TeleVU Innovations

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TeleVU Innovations

Headquartered in Toronto Canada

➔ Software development start-up integrating AR and AI as a foundation for a seamless ecosystem of healthcare devices.

➔ Committed to leveraging cutting edge technology to bridge the gap in healthcare provisions

➔ Empowering healthcare professionals to collaborate in the delivering of superior care

➔ Software aims to overcome geographical barriers and improve access to specialists and experienced practitioners

Enhancing healthcare in underserved areas

The United States healthcare system is characterized by a blend of cutting-edge medical innovations and ongoing challenges surrounding access, affordability, and disparities in care. While advancements in treatments and technology are notable, a significant amount of the population still struggles with barriers to comprehensive healthcare coverage.

Objective: Our primary goal is to conduct a comprehensive analysis into the healthcare disparities at the state level in the U.S. Identifying areas in need using certain parameters, our research aims to identify existing healthcare coverage gaps, particularly in low-income and rural communities and highlighting the opportunity where TeleVU's software could effectively bridge these gaps by targeting areas lacking accessible healthcare services.

We aim to utilize diverse datasets to identify and understand the factors contributing to these disparities, ultimately seeking pathways to address them effectively.

Hypothesis & Business Questions

Hypothesis

There is a significant disparity in healthcare accessibility and quality between urban and rural areas, especially in states like Texas, Arkansas, etc. Telemedicine tools and services are underutilized in Medicare Advantage plans, particularly in underperforming states, due to lack of infrastructure, awareness.

Business questions set out to answer

1. How does Medicare Advantage impact healthcare services and outcomes, especially in addressing disparities in lower resource areas?

2. To what extent does the integration of telemedicine within Medicare Advantage programs enhance healthcare accessibility and quality?

3. What role do Accountable Care Organizations (ACOs) play in addressing healthcare disparities, and how can TeleVU collaborate with ACOs to enhance healthcare delivery?

4. How do stakeholders perceive the role of Medicare Advantage and telemedicine in advancing healthcare delivery, and what are their recommendations for improvement?

Business Benefits

Coverage gaps in low-income areas and rural communities

Impact of Medicare Advantage & role of ACOs in addressing disparities

Informed decisions & Sales strategy, Product development and partnerships

Understand Relationship Between Current Healthcare Plans, Organizations and TeleHealth

Enable TeleVU to seamlessly Integrate into the U.S. Market by identifying areas that need better access & equity

Research Methods

Utilizing a systematic approach and methodology helped the project stay organized and achieve goals within deadlines.

Partnership with TeleVU

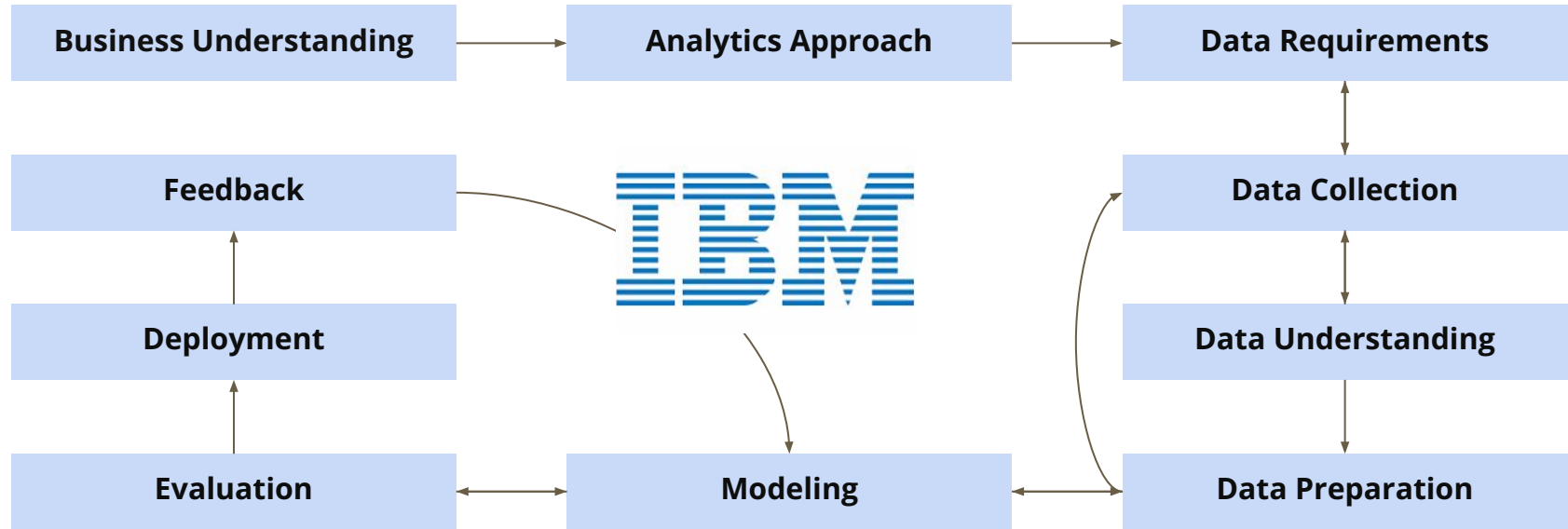- Collaborative dialogue ensured alignment of methods, research and findings with TeleVU's goals and expectations

Leveraging Sponsor Endorsed Platforms

- LinkedIn for interviews, Perplexity for literature sourcing and Tableau for visualizations

Exploration of Library Databases

- Publications from reputable sources provided relevant information on healthcare quality and disparities to inform direction
- World Health Organization, Centers for Disease Control and Prevention, Agency for Healthcare Research and Quality and United States Census provided relevant datasets and publishings
- Findings were presented weekly to sponsor allowing for ongoing feedback and project evolution

Methodology

Business Understanding	→	Analytics Approach	→	Data Requirements

IBM

Feedback				Data Collection

Deployment				Data Understanding

| Evaluation	↔	Modeling	↔	Data Preparation

Analytical Tools

Data Sourcing

- Primary datasets: National Healthcare Quality & Disparities Report, U.S. Census and Centers for Medicare & Medicaid Services
- Provided insights into healthcare quality metrics and Accountable Care Organization (ACO) ratings
- ACO functions, challenges, advantages and integration with healthcare plans
- Analyzed access, affordability, coordination, treatment, effectiveness and patient safety

Leveraging Datasets

- The above data sets enabled detailed exploration of healthcare disparities and opportunities for improvement
- Focused on resource limited areas to address the assumed gaps in healthcare delivery
- Merged several relevant datasets to drive comprehensive analysis of patient outcome trends by state
- Implemented clustering analysis to create parameters to measure success or failure of patient outcomes
- Interactive geographical visualization of healthcare trends in the U.S. made in Tableau

Dashboard - Health Care Disparities
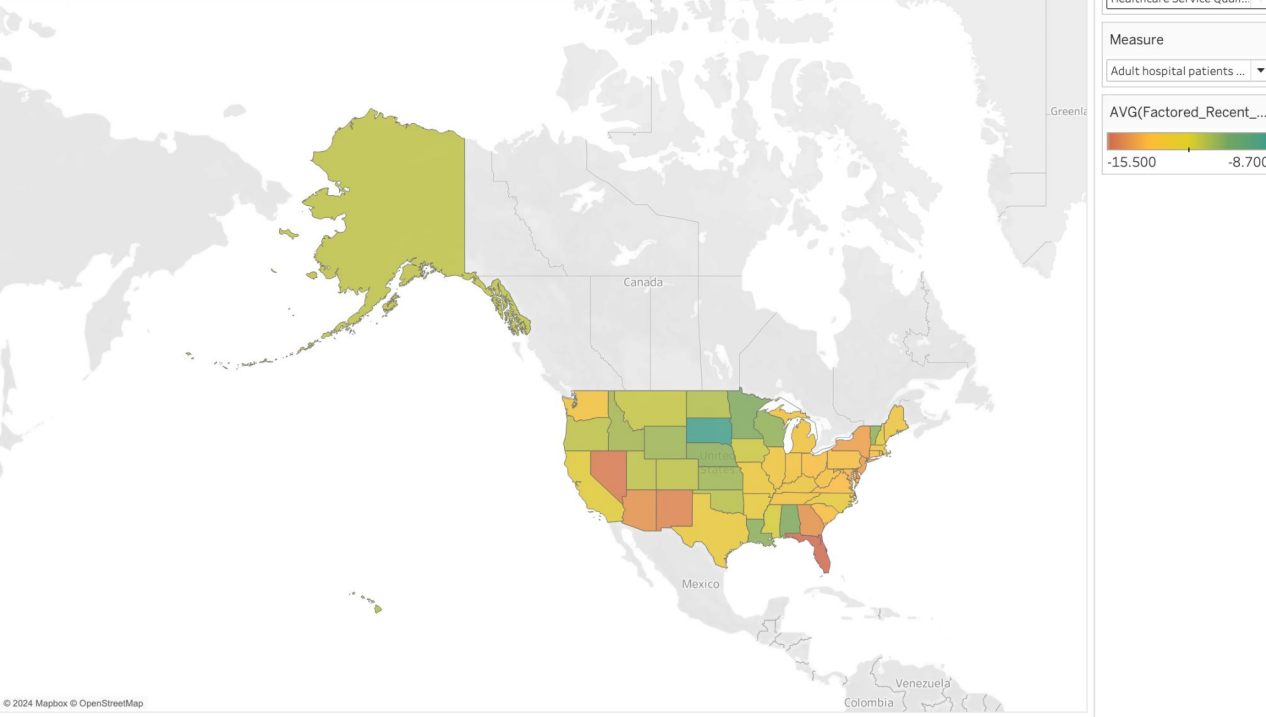
High Performing States

Overall

State	Rank
Iowa	1
Rhode Island	2
South Dakota	3
Wisconsin	4
New Hampshire	5

Accessibility to Health Care

State	Rank
Iowa	1
Kentucky	2
Nebraska	3
Idaho	4
North Carolina	5

Health Care Service Quality

State	Rank
West Virginia	1
Alabama	2
Louisiana	3
Mississippi	4
Arkansas	5

Cancer & Birth Trauma Care

State	Rank
Utah	1
Oregon	2
Minnesota	3
Colorado	4
Iowa	5

Diabetic & Preventive Care

State	Rank
Iowa	1
South Dakota	2
Delaware	3
Wisconsin	4
New Jersey	5

Vaccination

State	Rank
Iowa	1
Rhode Island	2
Vermont	3
Connecticut	4
Maine	5

Low Performing States

Overall	
State	Rank
District of Colum..	51
Nevada	50
Alaska	49
New Mexico	48
Arizona	47

Accessibility to Health Care	
State	Rank
Alaska	51
Nevada	50
New Mexico	49
California	48
Arizona	47

Health Care Service Quality	
State	Rank
District of Colum..	51
Alaska	50
Nevada	49
New Mexico	48
Oregon	47

Cancer & Birth Trauma Care	
State	Rank
West Virginia	51
Mississippi	50
District of Colum..	49
Kentucky	48
Louisiana	47

Diabetic & Preventive Care	
State	Rank
Nevada	51
New Mexico	50
Oregon	49
Oklahoma	48
District of Colum..	47

| Vaccination	
State	Rank
Mississippi	51
Alaska	50
Florida	49
Texas	48
Arizona	47

Correlation - % Rural Vs State HC Measures

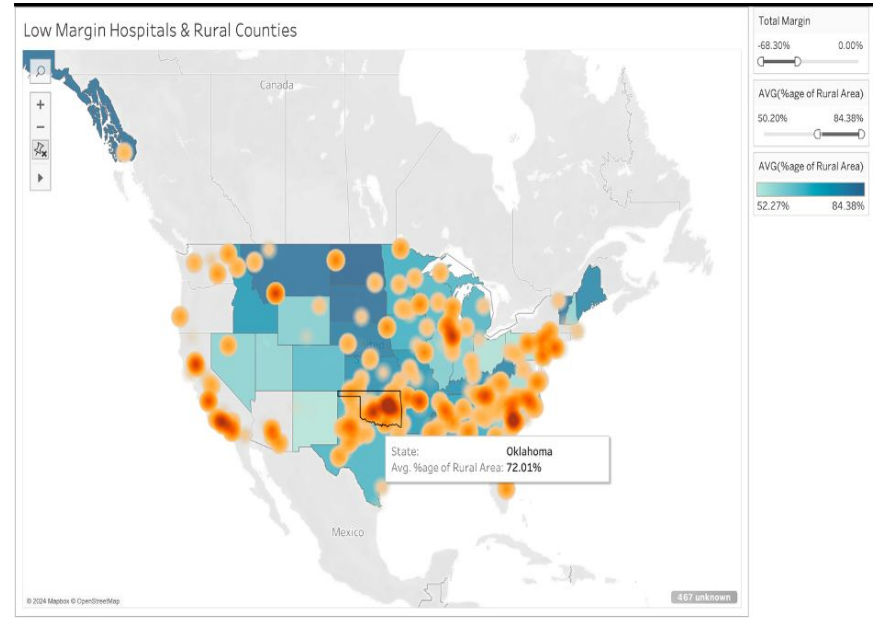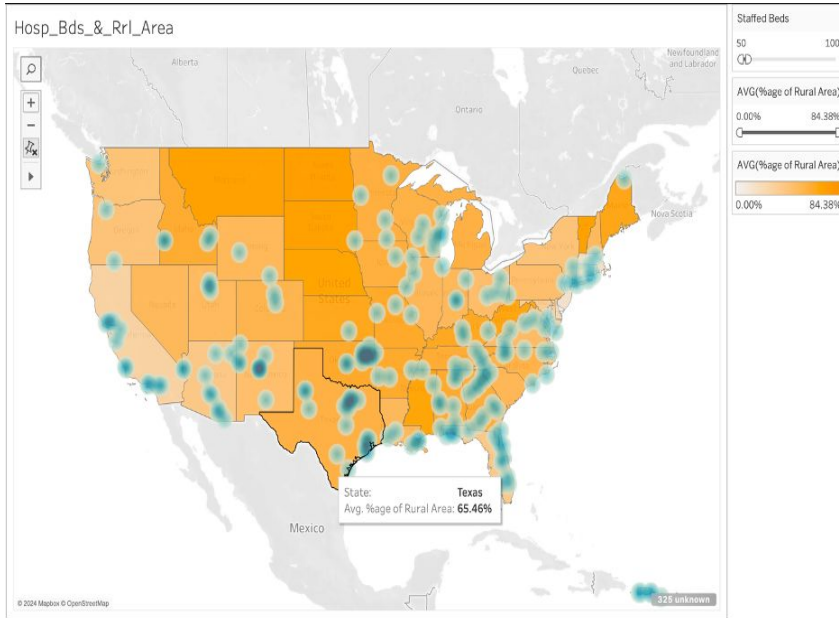|		Overall_ HC_Rank	Service_ & Communication	Access_ & Communication	Vaccination	Diabetic_ & _Preventive Care	Cancer_Care_ Birth_Trauma
Rural Area Rank	Significance	0.0316	0.0002	0.0041	0.5895	0.9999	1.8568
	Spearman Correlation	30%	52%	41%	8%	-1%	-21%
Rural Resid ents Rank	Significance	0.0234	0.0000	0.0032	0.5143	0.9964	1.9057
	Spearman Correlation	32%	56%	42%	9%	0%	-24%

Dashboard - Counties
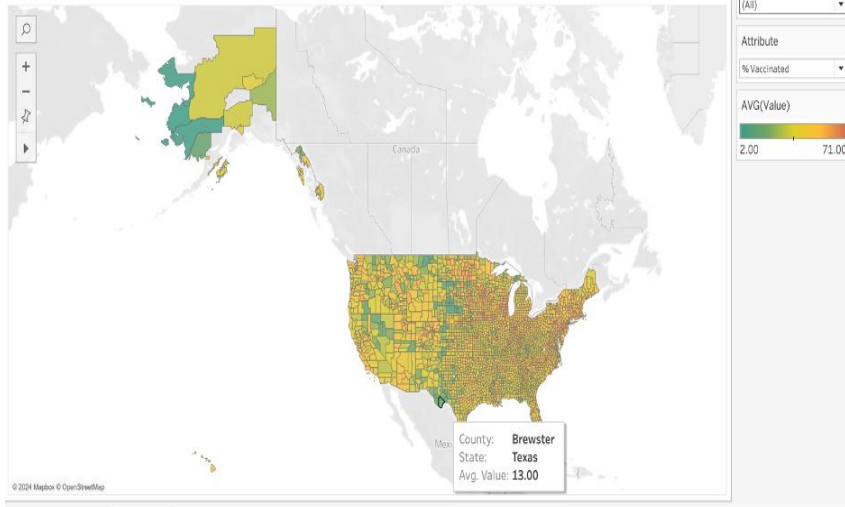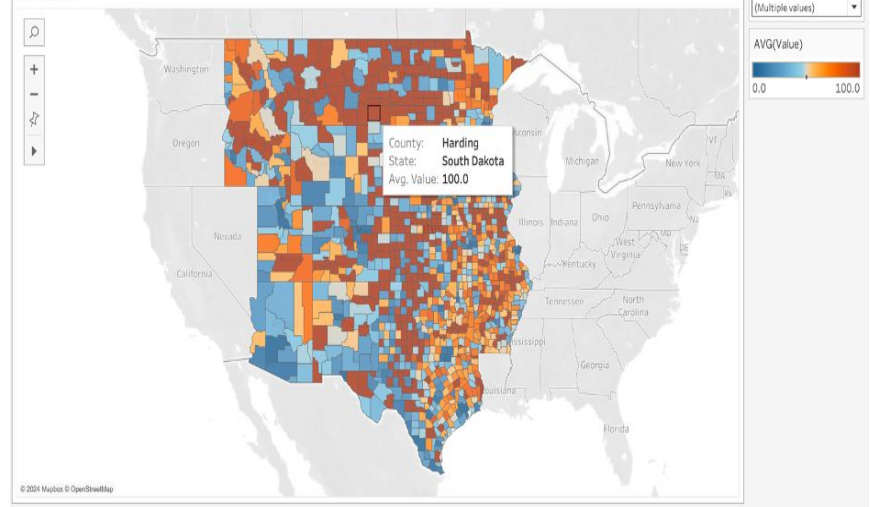
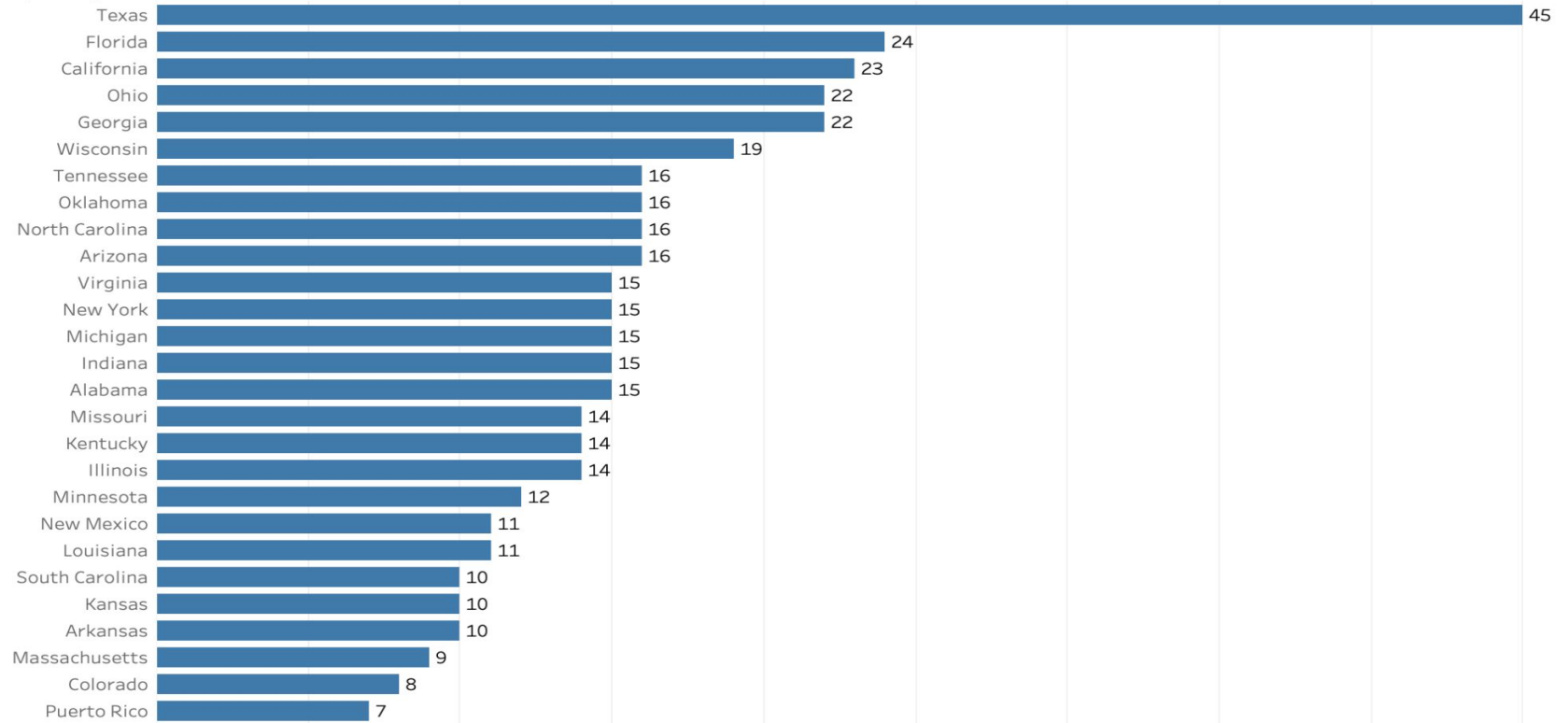# Correlation - County HC Indicators Vs % Rural Area

```
# Rural Residents ,  # Rural Residents 1.0
% Rural ,  % Census Participation -0.5005331631901874
% Rural ,  % Homeowners 0.5110136538490103
% Rural ,  % Rural 0.9999999999999999
% Rural ,  % With Access to Exercise Opportunities -0.6748633158736588
% Rural ,  Age-Adjusted Mortality (AIAN) 0.5037714963429902
% Rural ,  Child Mortality Rate (AIAN) 0.5991317001332328
% Rural ,  Child Mortality Rate (White) 0.5860744464648012
% Rural ,  Firearm Fatalities Rate (White) 0.5225940503241534
% Rural ,  Homicide Rate (White) 0.505398332833665
% Rural ,  Infant Mortality Rate (White) 0.5565410649306409
% Rural ,  Life Expectancy (AIAN) -0.5035328391155355
% Rural ,  MV Mortality Rate (Asian) 0.5903960213634595
% Rural ,  MV Mortality Rate (Black) 0.7651181393952119
% Rural ,  MV Mortality Rate (Hispanic) 0.6359968603644239
% Rural ,  MV Mortality Rate (White) 0.7101275050091675
% Rural ,  Motor Vehicle Mortality Rate 0.5793206136894968
% Rural ,  Suicide Rate (Asian) 0.5314651968549405
% Rural ,  Suicide Rate (Hispanic) 0.5378715599643914
% Rural ,  Teen Birth Rate (Asian) 0.6303678746956848
% Rural ,  Traffic Volume -0.5614508851019016
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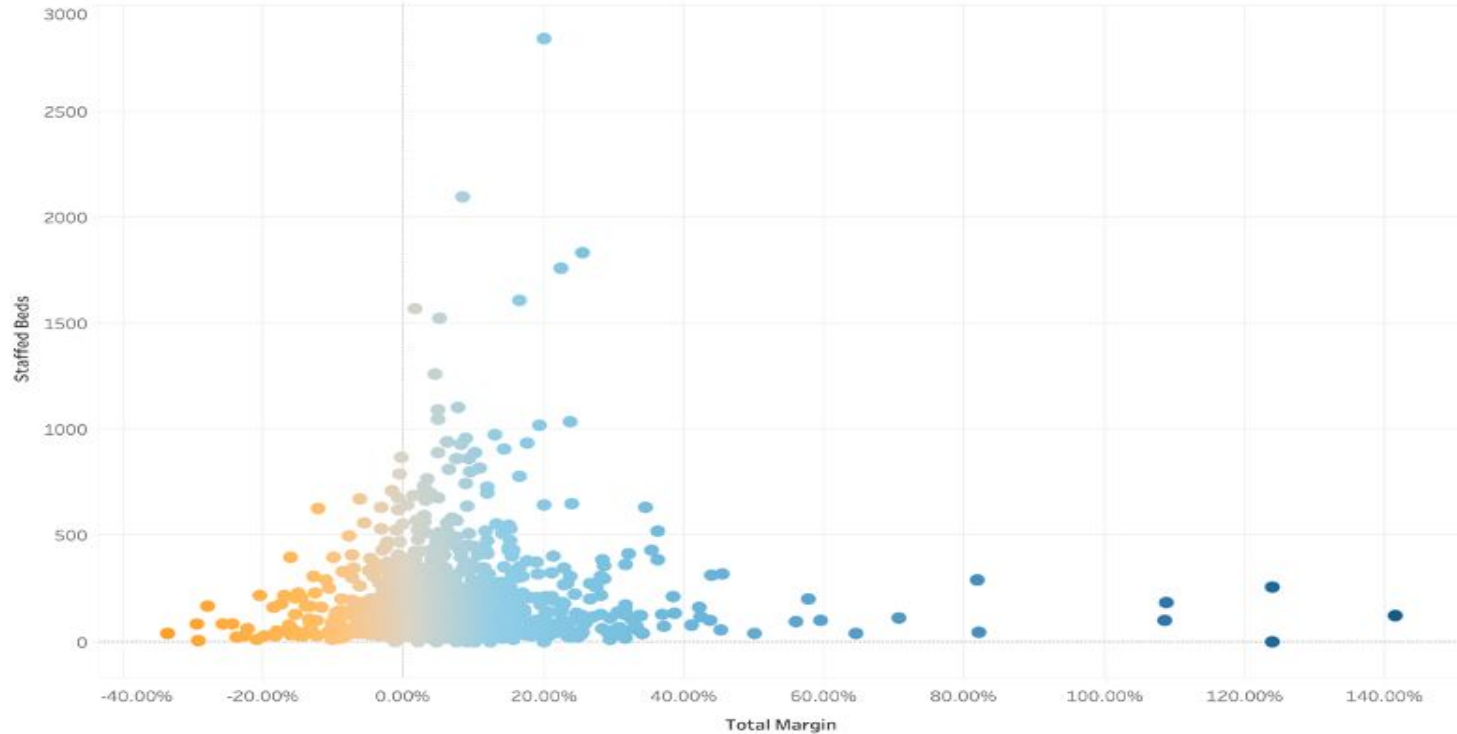
Dashboard - Hospitals
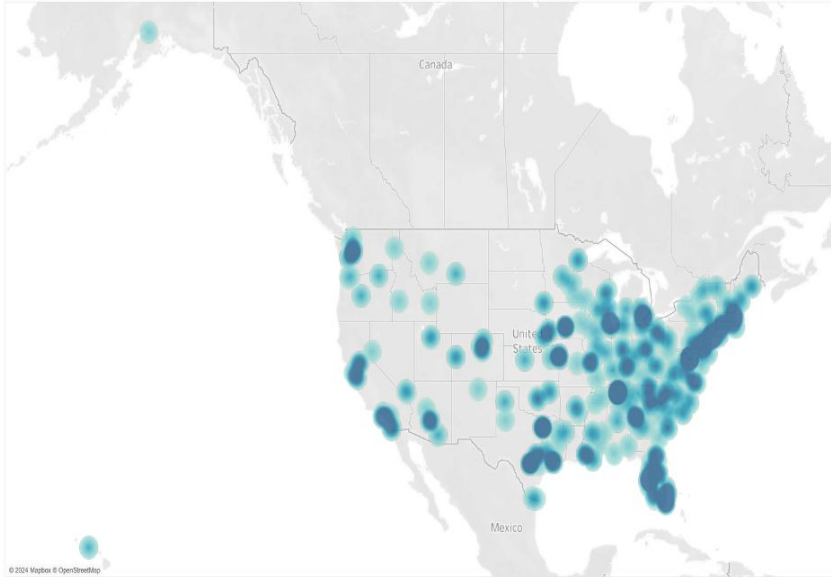
States & Hospitals with 50-100 Staffed Beds

State	Count
Texas	45
Florida	24
California	23
Ohio	22
Georgia	22
Wisconsin	19
Tennessee	16
Oklahoma	16
North Carolina	16
Arizona	16
Virginia	15
New York	15
Michigan	15
Indiana	15
Alabama	15
Missouri	14
Kentucky	14
Illinois	14
Minnesota	12
New Mexico	11
Louisiana	11
South Carolina	10
Kansas	10
Arkansas	10
Massachusetts	9
Colorado	8
Puerto Rico	7

Total Margin Vs Staffed Beds

Dashboard - ACOs
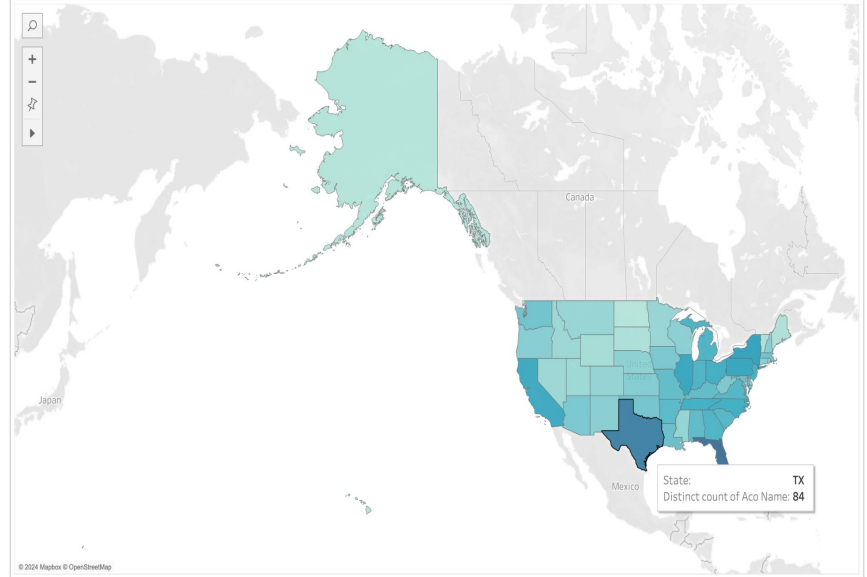
Dashboard - Density Map on Low Revenue ACOs
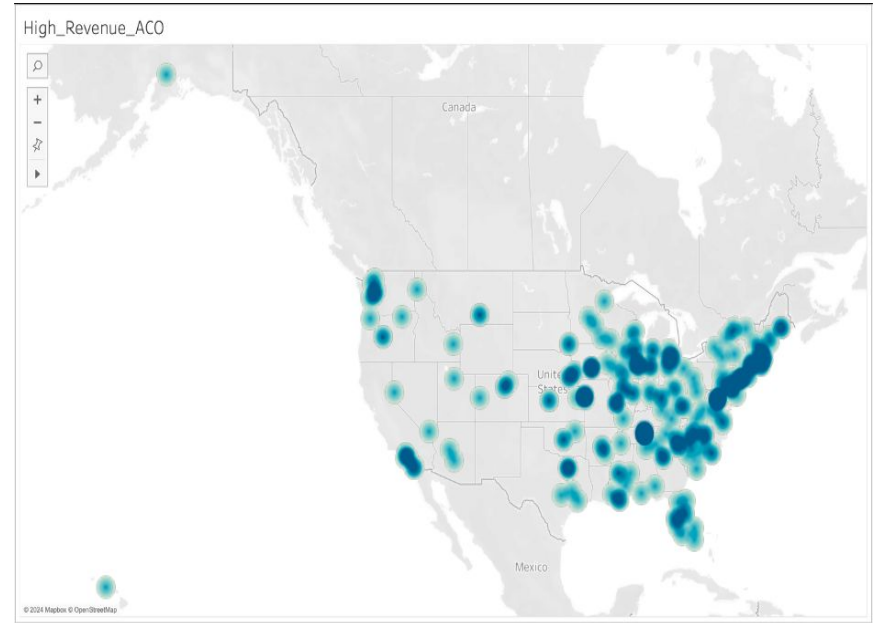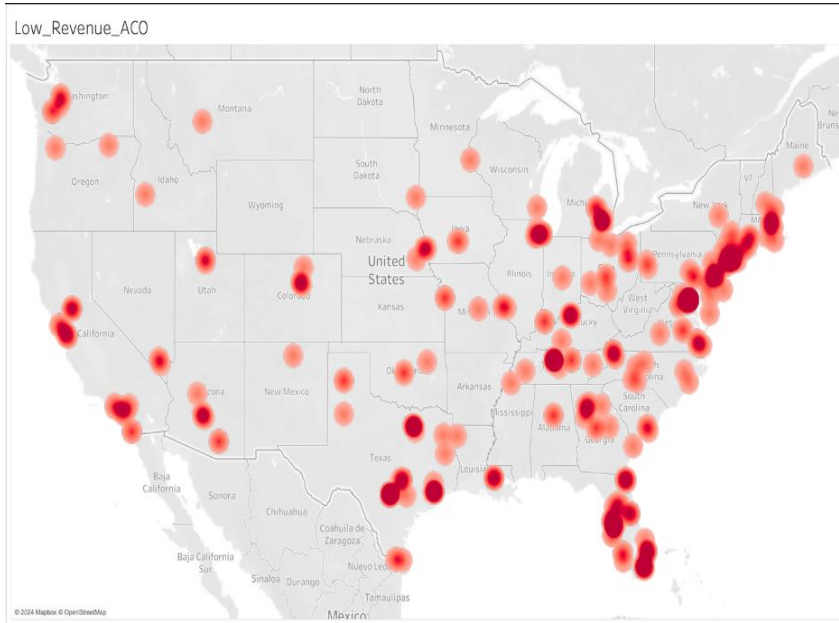
ACOs & States

Aco Name	
Caravan Collaborative Pathways	AL AR AZ CA CO CT FL GA ID IL IN KS MN MO MT NC NE NJ NM NY OH OK OR PA TX WI WV
National MSSP 2019	AL AR CO DC DE FL IN MA MD MI MO NC NE NH NJ NM SC TN TX VA WA
Caravan Health ACO 43 LLC	AL AR CO FL IA ID IN KS MN MO MT NC ND NM OK OR SD TX WA WY
Northeastern/Midwest Region MSSP 2023	AL AZ CT DE FL IA IN KY MD MI MO NH NJ NY OH PA SC VT WV
Opportunity 2022 MSSP	AL AR AZ FL GA IA IL IN KS LA MO MT NY PA SC TN TX WY

State	Grand Total	High_Rev_ACOs_Cnt	Low_Rev_ACOs_Cnt
Grand Total	654	264	417
FL	96	29	71
TX	84	18	68
IL	57	29	30
NY	60	18	42
PA	57	21	38
NC	49	22	29
CA	54	16	41
VA	43	13	31
NJ	48	15	35
TN	50	15	36
OH	51	18	34
IN	46	23	24
MI	46	20	27
GA	45	13	33

Challenges

Resource Constraints
Limited resources, including time and access to data and information, constrained the group's ability to execute the project effectively.

Scope Creep
The project experienced numerous changes in scope, primarily because the initial scope had significant limitations. The sponsor was unaware of these limitations prior to the project.

Technology and Tools
Selecting the appropriate analytics tools posed a challenge, as our sponsor couldn't access certain information provided through subscriptions or due to licensing constraints.

Managing Sponsor Expectations

Consistent Engagement & Timely Updates
Weekly meetings provided a platform to regularly communicate and track progress. Proactive communication allowed the team to pivot project scope with ease.

Prepared Presentations
Utilized PowerPoint presentations to ensure structured delivery of key insights and findings. Included visuals to ensure total understanding of the information discussed.

Overcoming Limitations
Relevant datasets were initially difficult to acquire, however, we creatively merged several to ensure our analysis was detailed and relevant to the sponsor's goals.

Recommendations

→ Initiating TeleVU's market entry in Oklahoma, Arkansas, and Texas. Hospitals in These states are experiencing losses and are predominantly rural, presenting an opportunity for Televu to make a positive impact.

→ Oklahoma, Arkansas, and Texas form a cluster of neighboring states, making them ideal entry points. Targeting these states collectively allows you to reach a broader audience while efficiently utilizing resources.

    ❏ Texas, ranked 1 among all states, boasting a hospital equipped with 50-100 beds.

→ Continuation of research focused on healthcare outcomes in rural areas as correlations uncovered were conflicting, likely due to a low level of participation in the U.S. census in these areas