
  - Medicare now reimburses for total knee replacement in ASCs
  - Hospital system and insurers are more interested in surgical center investment due to the emphasis on value-based care
- Orthopedics is the largest ASC specialty in the country (36% of ASCs)



Sources:
https://www.ascassociation.org/advancingsurgicalcare/asc/numberofascsperstate
https://www.beckersasc.com/asc-news/100-things-to-know-about-ascs-2020.html

Methodology/Criteria

Methodology and Criteria

- In order to determine opportunities to improve hospital sustainability and prepare for a value-based world, BRG reviewed data across a range of factors
- Each of these factors is critical to sustainability in a value-based care framework, both in aggregate (State of Vermont) as well as at the individual hospital level
- BRG created criteria for each of the factors to determine where there may be areas of opportunity, recognizing that policy makers in Vermont will need to work closely with industry leaders to determine the best course of action going forward

Criteria

- Inpatient occupancy rates – adults and pediatrics
- Inpatient occupancy rates – intensive care units
- Projected bed need 2026
- ED use per 1,000 residents
- Prevention Quality Indicator (PQI) per 1,000 residents
- Case mix adjusted average cost per inpatient discharge (all payers)
- CMS Star Rating
- Drive time to nearest VT hospital
- Age of plant

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Criteria #1: Inpatient Occupancy Rates – Adults and Pediatrics

- BRG compared 2019 occupancy rates for each of the hospitals to identify hospitals with lower occupancy rates
- Facilities with lower occupancy rates may be eligible for "right-sizing," consolidation with other facilities, or transitioned to a different care delivery model

Hospital	Inpatient Occupancy Rates - Adults and Peds(%)
Brattleboro Memorial Hospital	36.1%
Central Vermont Medical Center	77.0%
Copley Hospital	56.3%
Gifford Medical Center	58.4%
Grace Cottage Hospital	56.6%
Mt. Ascutney	78.8%
North Country	80.1%
Northeastern Regional	82.0%
Northwestern Medical Center	40.4%
Porter Medical Center	66.6%
Rutland Regional	78.0%
Southwestern Vermont Medical Center	43.4%
Springfield Hospital	45.8%
UVM Medical Center	81.0%

Red = less than 50%

Yellow = 50-75%

Green = Greater than 75%

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Criteria #2: Inpatient Occupancy Rates – Intensive Care Units

- BRG compared 2019 occupancy rates for each of the hospitals to identify hospitals with lower occupancy rates
- Facilities with lower occupancy rates may be eligible for "right-sizing," consolidation with other facilities, or transitioned to a different care delivery model

Red = less than 50%
Yellow = 50-75%
Green = Greater than 75%

*ICU beds were not reported in Medicare Cost Reports but our understanding from communications with the GMCB is that NW has 4 bed ICU

Hospital	Inpatient Occupancy Rate - Intensive Care Unit (%)
Brattleboro Memorial Hospital	N/A
Central Vermont Medical Center	58.1%
Copley Hospital	N/A
Gifford Medical Center	32.3%
Grace Cottage Hospital	N/A
Mt. Ascutney	N/A
North Country	8.2%
Northeastern Regional	46.4%
Northwestern Medical Center	N/A*
Porter Medical Center	N/A
Rutland Regional	26.2%
Southwestern Vermont Medical Center	47.9%
Springfield Hospital	N/A
UVM Medical Center	67.0%

Criteria #3: Projected Bed Need 2026

- Calculated projected bed need in 2016, including the additional of additional capacity at Dartmouth-Hitchcock
- Hospitals with reduced bed need may present opportunities for efficiency

Hospital	Projected Bed Need 2026
Brattleboro Memorial Hospital	-26
Central Vermont Medical Center	1
Copley Hospital	-9
Gifford Medical Center	-8
Grace Cottage Hospital	-18
Mt. Ascutney	2
North Country	-10
Northeastern Regional	-9
Northwestern Medical Center	-21
Porter Medical Center	-12
Rutland Regional	-8
Southwestern Vermont Medical Center	-35
Springfield Hospital	0
UVM Medical Center	60

Red - bed reduction
Yellow - no change
Green - bed increase

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Criteria #4: ED Use Rate per 1k residents for HSA

- Calculated ED use rates on a population basis for each HSA
- Compared ED use rates vs the VT average to determine HSAs with higher ED use rates, potentially indicating need for greater ambulatory services access

Hospital	ED Use Rate (per 1,000 population) for Hospital's HSA	
Brattleboro Memorial Hospital	Brattleboro	356.95
Central Vermont Medical Center	Barre	333.99
Copley Hospital	Morrisville	386.82
Gifford Medical Center	Randolph	336.73
Grace Cottage Hospital	Brattleboro (Grace Cottage is in same HSA as Brattleboro Memorial Hospital)	356.95
Mt. Ascutney	White River Jct	104.36
North Country	Newport	513.18
Northeastern Regional	St. Johnsbury	439.49
Northwestern Medical Center	St. Albans	477.54
Porter Medical Center	Middlebury	494.94
Rutland Regional	Rutland	411.93
Southwestern Vermont Medical Center	Bennington	422.75
Springfield Hospital	Springfield	446.94
UVM Medical Center	Burlington	238.26

Red - above VT average

Green - below VT average

VT average = 340.4

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Criteria #5: Prevention Quality Indicator (PQI) per 1k residents

- Calculated PQI Composite use rates on a population basis for each HSA
- Compared use rates to an AHRQ benchmark

Hospital		PQI Overall Composite for Hospital's HSA (per 1k residents)
Brattleboro Memorial Hospital	Brattleboro	10.63
Central Vermont Medical Center	Barre	8.01
Copley Hospital	Morrisville	
Gifford Medical Center	Randolph	15.01
Grace Cottage Hospital	Brattleboro (Grace Cottage is in same HSA as Brattleboro Memorial Hospital)	10.63
Mt. Ascutney	White River Jct	8.48
North Country	Newport	12.94
Northeastern Regional	St. Johnsbury	11.7
Northwestern Medical Center	St. Albans	12.48
Porter Medical Center	Middlebury	7.73
Rutland Regional	Rutland	13.24
Southwestern Vermont Medical Center	Bennington	16.41
Springfield Hospital	Springfield	12.64
UVM Medical Center	Burlington	5.96

Red - greater than AHRQ benchmark

Green - lower than AHRQ benchmark

AHRQ benchmark - 13.06

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Criteria #6: Case Mix Adjusted Average Cost per Inpatient Discharge (All payers)

- Utilized information provided by Burns and Associates
- Created cut points to show outliers
- Although cost differentiation exists by payer, stratification by all payer demonstrates distinct differences across hospitals

Hospital	Case Mix Adjusted Average Cost per Inpatient Discharge (All Payers)
Brattleboro Memorial Hospital	$14,683
Central Vermont Medical Center	$14,846
Copley Hospital	$11,733
Gifford Medical Center	$13,947
Grace Cottage Hospital	$18,485
Mt. Ascutney	$22,004
North Country	$9,422
Northeastern Regional	$14,115
Northwestern Medical Center	$12,441
Porter Medical Center	$10,582
Rutland Regional	$15,624
Southwestern Vermont Medical Center	$9,681
Springfield Hospital	$9,725
UVM Medical Center	$19,228

Red - greater than $16,000

Yellow - $12,000 - $16,000

Green - lesss than $12,000

Criteria #7: CMS Star Rating

- Utilized CMS Star Ratings as a proxy for hospital quality
- Not all hospitals had CMS Star Ratings as noted in the chart

Hospital	CMS Star Rating
Brattleboro Memorial Hospital	2
Central Vermont Medical Center	5
Copley Hospital	4
Gifford Medical Center	3
Grace Cottage Hospital	N/A
Mt. Ascutney	4
North Country	2
Northeastern Regional	3
Northwestern Medical Center	3
Porter Medical Center	3
Rutland Regional	4
Southwestern Vermont Medical Center	4
Springfield Hospital	N/A
UVM Medical Center	5

Red = 1 or 2

Yellow = 3

Green = 4 or 5

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Criteria #8: Drive Time to Nearest VT Hospital

- Calculated the drive time between VT hospitals
- Used drive time rather than distance to account for geographic factors
- Hospitals close together providing similar services may provide opportunity for consolidation

Hospital	Closest VT Hospital based on Travel Time	Estimated Drive Time to Nearest VT Hospital (min)
Brattleboro Memorial Hospital	Grace Cottage Hospital	28
Central Vermont Medical Center	Gifford Medical Center	30
Copley Hospital	Central Vermont Medical Center	45
Gifford Medical Center	Central Vermont Medical Center	30
Grace Cottage Hospital	Brattleboro Memorial Hospital	28
Mt. Ascutney	Springfield Hospital	30
North Country	Copley Hospital Northeastern Regional	60
Northeastern Regional	Copley Hospital	56
Northwestern Medical Center	UVM Medical Center	30
Porter Medical Center	Rutland Regional	55
Rutland Regional	Porter Medical Center	55
Southwestern Vermont Medical Center	Brattleboro Memorial Hospital	65
Springfield Hospital	Mt. Ascutney	30
UVM Medical Center	Northwestern Medical Center	30

Red = Greater than 30 min

Yellow = 30 min

Green = less than 30 min

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Criteria #9: Age of Plant

- The age of plant for each of the hospitals was assessed
- A higher age of plant may reflect deferred maintenance and higher need for capital investment
- Studies have shown that hospitals with newer physical plans perform better on value-based purchasing measures*

*Source: https://pubmed.ncbi.nlm.nih.gov/30379712/

Hospital	Age of Plant
Brattleboro Memorial Hospital	11.9
Central Vermont Medical Center	12.2
Copley Hospital	11.6
Gifford Medical Center	19.3
Grace Cottage Hospital	21.1
Mt. Ascutney	12.6
North Country	12.9
Northeastern Regional	12.7
Northwestern Medical Center	10.1
Porter Medical Center	12.8
Rutland Regional	13.9
Southwestern Vermont Medical Center	18.2
Springfield Hospital	17.2
UVM Medical Center	13.2

Red = greater than state average
Yellow = state average
Green = less than state average
Average = 14.3 years

Opportunities

Areas of Opportunity

- In reviewing potential areas of opportunity, BRG identified four distinct categories:
  - **Steady State**
    - Potential opportunities given the current demand for inpatient services, demographics, etc.
    - These opportunities exist even without additional care delivery reforms.
  - **Acute Care Model Changes**
    - Opportunities to change the acute care delivery model based on reimagining existing facilities, sites, and clinical models
  - **Value-Based Care**
    - Opportunities focusing on care that does not need to be provided in the hospital if different resources were available
  - **Regulatory Enhancements**
    - Opportunities to utilize regulatory tools to promote hospital stability and the shift to value-based payments

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Area of Opportunity #1 – Steady State

Potential Opportunity	Rationale

Transition inpatient services from Grace Cottage to Brattleboro Hospital	• **Occupancy rate**
	  • Both facilities have low occupancy rates
	  • Brattleboro (36.1%)
	  • Grace Cottage (56.6%)
	• **Projected bed need.** Both hospitals are projecting a reduced bed need by 2026
	  • Grace Cotttage (-18)
	  • Brattleboro (-26)
	• **Travel time -** less than 30 min drive time between the two facilities
	• **Cost per discharge –** Grace Cottage has one of the highest costs per discharge in the state ($18,485)
	• **Age of plant**
	  • Brattleboro's (11.9 years)
	  • Grace Cottage (21.1 years)
	• **Both serve the same HSA**

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Area of Opportunity #2 – Steady State

Potential Opportunity	Rationale

Transition inpatient services from Springfield to Mt. Ascutney	• **Occupancy rate -** Springfield has a low occupancy rate (45.8%)
	• **Quality rating –** Mt. Ascutney has a higher quality rating (4 stars)
	• **Travel time –** 30 min drive time between facilities
	• **Age of plant**
	  • Mt. Ascutney (12.6)
	  • Springfield (17.2)

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Area of Opportunity #3 – Steady State

Potential Opportunity	Rationale

Transition Gifford ICU services to Central VT	• **Occupancy rate**
	  • Gifford has a small ICU (2 beds) and low occupancy (32.3%)
	  • Central VT ICU has a higher occupancy (56.1%) but still has capacity
	• **Cost per discharge** – Comparable between Gifford ($13,947) and Central VT ($14,846)
	• **Quality rating -** Central VT has a higher quality rating (5 stars)
	• **Travel time -** 30 min drive time between the facilities
	• **Age of plant**
	  • Central VT (12.2)
	  • Gifford (19.3)

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Area of Opportunity #4 – Steady State

Potential Opportunity	Rationale

Transition North Country ICU services:
• Move ICU services to Northeastern Hospital; or
• Develop transfer protocol to UVM
	• **Occupancy rate**
	  • North Country has a low occupancy (8%)
	• **Travel time**
	  • Nearest hospitals are Copley (no ICU) and Northeastern (46% ICU occupancy) – both are 60 min drives
	  • Alternative approach could be to create a transfer protocol to UVM – medevac, etc.

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Area of Opportunity #5 – Steady State

Potential Opportunity	Rationale
Transition Northwestern ICU services to UVM	• **Occupancy rate** • Northwestern has a low number of ICU beds (4) and a low occupancy rate • **Travel time –** 30 min drive to UVM • **Quality rating** – UVM has higher quality (5 stars)

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Area of Opportunity #6 – Steady State

Potential Opportunity	Rationale

Create Centers of Excellence for certain types of care (Example – orthopedic surgery – 2019 data)	• Most of VT's hospitals perform orthopedic procedures
	• Several hospitals do not meet hospital volume standards as established by The Leapfrog Group
	• Total hip (50 annually)
	  • Copley (42)
	  • Gifford (8)
	  • North Country (22)
	  • Springfield (10)
	• Total knee (50 annually)
	  • Gifford (14)
	  • North Country (<6)
	  • Northwestern (9)
	  • Porter (48)
	  • Springfield (19)

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Area of Opportunity #7 – Acute Care Model Delivery Changes

Potential Opportunity	Rationale

Convert facilities with lower inpatient occupancy rates (small or no ICU) and higher ED volumes into an alternate acute care delivery model:
• Rural Emergency Hospital
• Freestanding emergency department
• Freestanding Medical Facility
• Use of Hospital at Home
	• May not need acute care hospital with all current services
	
	• **Northwestern**
	  • Occupancy rate (40.4%)
	  • Projected bed need (-21)
	  • ED rate (477.54 per 1k residents)
	
	• **Springfield**
	  • Occupancy rate (45.8%)
	  • ED rate (446.94 per 1k residents)

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Area of Opportunity #8 – Value Based Care

Potential Opportunity	Rationale
Conduct a study to quantify low value care being provided in Vermont's hospitals and utilize regulatory tools to create financial incentives to reduce it	• Low-value care can be defined as "services that provide little or no benefit to patients, have potential to cause harm, incur unnecessary cost to patients, or waste limited healthcare resources." • Examples include low back imaging within 6 weeks of onset, branded drugs when generics are available, etc. • In 2014, The Commonwealth of Virginia reported spending $586 million in unnecessary costs using data from their All-Payer Claims Database

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Area of Opportunity #9 – Value Based Care

Potential Opportunity	Rationale
Conduct a study to quantify low intensity services and Potentially Avoidable Utilization (PAU) being treated in Vermont's hospitals and utilize regulatory tools to create financial incentives to reduce them	• Low intensity services include outpatient procedures that could be done in an ambulatory surgery center (endoscopy, colonoscopy, etc.) at lower cost • PAU is defined as acute inpatient admissions and emergency department visits that can be reduced by timely primary and preventive care • Several VT hospitals have higher than the State average for PAU associated revenue – **Copley, Gifford, Grace Cottage, North Country, Northwestern, and Springfield**

Source: https://ruralhealth.mathematica.org/search?stateId=1044

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Area of Opportunity #10 – Value Based Care

Potential Opportunity	Rationale
Consider enhancements to Vermont's All-Payer ACO Model when negotiations with CMS begin, such as: • Global budgets for hospitals • Increased payer and provider participation	• VT's All-Payer ACO Model can be a tool to create increased alignment in a value-based care payment system • Additional tools should be explored that continue to align financial incentives, not only for hospitals but for other providers that can support the goals of the Model • Global budgets change financial incentives from the emphasis on volume under FFS payments and offer predictable revenue streams, particularly for rural hospitals

Source: https://jamanetwork.com/journals/jama/fullarticle/2767263

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Area of Opportunity #11 – Regulatory Enhancements

Potential Opportunity	Rationale
Expand the data reporting of hospitals to include additional data points such as • Expanded reporting on hospital-based outpatient services, ancillaries, and drugs • non-hospital based services such as ambulatory surgery centers • Average cost by service line	• The goal is establishing a comprehensive understanding of the entire capacity of the healthcare delivery system, particularly where less expensive non-hospital services could substitute for hospital-based services. • For items such as drugs, it is important to understand cost pressures driven by input prices outside the providers' control.

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Area of Opportunity #12 – Regulatory Enhancements

Potential Opportunity	Rationale
Increase quality data reporting requirements to better capture data across payers and providers.	• Not all data fields in VHCURES are available for all payer; Medicare is most complete • Consistency and accuracy of documentation and coding across providers and hospitals will impact risk adjustment

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Area of Opportunity #13 – Regulatory Enhancements

Potential Opportunity	Rationale

Require hospital performance improvement plans for any hospital that is higher than the average for their peer group for cost per admission. These plans would specifically look for areas of opportunity to reduce cost.	• Some facilities are higher than average compared to other hospitals within their peer group
	• PPS
	  • Rutland
	• CAH
	  • Grace Cottage
	  • Mt. Ascutney
	  • Northeastern

Conclusions

- VT has a unique opportunity to transform the healthcare delivery system given it's focus on hospital sustainability and value-based care
- Current value-based programs such as VT's All-Payer ACO can be complementary to hospital "right-sizing" efforts, balancing the need to reduce cost within the system while still maintaining access to care
- VT should consider new care delivery models being utilized around the country, including some recently proposed by CMS, when making determinations regarding the future services provided by VT's hospitals