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GMCB Analytic and Data Team Update

Presented by the Analytic and Data Team

January 27, 2021

Organizing Framework: 2020-2021 Analytic Plan

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Expanding Utility, Quality, & Ease-of-Use of Data Resources

- Improving data products for wider range of users
- Enhancing data quality

Patient Care

- Understanding Access to Care and the Cost of Care

Regulatory Integration

- Health Resource Allocation Plan
- Better information for decision makers

Recent Accomplishments

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Expanding Utility, Quality, & Ease-of-Use of Data Resources

- Released Business Intelligence tool with Tableau dashboards for approved data users
- Developed new policy for linking GMCB data assets with other data sets
- Held data education classes for Board members

Patient Care

- Patient Migration Report
- Patient Origin Report
- All-Payer Model Summary Report and Total Cost of Care Dashboards

Regulatory Integration

- Health care resource inventory
- Primary care interactive reports

Current Projects in Progress

Expanding Utility, Quality, & Ease-of-Use of Data Resources	Analytical file specifications (e.g. fiscal, population health)
	Redesigned data user classes
	Enhanced data validation project
Patient Care	Price variation report
	Cost of care decomposition for joint replacement
	Hospital Markets: Why patients travel for care
Regulatory Integration	Health systems capacity and quality assessment
	Examination of Medicaid price changes and hospital budgets
	Comparisons based on ACO participation

Supporting Efforts Through the State and Beyond

In addition to the Analytic Plan, the A Team continues to expand its support throughout the GMCB, State of Vermont, and external partners.

- Hospital sustainability planning
- Improving data collection (e.g. ACO Budgets, Expenditure Analysis)
- Reporting and data transparency (e.g. hospital finance, All Payer Model)
- Providing data to partners across the state (Tax, Human Services, Analytic Enclave for approved state users)
- Pharmacy Work Group
- Integrating analytic efforts with the Blueprint for Health
- New England States Consortium Systems Organization (NESCO) Primary Care Report
- National Association of Health Data Organizations (NAHDO) Interstate Quality comparisons

SPOTLIGHT:
Improving Data Access and Ease-of-Use

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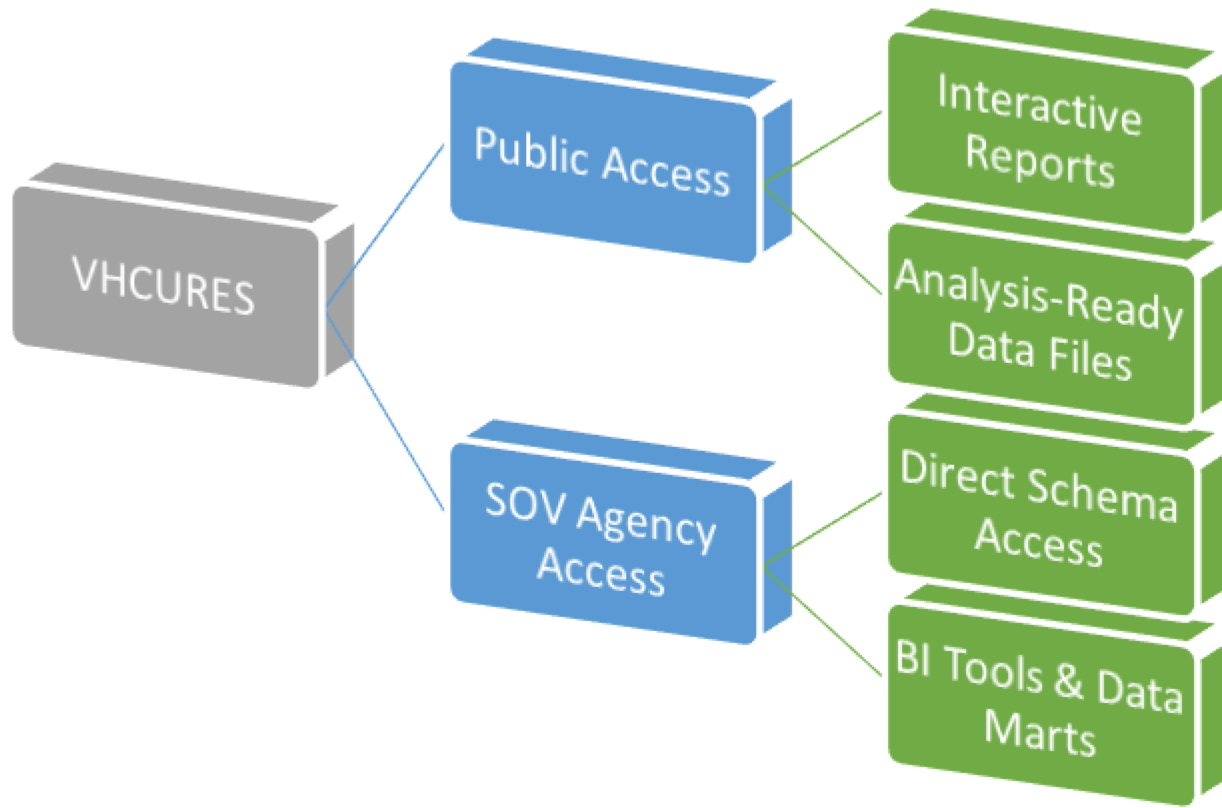

Spotlight: Improving Data Access and Ease-of-Use

Interactive Reports

2019 Financial Snapshot - Brattleboro Memorial Hospital

Select A Hospital to Filter Graphs

2019 Approved Budget (Brattleboro)

Approved Net Patient Revenue	$83,947,707
Approved Operating Revenue	$87,168,852
Approved Operating Expenses	$87,154,734
Approved Non Operating Revenue	$758,000
Approved Days Cash On Hand	196

2019 Financial Actuals (Brattleboro)

Actual Net Patient Revenue	$83,994,257
Actual Operating Revenue	$87,765,845
Actual Operating Expenses	$87,095,267
Actual Non Operating Revenue	$782,350
Acutal Days Cash On Hand	157
Net Operating Income/Loss	$670,579
Total Income/Loss	$1,452,929

Operating Margin (%) / Total Margin (%)

2015 Net Patient Revenue

Total Income/Loss (Actual) by Year

Days Cash on Hand

Spotlight: Improving Data Access and Ease-of-Use

Public Use and Analysis-Ready Data Files

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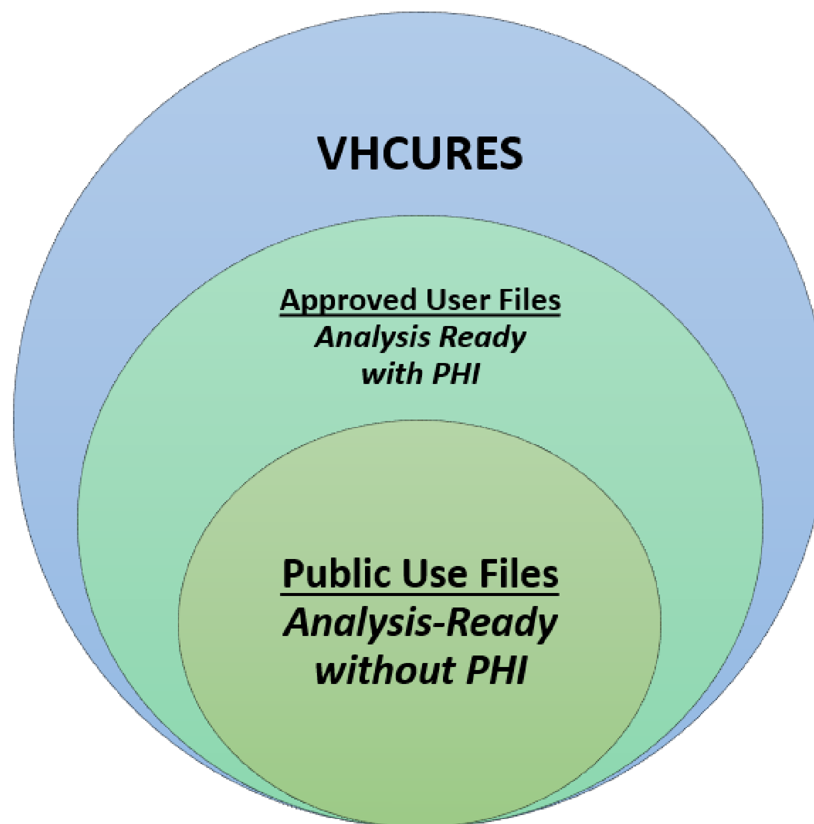


Spotlight: Improving Data Access and Ease-of-Use

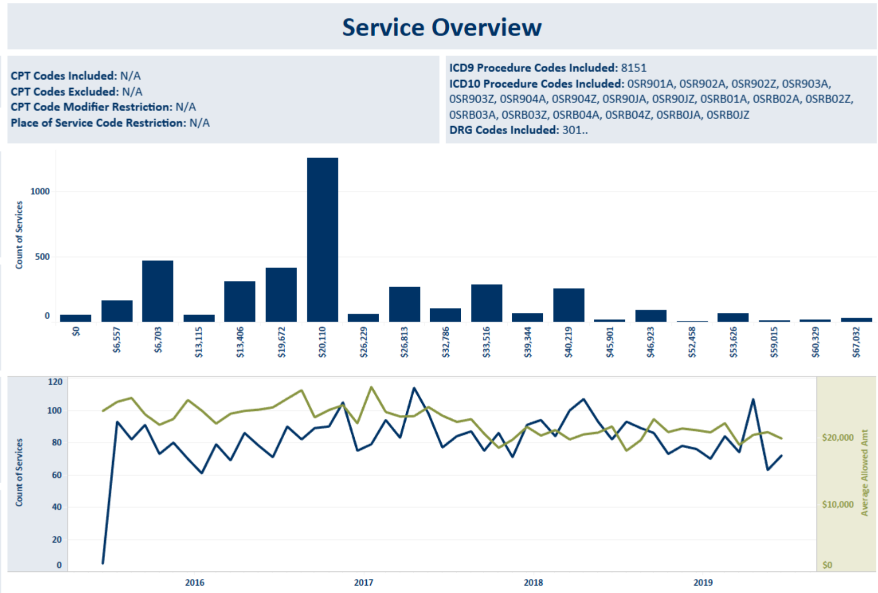
Increase State of Vermont Agency Access

Access to Claims Data for People with Different Levels of Knowledge and Technical Ability

Schema bi_gmcb

Objects | Procedures | Triggers | Search table data

NAME	TYPE	CATALOG	SCHEMA	REMARKS
bi_episodes	TABLE	dw01	bi_gmcb	
bi_episodes_configuration	TABLE	dw01	bi_gmcb	
bi_episodes_cy2019	TABLE	dw01	bi_gmcb	
bi_episodes_dictionary	TABLE	dw01	bi_gmcb	
bi_episodes_measures	TABLE	dw01	bi_gmcb	
bi_episodes_roster	TABLE	dw01	bi_gmcb	
bi_geography	TABLE	dw01	bi_gmcb	
bi_geography_cy2019	TABLE	dw01	bi_gmcb	
bi_member	TABLE	dw01	bi_gmcb	
bi_member_aco_hist	TABLE	dw01	bi_gmcb	
bi_member_bkp_240	TABLE	dw01	bi_gmcb	
bi_member_cy2019	TABLE	dw01	bi_gmcb	
bi_member_dictionary	TABLE	dw01	bi_gmcb	
bi_member_dictionary_bkp_240	TABLE	dw01	bi_gmcb	
bi_member_dictionary_cy2019	TABLE	dw01	bi_gmcb	
bi_member_measures	TABLE	dw01	bi_gmcb	
bi_provider	TABLE	dw01	bi_gmcb	
bi_provider_cy2019	TABLE	dw01	bi_gmcb	
bi_submitter	TABLE	dw01	bi_gmcb	
bi_submitter_bkp_240	TABLE	dw01	bi_gmcb	
bi_submitter_cy2019	TABLE	dw01	bi_gmcb	
bi_submitter_dictionary	TABLE	dw01	bi_gmcb	
bi_submitter_measures	TABLE	dw01	bi_gmcb	



Spotlight: Improving Data Access and Ease-of-Use

Streamlining Access to GMCB Interactive Reports and Improving Web Design Layout

Data Analysis and Reporting

Research and Reporting Priorities

- GMCB Research and Reporting Priorities 2020-2021
- GMCB Data Analytic Plan Recommendations (produced in 2012)

GMCB's analytic team strives to provide high quality and timely information to support the Board, its staff, a
data could answer with a deep focus to support the Board's regulatory duties.

Public Reports

- All-Payer Performance Summary
  - For detailed information please visit the All-Payer reports page
- All-Payer Total Cost of Care
- Enrollment Trend Report
- Expenditure Analysis
- OneCare Vermont ACO Network Provider Participation
- Patient Migration
- Patient Origin
- Vermont Hospital System Financial Report
- Primary Care Access

GMCB produces public reports that provide statistics describing aspects of the Vermont health care system.
only data submitted to VHCURES is included.

Summary Briefs

- Price Variation
- Data Validation

All-Payer Total Cost of Care

The All-Payer TCOC is calculated for most Vermont residents with claims available in VHCURES, Vermont's All P
type of coverage (e.g. both Medicare and Medicaid), each person is assigned a primary payer type for the mont
date) are included for the month's spending, whether that care was in Vermont or outside of Vermont.

All Payer Total Cost of Care (Interactive Report)

NOTE: Tableau visualizations are not compatible with Microsoft Internet Explorer or Microsoft Edge

- Methodology and Background
- Data for Download

Spotlight: Improving Data Access and Ease-of-Us

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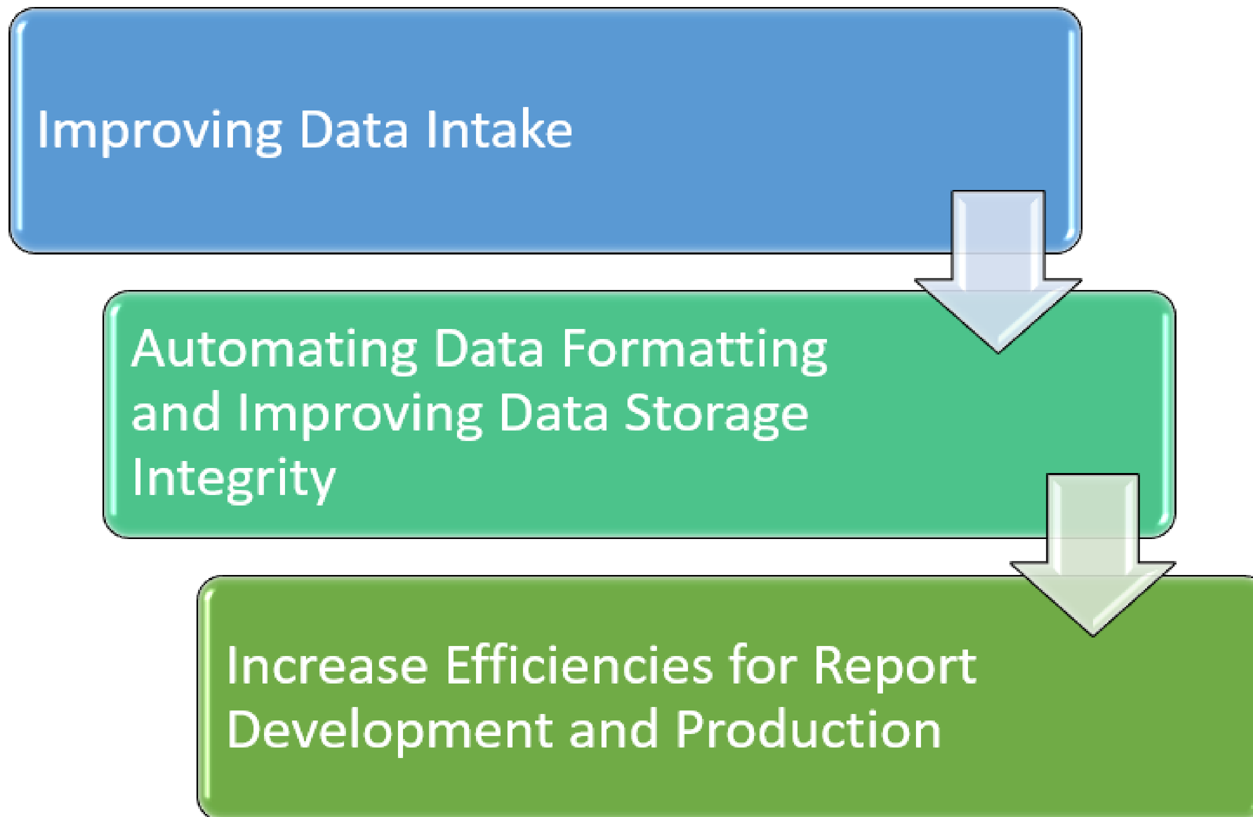
Data Collection and Processing



SPOTLIGHT: Turning Data into Information

Health Resource Allocation Plan

- Per 18 V.S.A. § 9405: "The Plan shall identify Vermont residents' needs for health care services, programs, and facilities; the resources available and the additional resources that would be required to realistically meet those needs and to make access to those services, programs, and facilities affordable for consumers; and the priorities for addressing those needs on a statewide basis."

- Identify priorities using:
    - State Health Improvement Plan (SHIP)
    - Community Health Needs Assessments (CHNA)
    - Health Care Workforce Information
    - Materials provided to the Board
    - Public input process

Health Resource Allocation Plan

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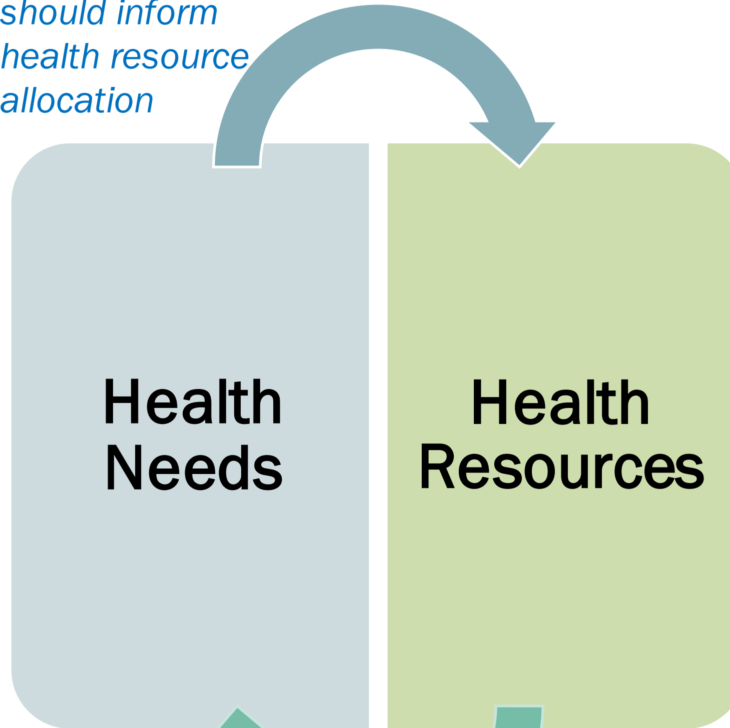
How healthy are we?

1. What are the key health challenges in Vermont? (State Health Assessment (SHA) 2018; Community Health Needs Assessments)
2. What are the contributing factors? (SHA 2018)



Are health resources available?

1. Are health resources available by community or subpopulation?
2. How does availability vary by community or subpopulation?

Health Resource Allocation Plan

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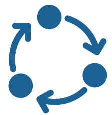
- Phase I completed December 31, 2020.
  - ✓ Stakeholder engagement, requirements gathering, interactive prototype, data collection for priority needs and resources and created HRAP website to highlight resource planning around the state: https://gmcboard.vermont.gov/health-resource-allocation-plan.



Ongoing work:

- Continued stakeholder engagement;
- Interactive visualizations with available data for different health care sectors.

Health Resource Allocation Plan

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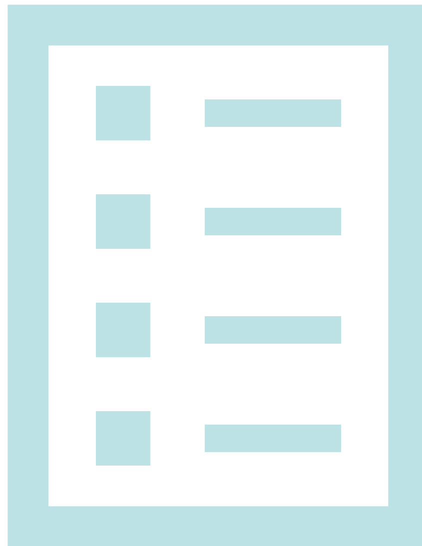
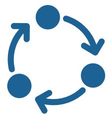


*Phase I Inventory of Health Sectors
Places, People, Services

- ✓ Hospital Based Services
- ✓ Substance Use Disorder Treatment Services
- ✓ Mental Health
- ✓ Home Health and Hospice

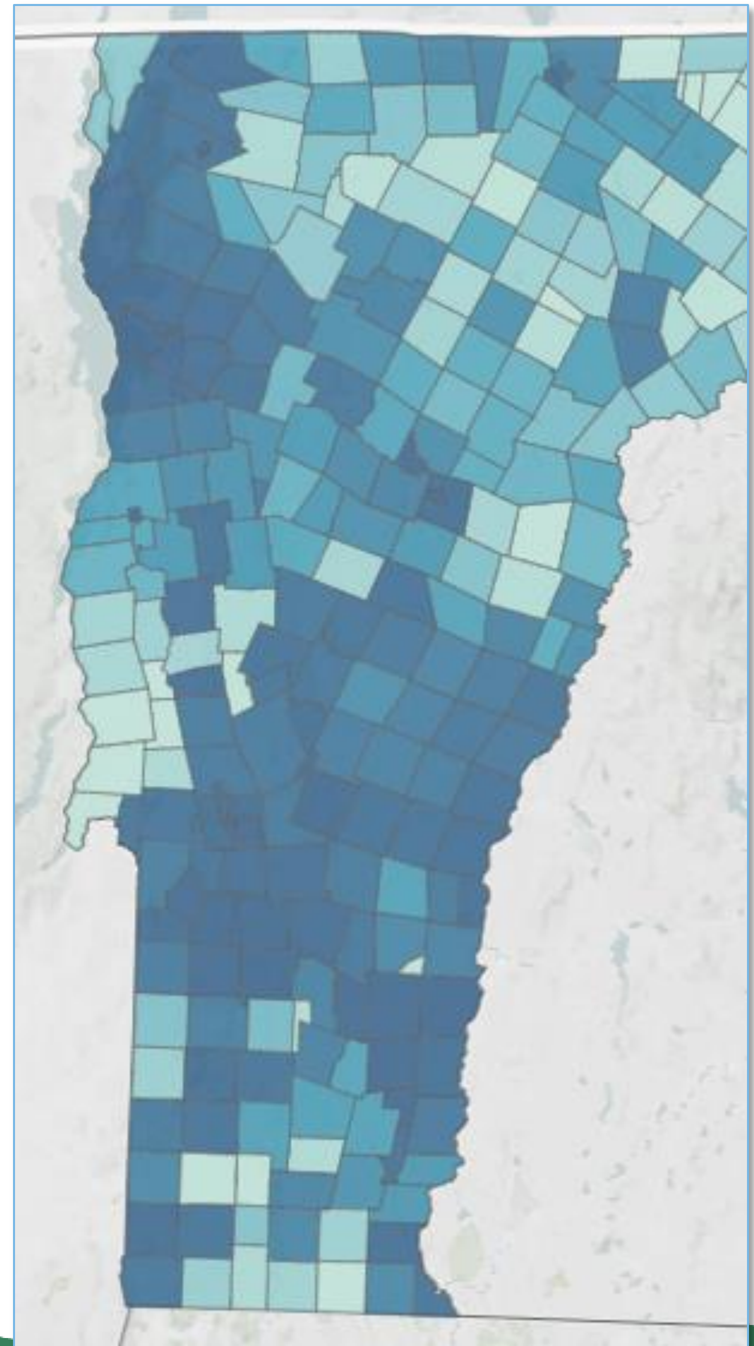


Ongoing work includes revisions to the HRAP Certificate of Need standards.

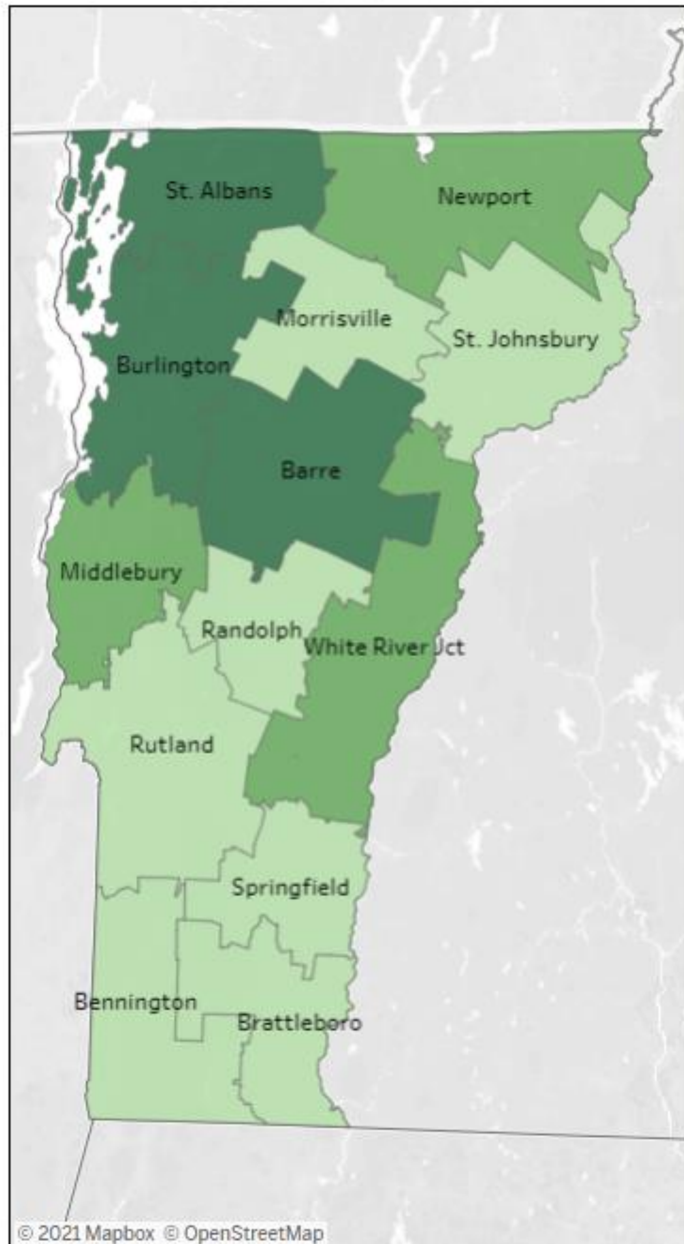
**Reflects identified statewide priority areas from the State Health Improvement Plan, All-Payer Model and Community Health Needs Assessments. Inventories are available on GMCB website: https://gmcboard.vermont.gov/hrap-resources.*

Health Resource Allocation Plan

- Primary Care Access Interactive Visualizations
  - Geographic allocation of primary care resources within the state and measures that reflect health care access.
  - Spatial Analysis: presentation of measures that can determine health care access by hospital service area.
  - Available from GMCB website: https://gmcboard.vermont.gov/primary-care-access.



Access Measures by Health Service Area

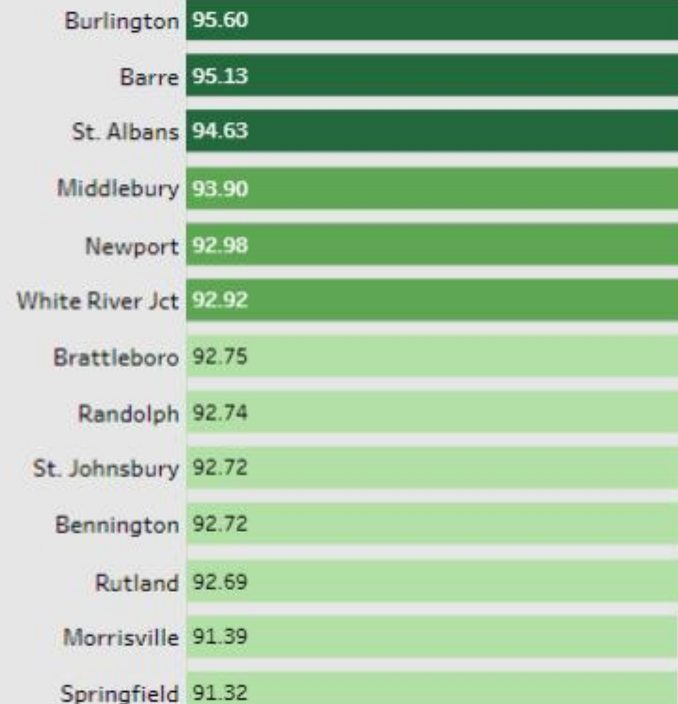


Select Year

- 2015
- 2016
- 2017
- (selected) 2018

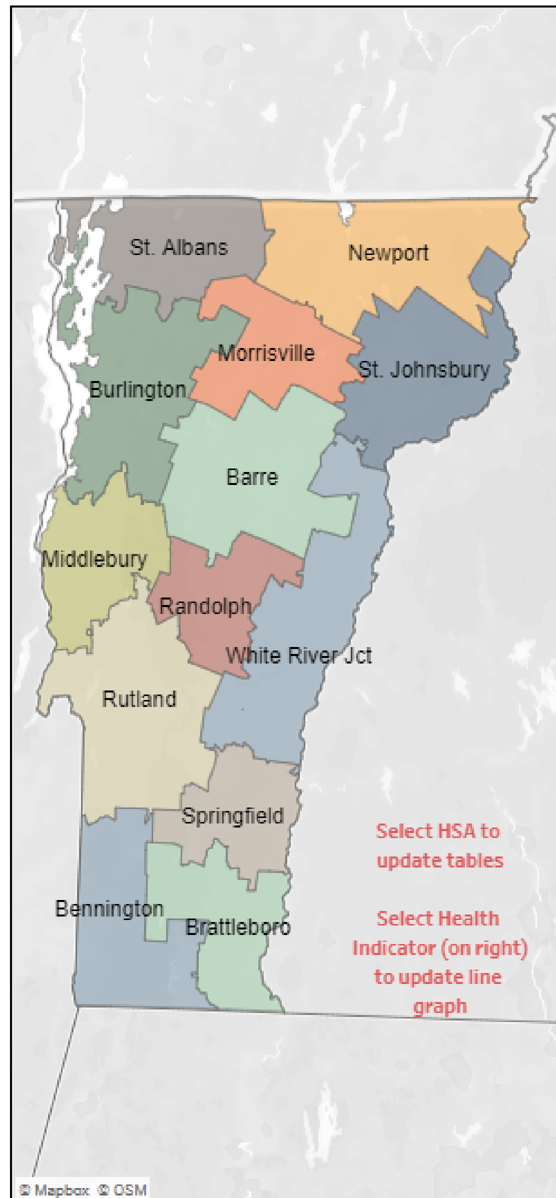
Health Indicator

- PCP - Physician Assistants (FTE) per 100K
- PCP - Physicians MD/DO (FTE) per 100K
- Percent individuals who did not visit a doctor in the past year because ...
- Percent of Adults Who Cannot Obtain or Delay Care
- Percent of Adults with a Usual Primary Care Provider
- (selected) Percent of Adults with Health Insurance
- Percent of children who have a developmental screening in the first 3 y...
- Percent of Children with Health Insurance
- Percent Underinsured



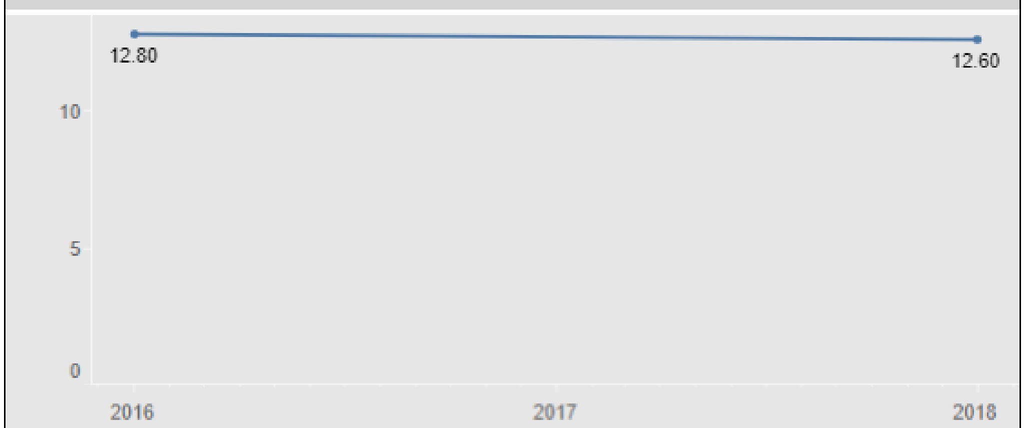
HRAP PC Measures | Indicators by HSA | HSA Snapshot

Health Service Area Snapshot - 2018 Access Measures



Barre HSA - 2018	2018 State-wide Values		
Health Indicator	Minimum	State-wide	Maximum
PCP - Physician Assistants (FTE) per 100K	3.00	14.00	24.50
PCP - Physicians MD/DO (FTE) per 100K	49.00	69.60	89.80
Percent individuals who did not visit a doctor in the past year because of cost	5.00	8.00	11.00
Percent of Adults Who Cannot Obtain or Delay Care	5.00	8.00	11.00
Percent of Adults with a Usual Primary Care Provider	85.00	86.00	90.00
Percent of Adults with Health Insurance	91.32	94.00	95.60
Percent of children who have a developmental screening in the first 3 years of life	34.00	63.00	80.00
Percent of Children with Health Insurance	97.51	98.30	99.40
Percent Underinsured	30.50	35.00	43.20

PCP - Physician Assistants (FTE) per 100K - Barre (2018)



Introduction | Physical Access to Primary Care | Broadband Access by Primary Care Practice | Broadband Access by Town | Socioeconomic Metrics

Drive Time to Primary Care

- Within 15 minutes
- Within 30 minutes

Takeaways

Most Vermonters live less than 30 minutes drive from primary care.

Bus lines tend to serve more densely populated communities within 15 minutes drive of primary care. (not shown)

Non-emergency medical transportation serves the entire state, although riders must be service-eligible.

Vermonters who reside near state borders often have better access to out-of-state practices (not included in the analysis) than Vermont practices.

Most gaps exist in undeveloped areas, which often lack roads and residents.

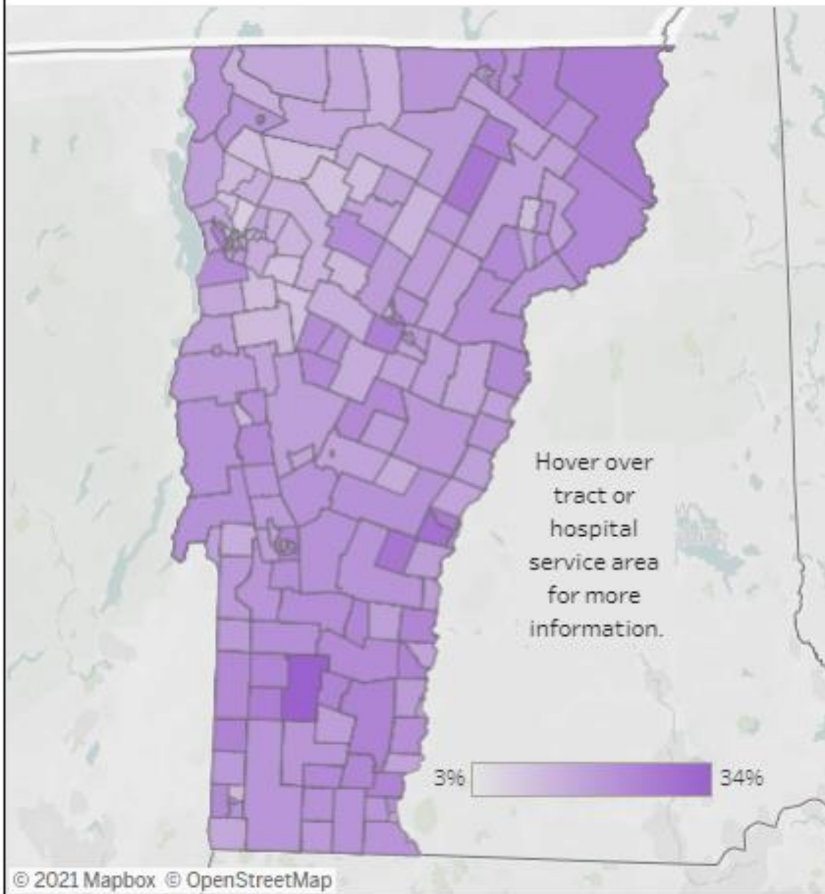
© 2021 Mapbox © OpenStreetMap

Introduction | Physical Access to Primary Care | Broadband Access by Primary Care Practice | Broadband Access by Town | Socioeconomic Metrics

Select Measure:

Population Over 65 Years Old

Percent of Population Over 65 Years Old by Census Tract



Percent of Population Over 65 Years Old by HSA

Note: These metrics were drawn from the CDC Social Vulnerability Index (SVI). The variables were selected for their ability to predict health outcomes in the peer-reviewed literature, as well as their ability to represent the spatial patterns of other SVI variables in a concise way ("dimension reduction").

SPOTLIGHT: Advancing Access

- Access to health care depends on many factors.
  - Payers and providers
  - Physical proximity
  - Digital resources
  - Socioeconomic factors
- As the Analytic Plan advances, we will parse the causes/effects of access in greater detail. Questions could include:
  - What shapes hospital choice for certain diagnoses/procedures?
  - Where are at-risk populations underserved by care? Why?
  - What interventions could best improve access to care?
- Ongoing collaboration, crosspollination with State partners

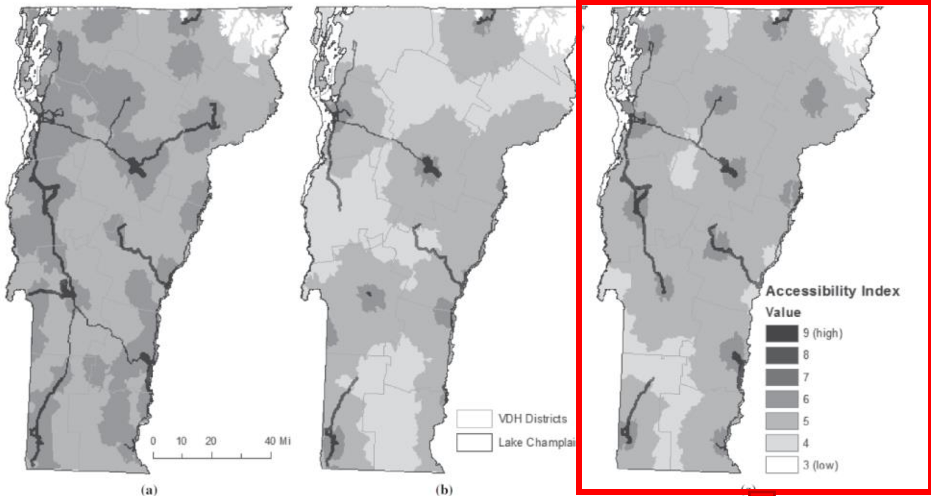
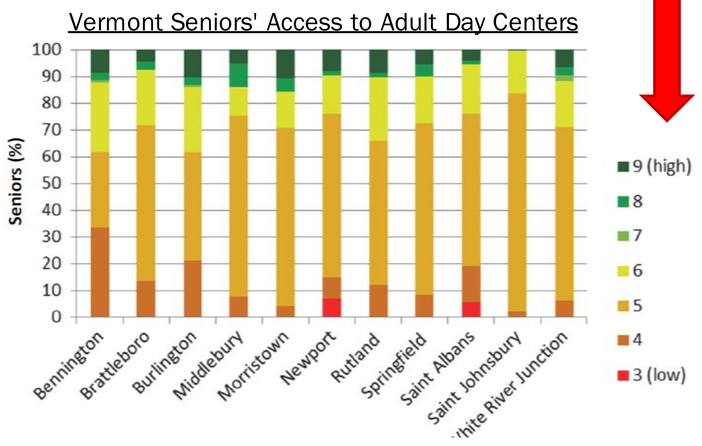


FIGURE 3 Spatial accessibility among health care categories: (a) generalists, (b) oncologists, and (c) ADCs.



Figures from Battista, Geoffrey A., Brian H. Y. Lee, Jane Kolodinsky, and Sarah N. Heiss. “Exploring Transportation Accessibility to Health Care among Vermont’s Rural Seniors.” *Transportation Research Record* 2531, no. 1 (January 1, 2015): 137–45. https://doi.org/10.3141/2531-16.

"It's an unbelievably complex subject. Nobody knew that health care could be so complicated."
- President Donald J. Trump, February 28, 2017

SPOTLIGHT: Claims analysis courses

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- Our health care system is complicated and by extension, the data are complicated!
- Navigating and researching in raw claims data ideally requires the following skills:
  - Familiarity with relational databases and their structure
  - An understanding of medical insurance types, and enrollment/ineligibility
  - Knowledge of medical and pharmaceutical billing and coding
  - Some knowledge of medical practice in the U.S. GMCB stewards the VHCURES claims database
  - Coding experience (SQL, R, Python, etc.)
- While the GMCB stewards the VHCURES database, the A-team helps users along the way to obtaining the data to meet their needs.

SPOTLIGHT: Claims analysis courses

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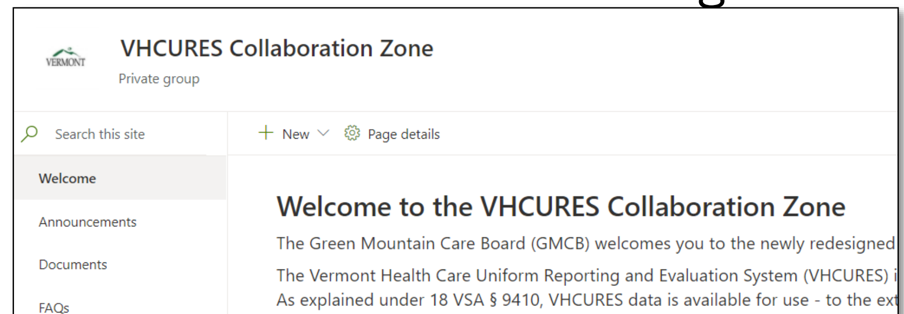
- Previous model:
  - Our partners at Onpoint Health Data provided a VHCURES Data Dictionary and other documentation/user support as requested.
  - Our Data User Group meeting took place every other month and featured topics both broad and narrow related to researching with administrative data.
    - Users/invitees were anyone who has an affidavit to access VHCURES.



  - Project-specific requests for assistance came on an ad-hoc basis to either the A-team or to Onpoint Health Data.

SPOTLIGHT: Claims analysis courses

- New model
  - What's the same – ongoing user support
    - Onpoint Health Data continues to provide the Data Dictionary and Transmittal Reporting. Documentation has expanded to include COVID-19 related summaries.
    - Onpoint user help continues in the form of online presentations/learning opportunities.
  - What's changed – Data User Group structure
    - Invitees must apply to the course with specific projects that can be accomplished using claims data.
    - Topics are specific to claims structure and to the VHCURES database. Just a few topics are listed below:
      - Eligibility – impacts on the results and how we measure it
      - Medical claims & pharmacy claims – what's included and what tables to use
      - Data quality and structure – other sources we can use to check the validity of our findings from claims; and, how to structure our results for use in other programs such as Power BI or Tableau
    - The Sharepoint site will host the meeting recordings, code examples, and Q&A from each week.
    - Invitees will also have access to "office hours" to ask any questions.
    - All other users are encouraged to attend our Data Governance Council meetings for more broadly applicable updates around data sharing and use.

SPOTLIGHT: Claims analysis courses

- Benefits of the new model:
  - The smaller group allows for more in-depth training.
  - All attendees are actively researching in their fields, so this can facilitate better collaboration.
  - More effectively utilizes A-team time
  - Creates a catalog of resources (Q&A, class recordings, and other documentation) for future claims researchers.

SPOTLIGHT: Data Integration

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- Exploring ways to make the GMCB's data assets and information more meaningful to broader audiences.
- Potential types of data for integration include:
  - Electronic medical records
  - Vital statistics
- The GMCB is also collaborating with larger statewide efforts being pursued through the HIE.

Data Linkage Policy

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- In December 2020, the Data Governance Council voted to approve a Data Linkage Policy.
    - to support meaningful use of GMCB's data resources when research and analyses require more robust data than can be obtained from an individual source.
    - To allow data linkage projects consistent with existing principles and policies and consistent with the GMCB's legal authority.

Examples:

- UVM Larner College of Medicine Center for Health Services Research (CHSR) is linking VHCURES and Cancer Registry data to study trends in lung cancer screening, incidence and outcomes.
- Blueprint for Health has linked VHCURES with VT Clinical Registry to enhance Blueprint reporting on clinical outcomes.

Questions?

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