Safe and Effective Telestroke

Mid-Atlantic Telehealth Resource Center

Moderator and Panelist

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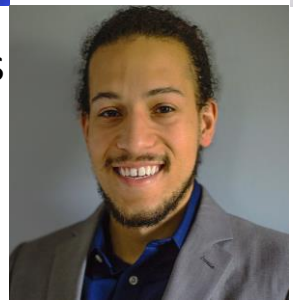


Omar Uribe B.S.
UVA School of Medicine

Current Telestroke

LionNet

Maintaining Accountability through…

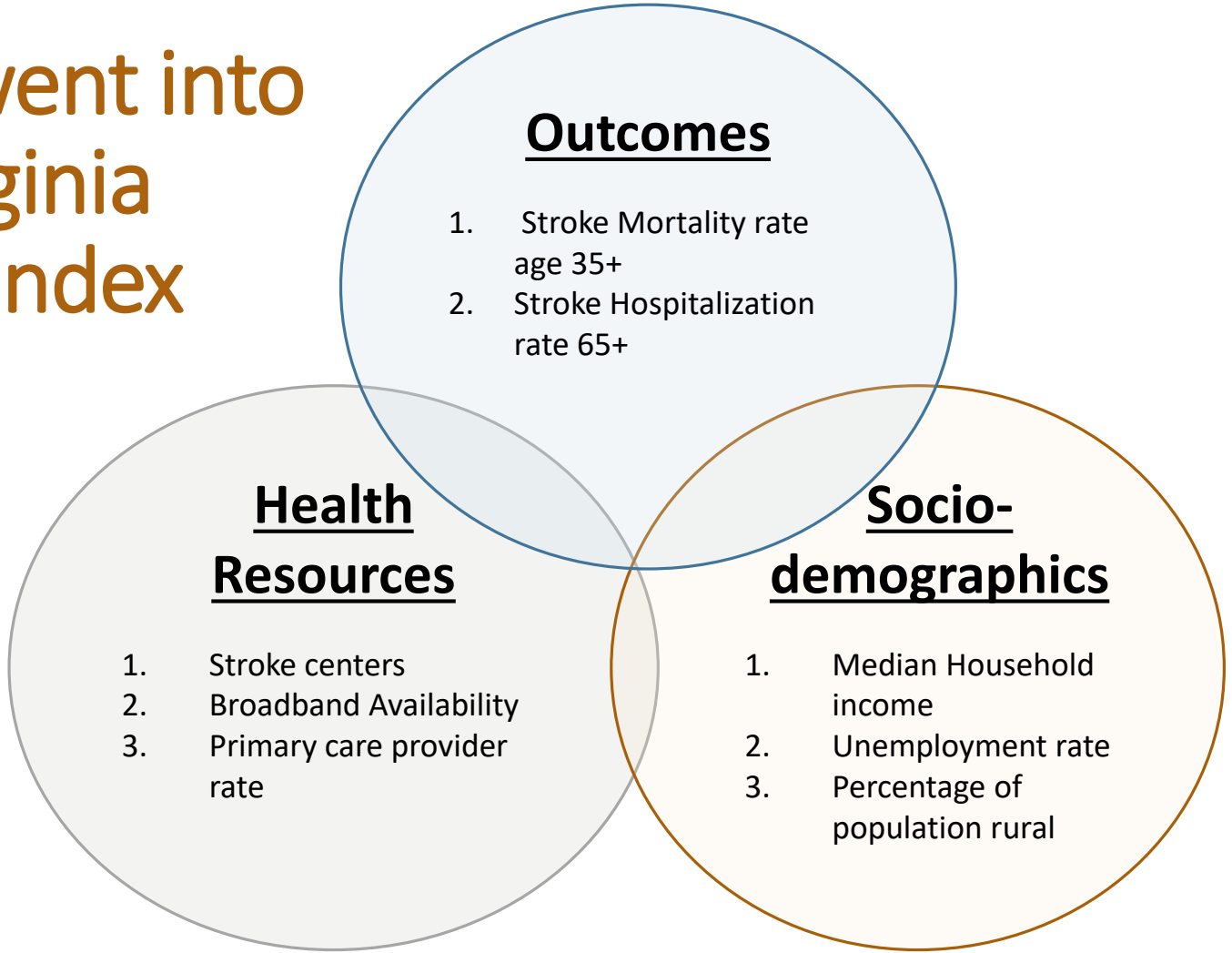
- Trust and relationships
- Data transparency
- Recognition
- Education
- Competition

Collaborative Work

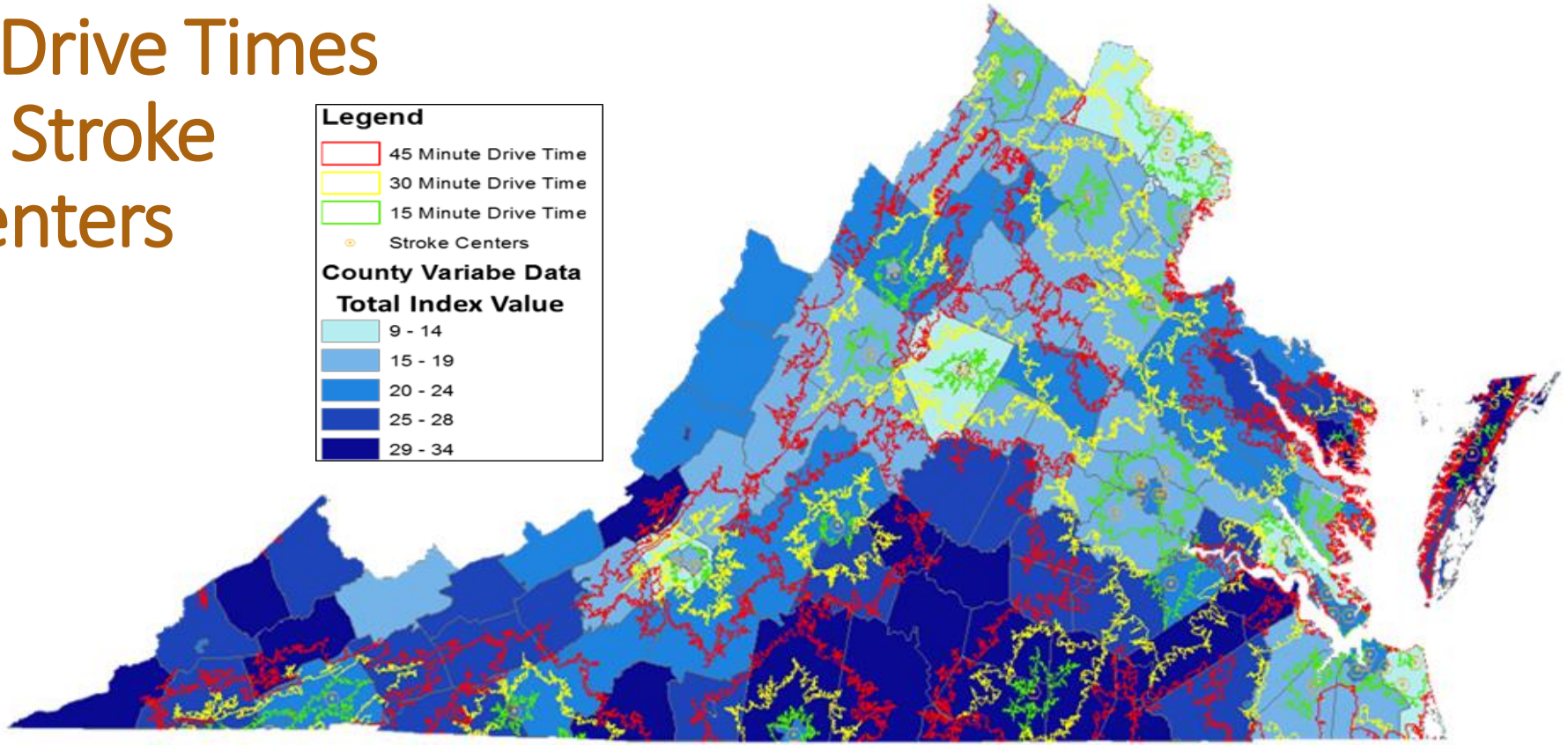
- Needs assessment
- Satisfaction
- Key to Recognizing Stroke
- EMS Feedback and Documentation Review
- Stroke Outcomes
- Telestroke Accuracy
- Transfer guide
- SEFTA- infancy


Bandwidth
Vendor & Equipment
C&P
Transfer
Reimbursement
Fee for service

What went into our Virginia Stroke Index

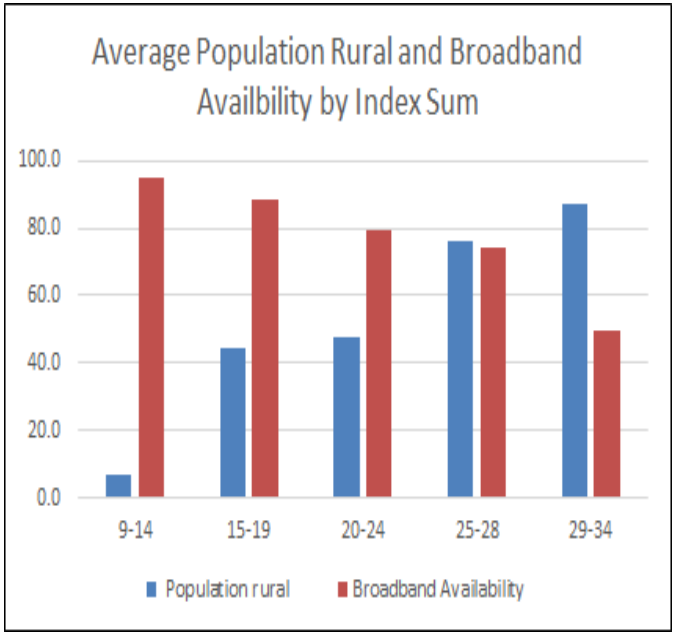


Stroke Burdens & Drive Times to Stroke Centers



What our Index showed and who is affected

Index Sum Value	Population rural	Broadband Availability	Population Total	Number of Counties
9-14	7.2	94.9	2,657,989	15
15-19	44.3	88.5	2,757,083	38
20-24	47.6	79.3	1,684,905	37
25-28	76.2	74.4	490,866	23
29-34	87.4	49.4	357,041	19



Mobile and Future Telestroke

RE-AIM

Considering mobile telehealth at VCU Health System

Dimension	Barriers & Potential Challenges	Facilitators and Intervention Strengths	Keys to Moving Forward
Reach			
Effectiveness			
Adoption			
Implementation			
Maintenance			

RE-AIM Framework

R

E

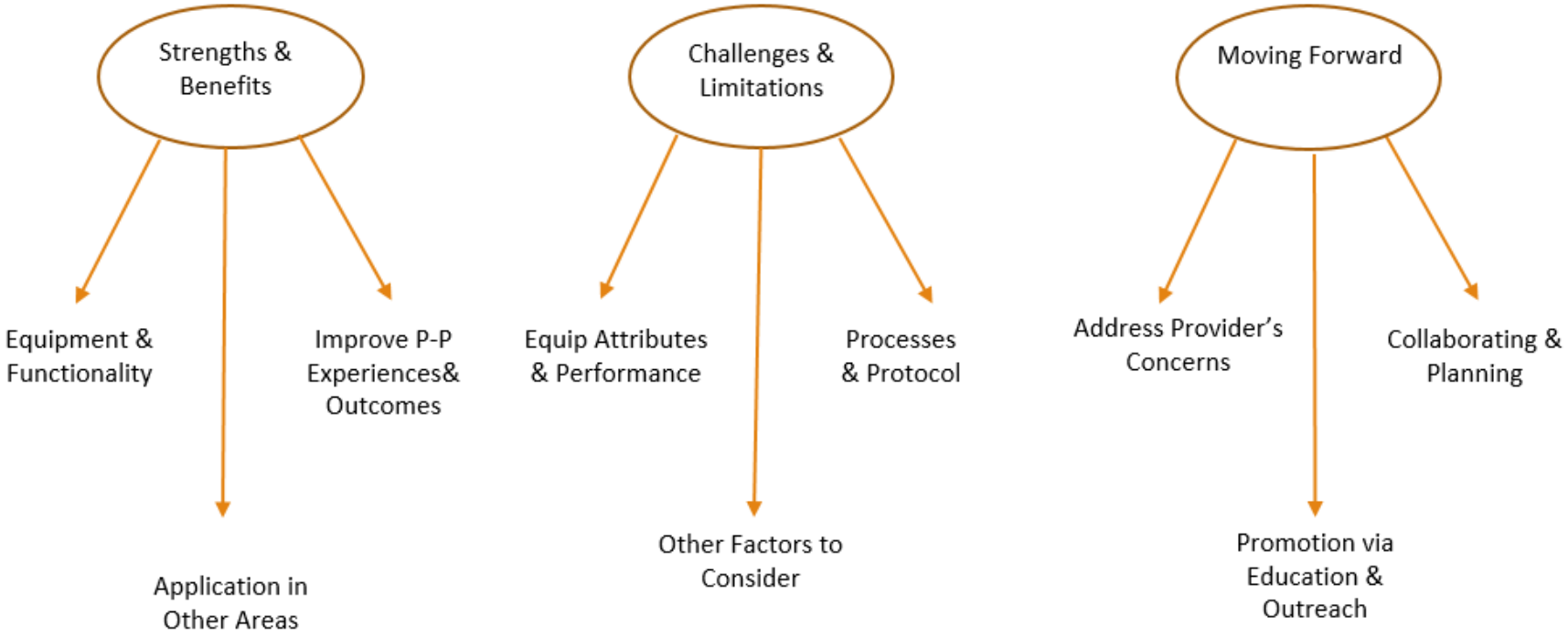
A

I

M

Dimension & Example Questions
Reach • Would these patients be willing to participate in a mobile prehospital telestroke program? • What are the barriers you foresee that will limit the ability to successfully reach our target group? • Do you have any ideas on how to overcome these barriers?
Effectiveness • Do you think reducing time to treatment will help improve stroke outcomes? • Is decreasing time to treatment by evaluating the patient during transport an appropriate outcome to target? • Do you feel that prehospital evaluation of an acute stroke patient will decrease time to treatment? • What are the potential negative unintended consequences that may result from mobile prehospital telestroke?
Adoption • What characteristics of a mobile prehospital telestroke program would promote the organization to adopt the program? • What do you think will be the greatest barriers to other sites or organizations adopting this program?
Implementation • Who would be appropriate delivery agents (EMT vs. paramedic/ attending vs resident) for the intervention? • What would encourage organization members to participate in prehospital telestroke study and use intervention strategies? • What are some potential barriers to implementing a mobile prehospital telestroke program?
Maintenance • Would EMS providers and physicians be willing to be trained to deliver the intervention to their communities? • How likely will the protocol be maintained among participants indefinitely? • Do you foresee mobile prehospital telemedicine to be used in other fields (i.e. trauma, emergency medicine, etc.)?

Qualitative Results: 3 Main Themes

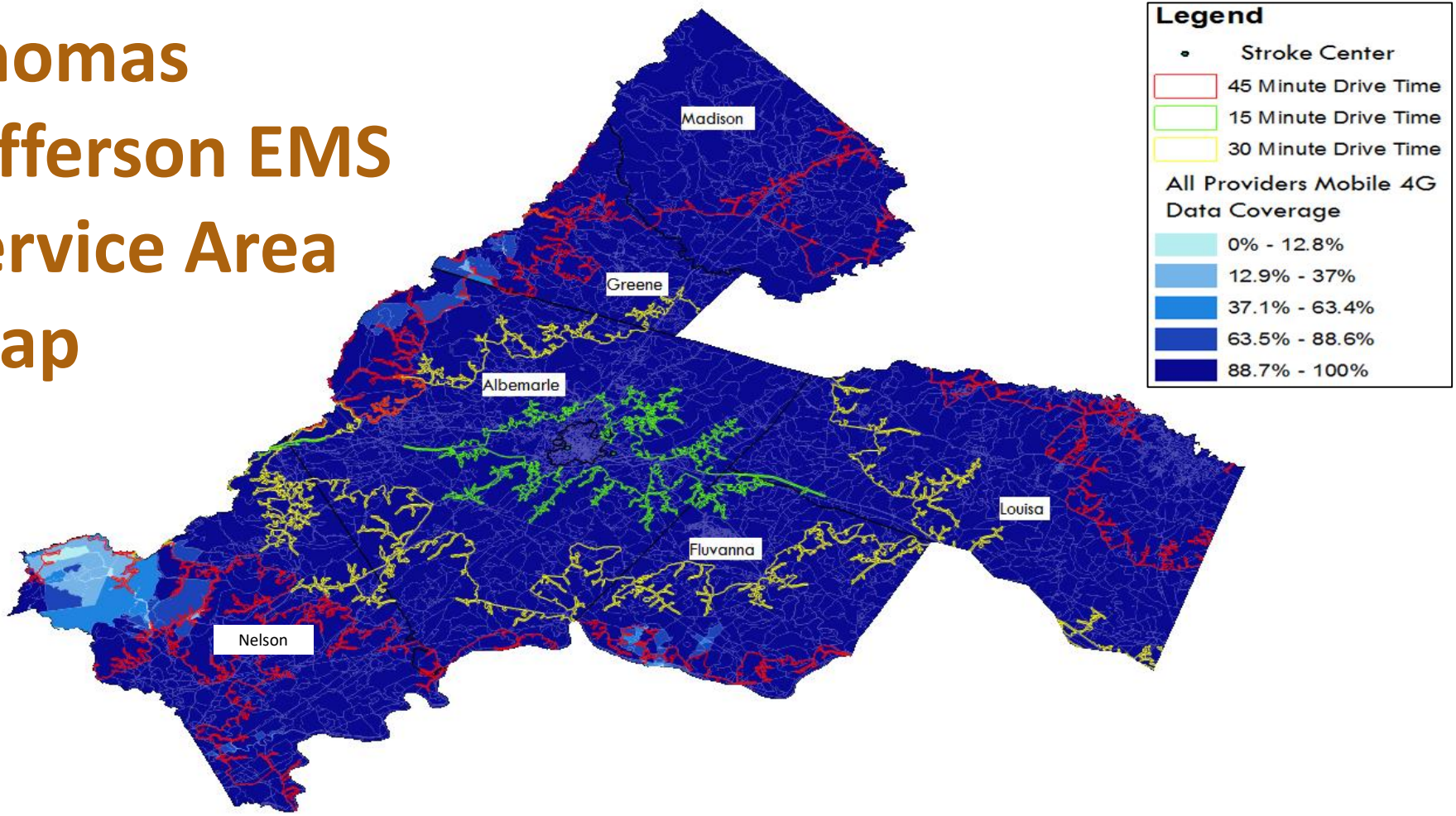


iTREAT Improving Treatment with Rapid Evaluation of Acute Stroke via Mobile Telemedicine

Ambulance-Based Neurological Assessment in Emergency Stroke Care

1. Apple iPad 2
2. iPad Protective case
3. JBL Speaker
4. Ram Mount
5. Cradlepoint Moden
6. Cradlepoint Antennae
7. Pelican Case
8. Verizon Wireless Plan
9. Cisco Jabber Video App

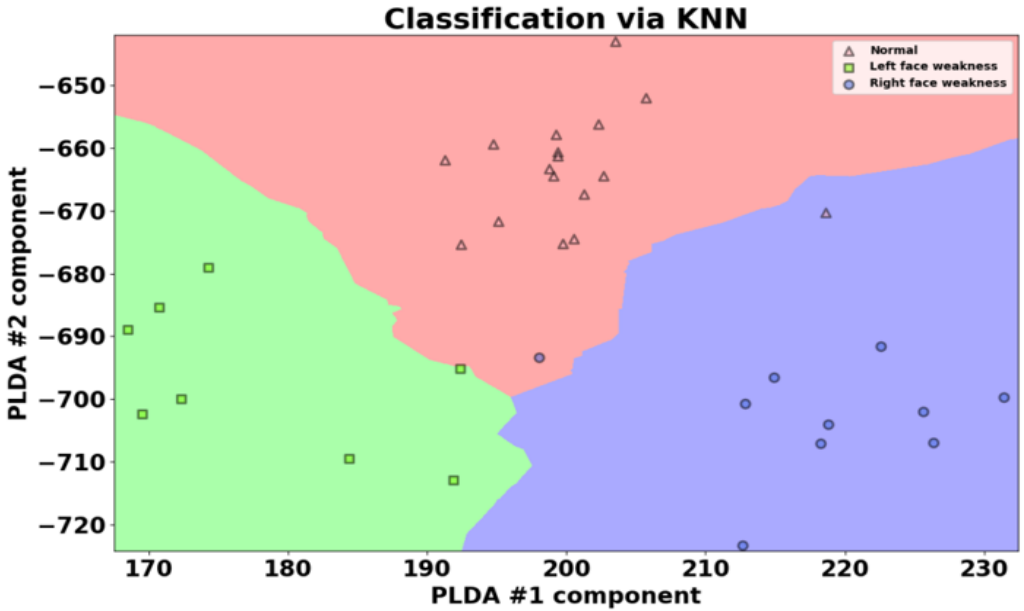
Thomas Jefferson EMS Service Area Map



BANDIT

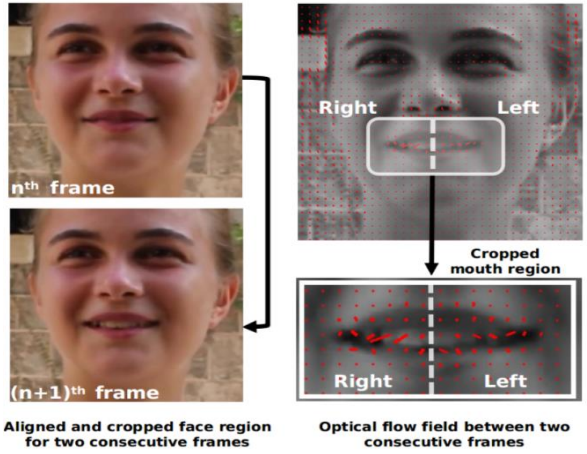
Study Images

Performance	
Accuracy	93.8%
Sensitivity	95.8%
Specificity	93.8%



BANDIT

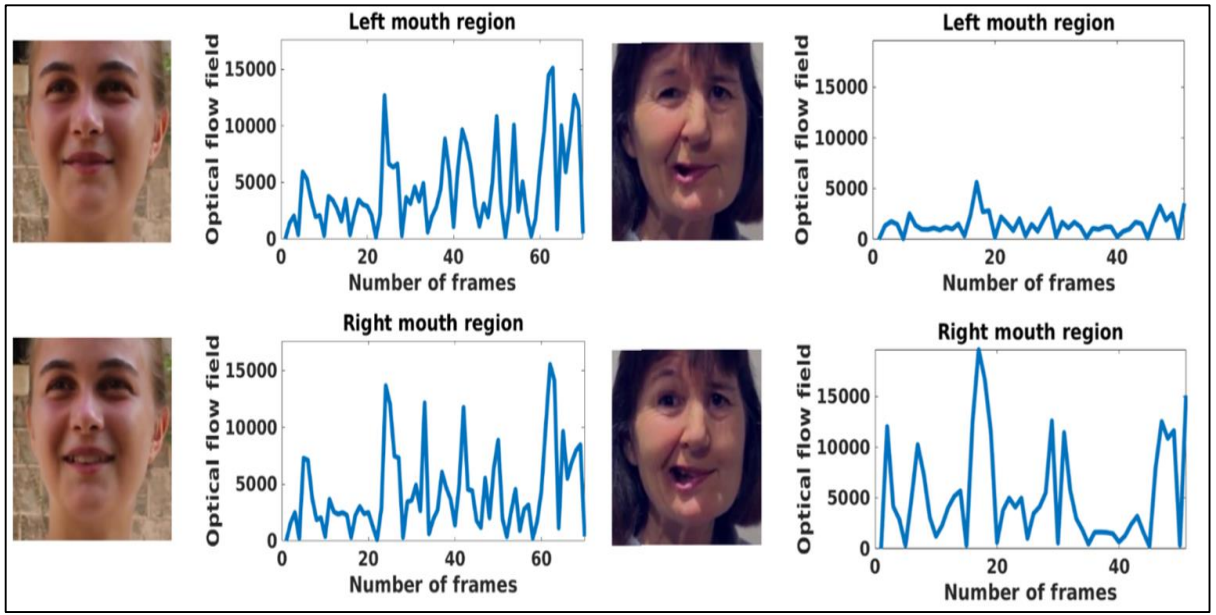
Study Videos



Aligned and cropped face region for two consecutive frames

Optical flow field between two consecutive frames

Performance	
Accuracy	83.9 %
Sensitivity	83.8 %
Specificity	89.2 %



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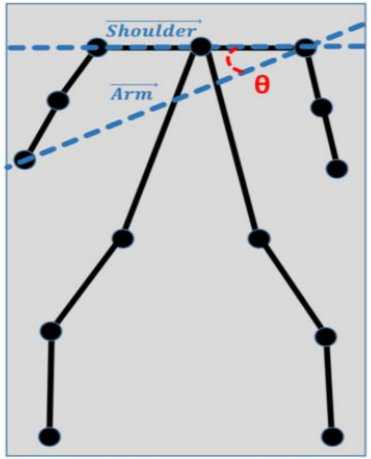
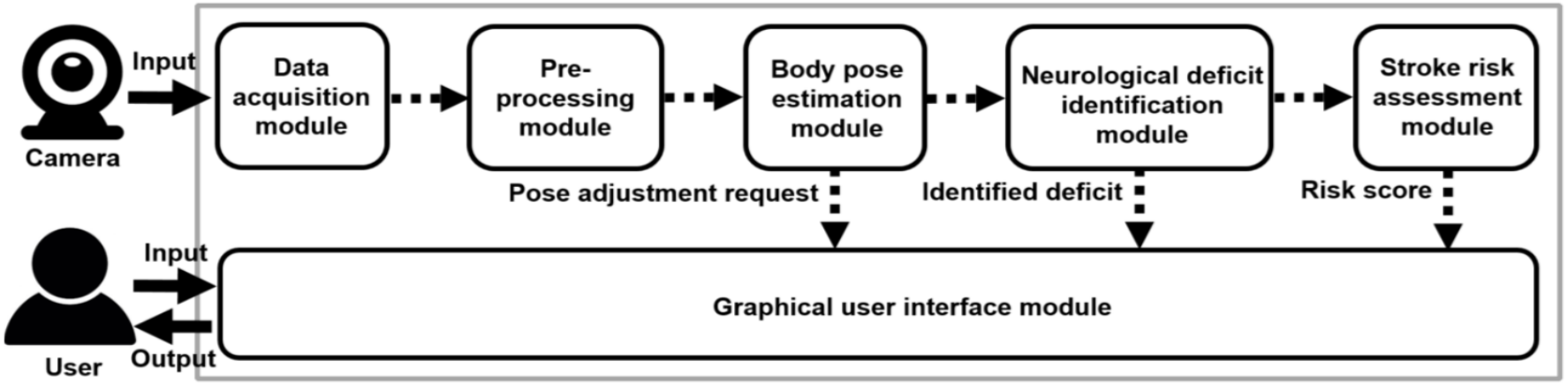
Future Works

(a)

(b)



(c)



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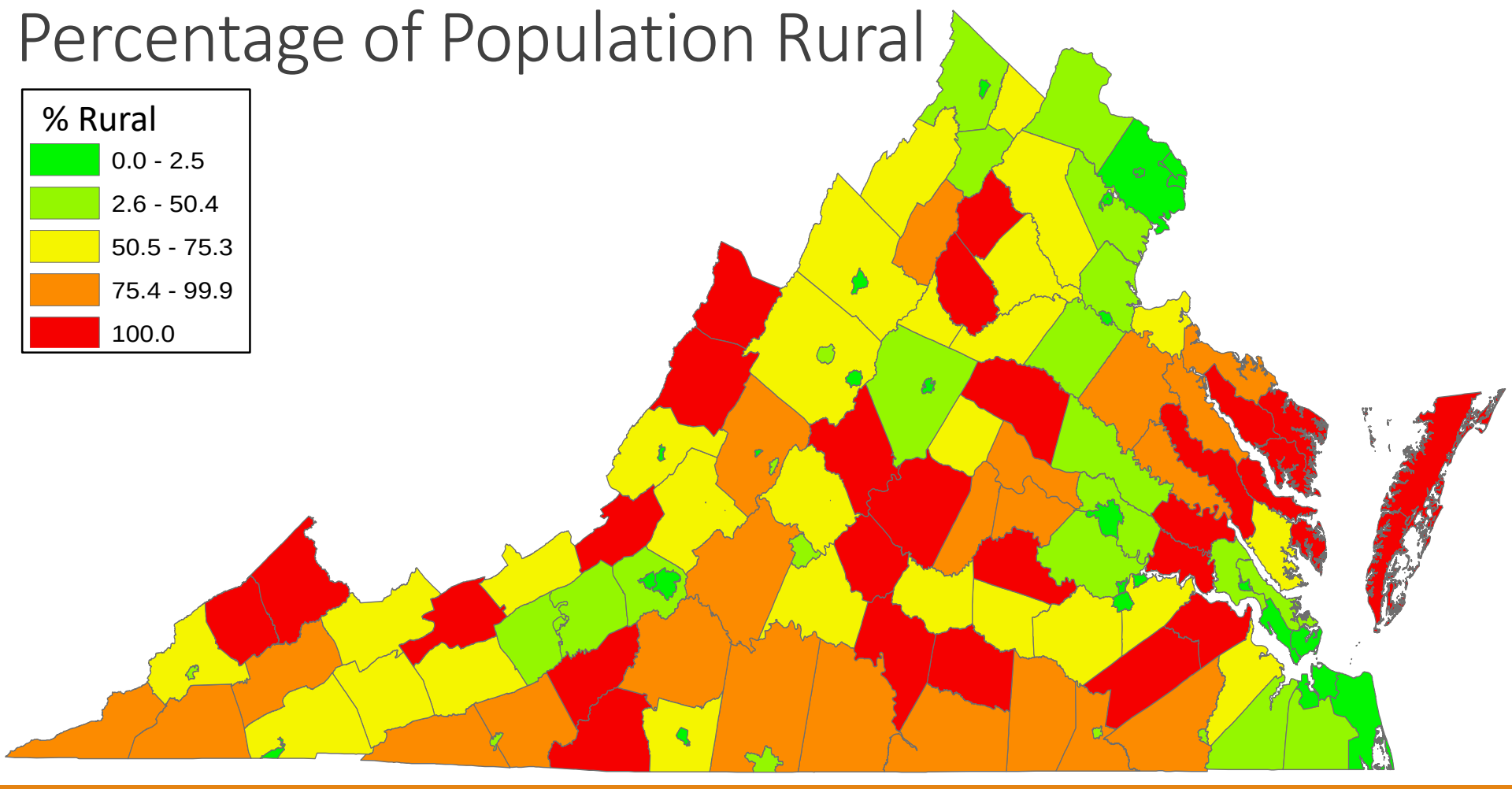
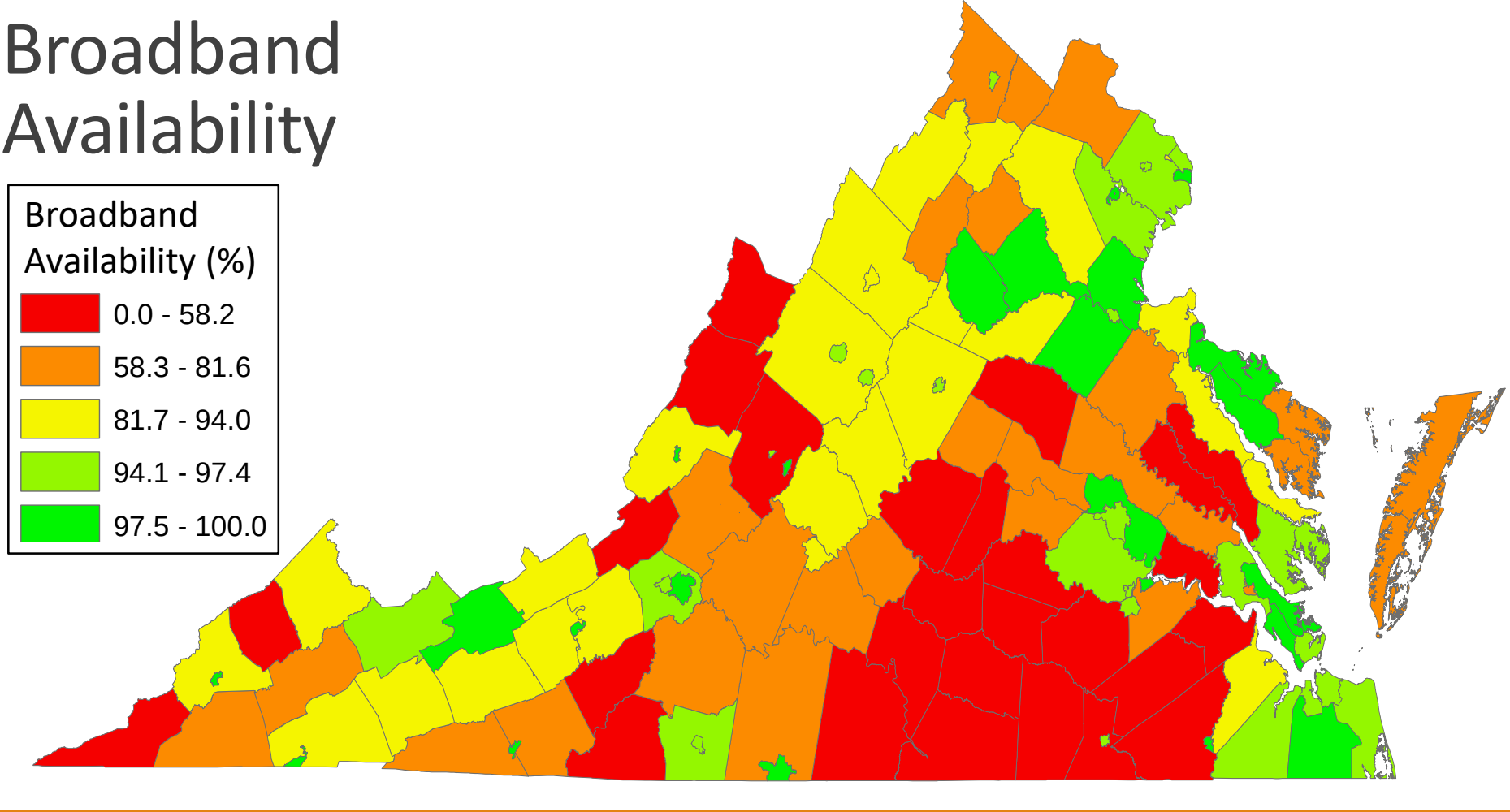
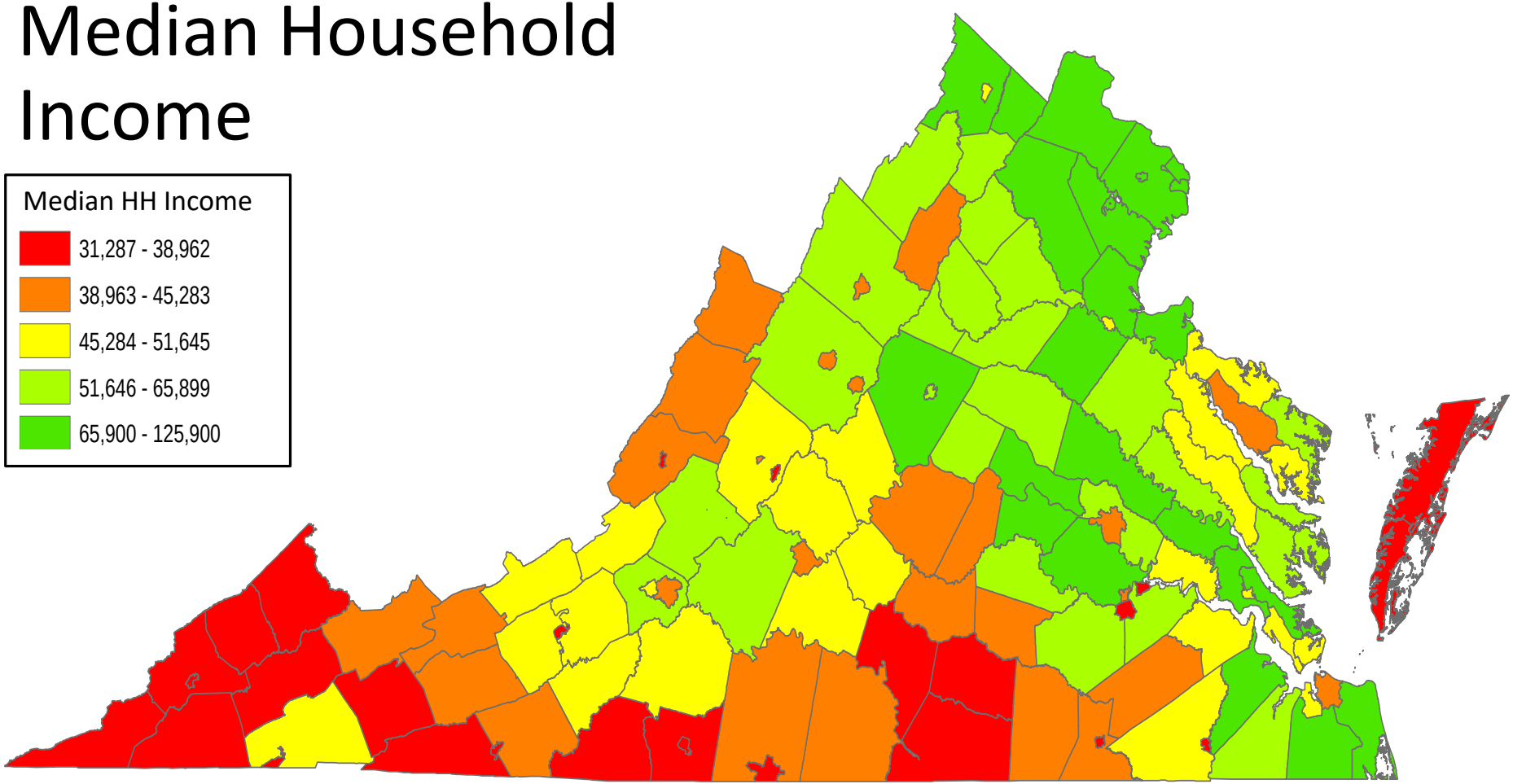
Percentage of Population Rural



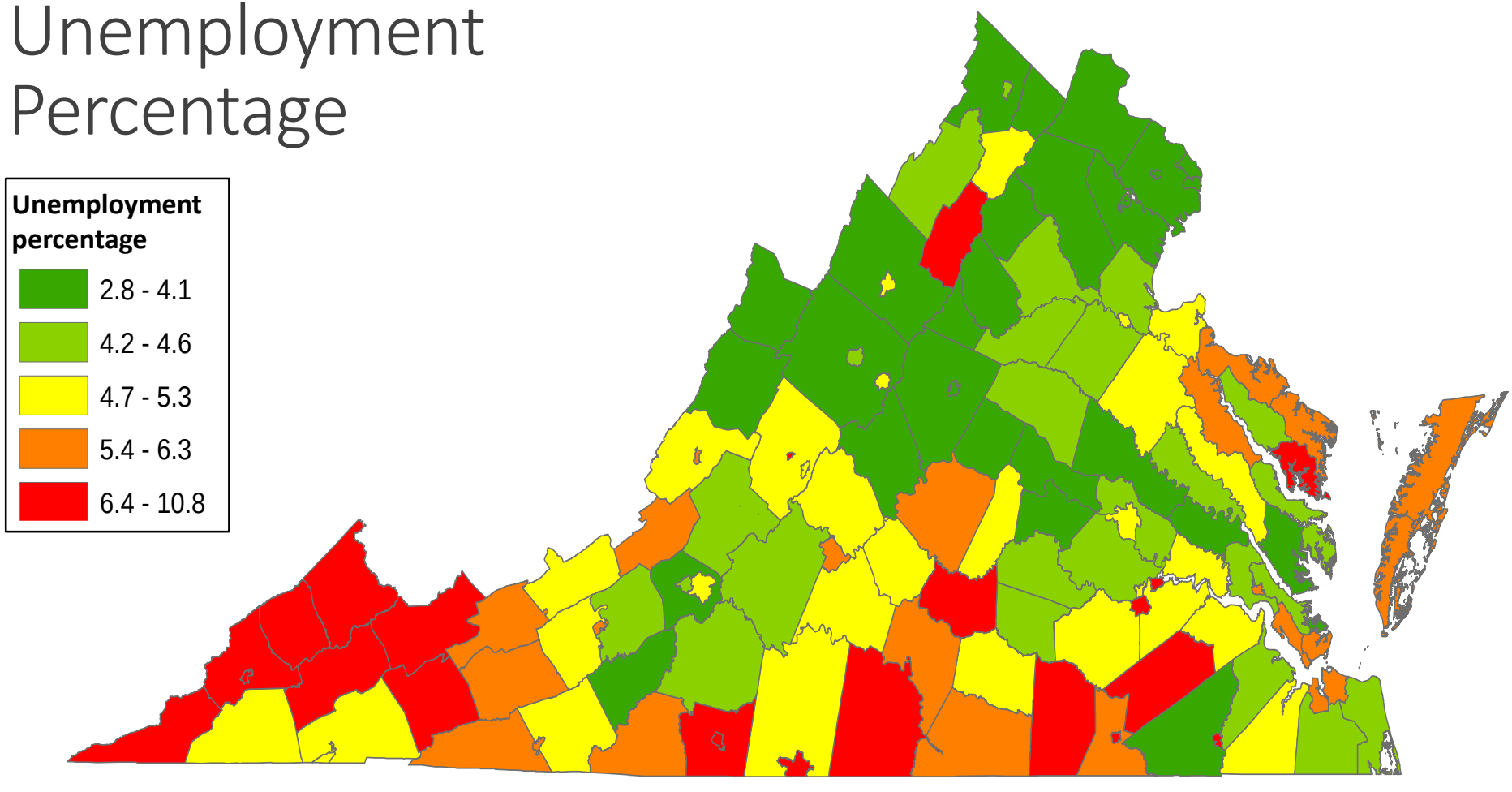
Broadband Availability



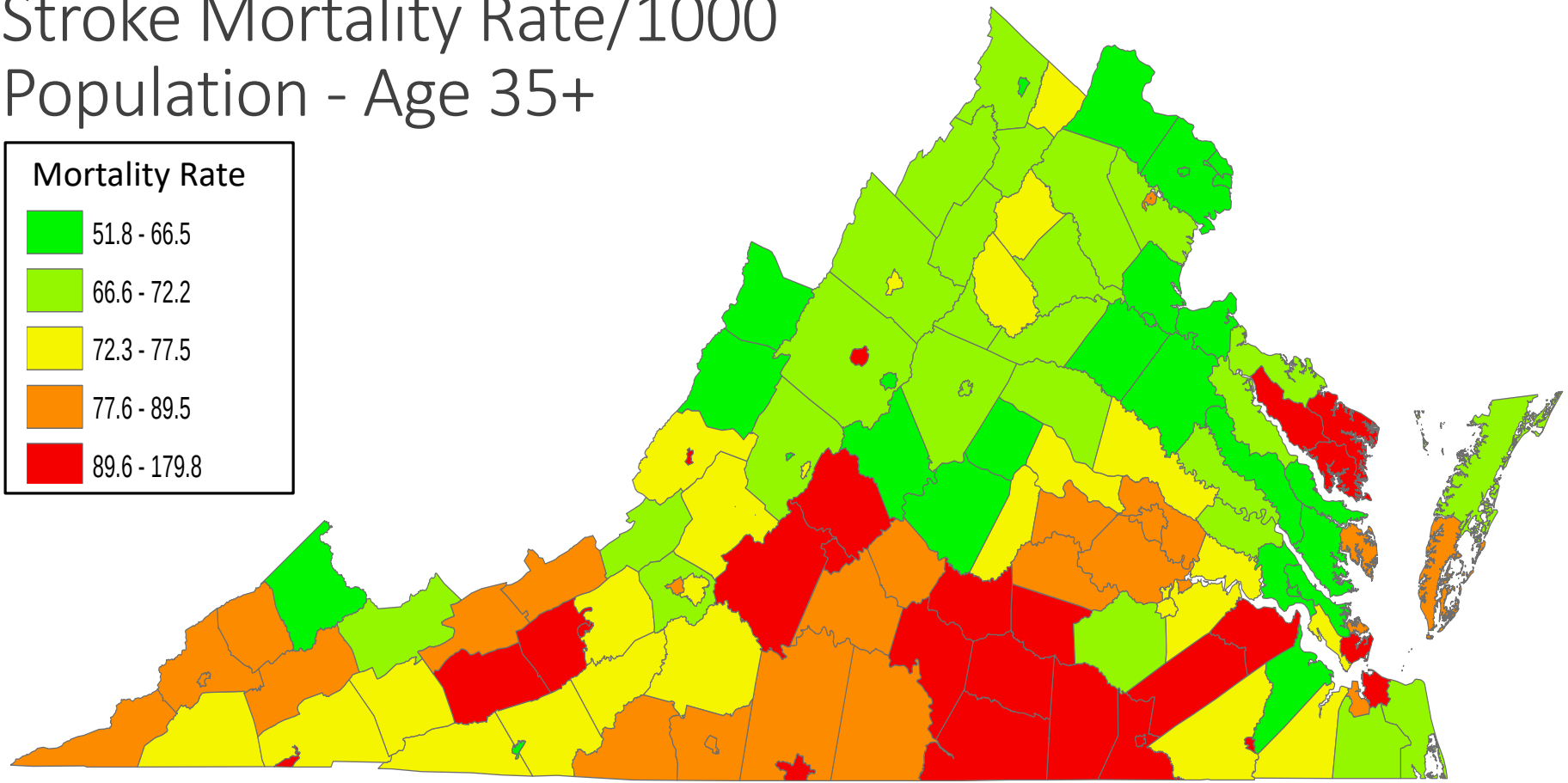
Median Household Income



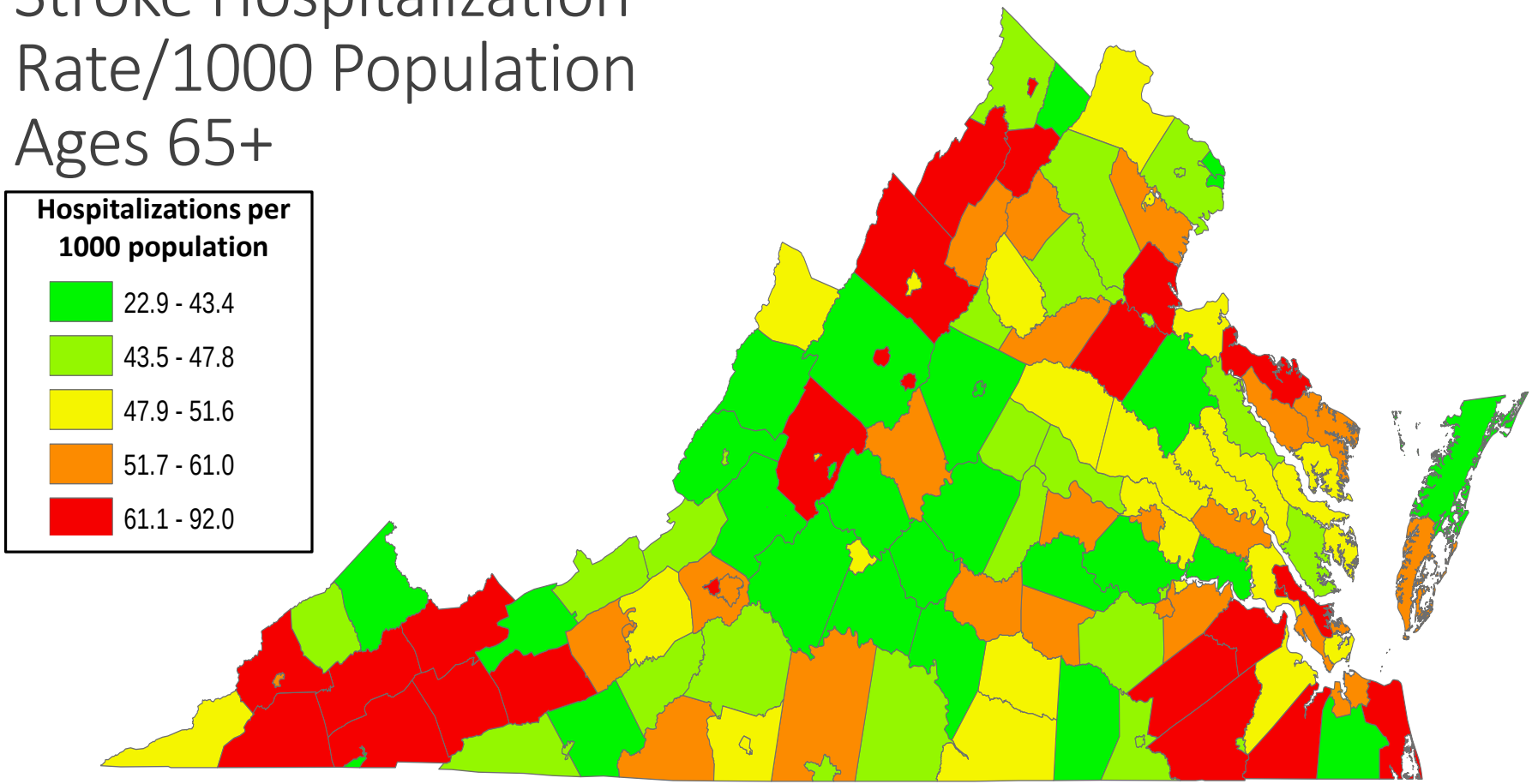
Unemployment Percentage



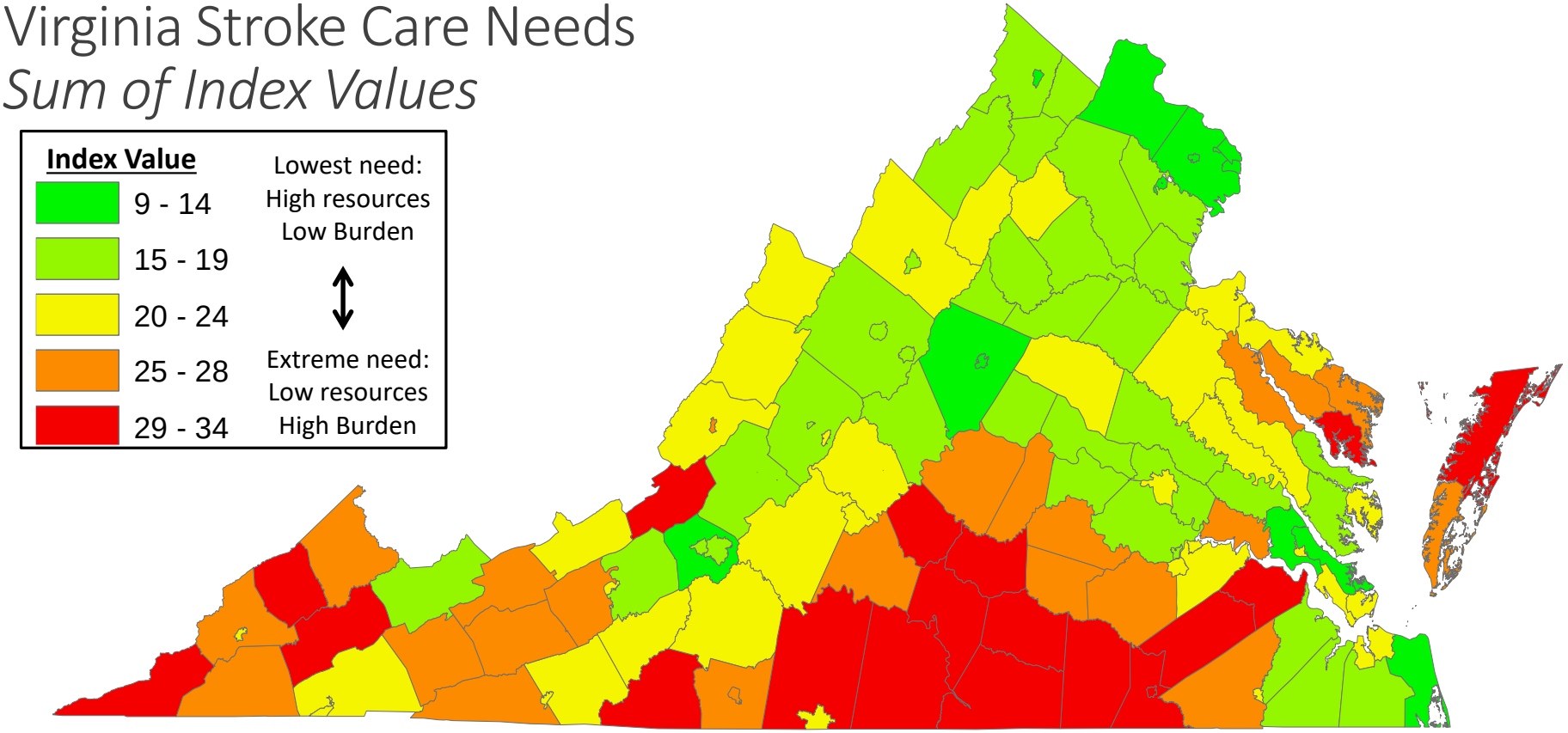
Stroke Mortality Rate/1000 Population - Age 35+



Stroke Hospitalization Rate/1000 Population Ages 65+



Virginia Stroke Care Needs
Sum of Index Values



Red indicates that the burden of stroke (hospitalizations and mortality) is high, demographic challenges are high and resources available to ameliorate the burden of stroke are low.