Rapid Expansion of Teleneurology at Wake Forest

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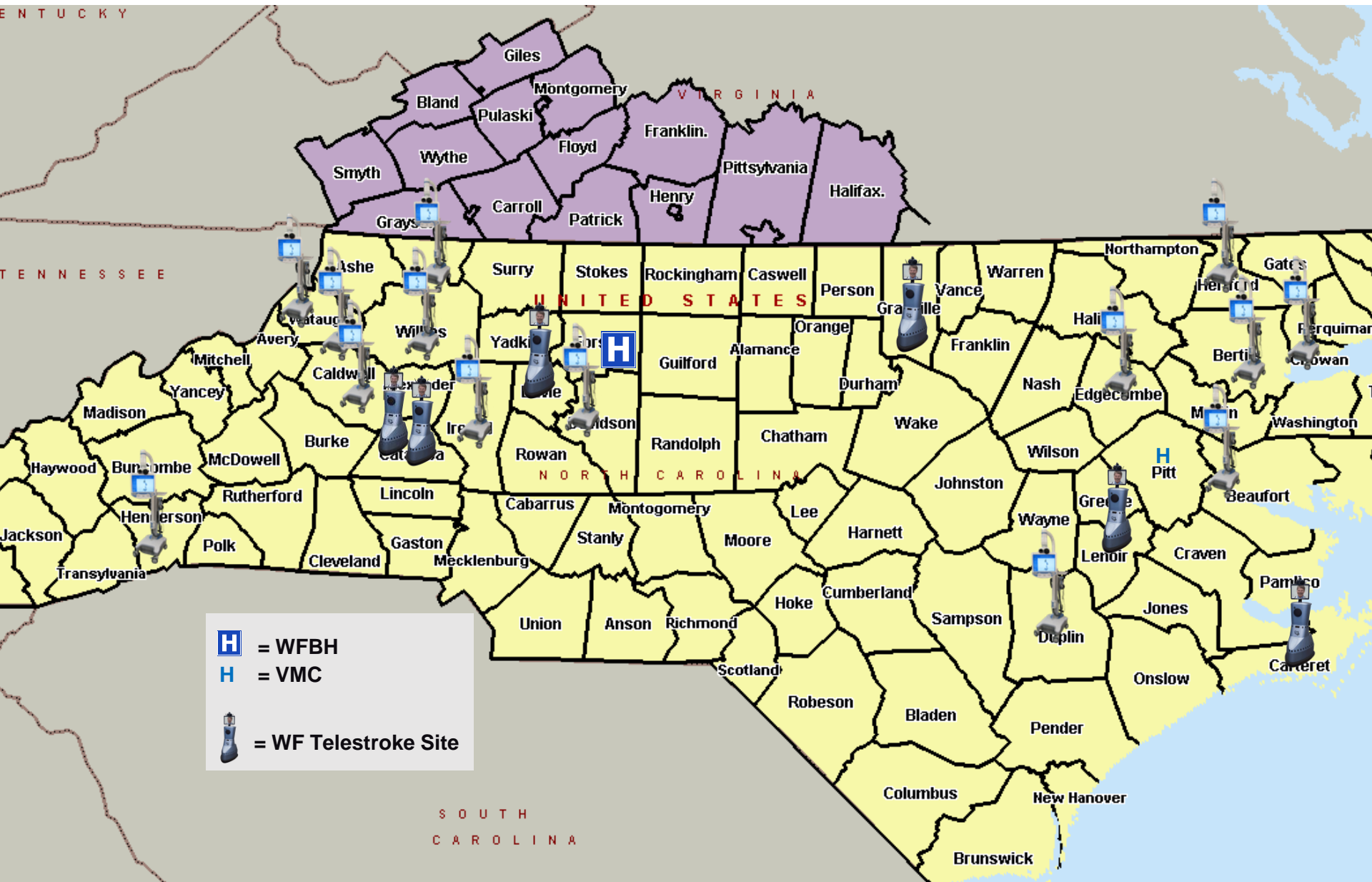
Director, WF Telestroke Program

Director, Comprehensive Stroke Service
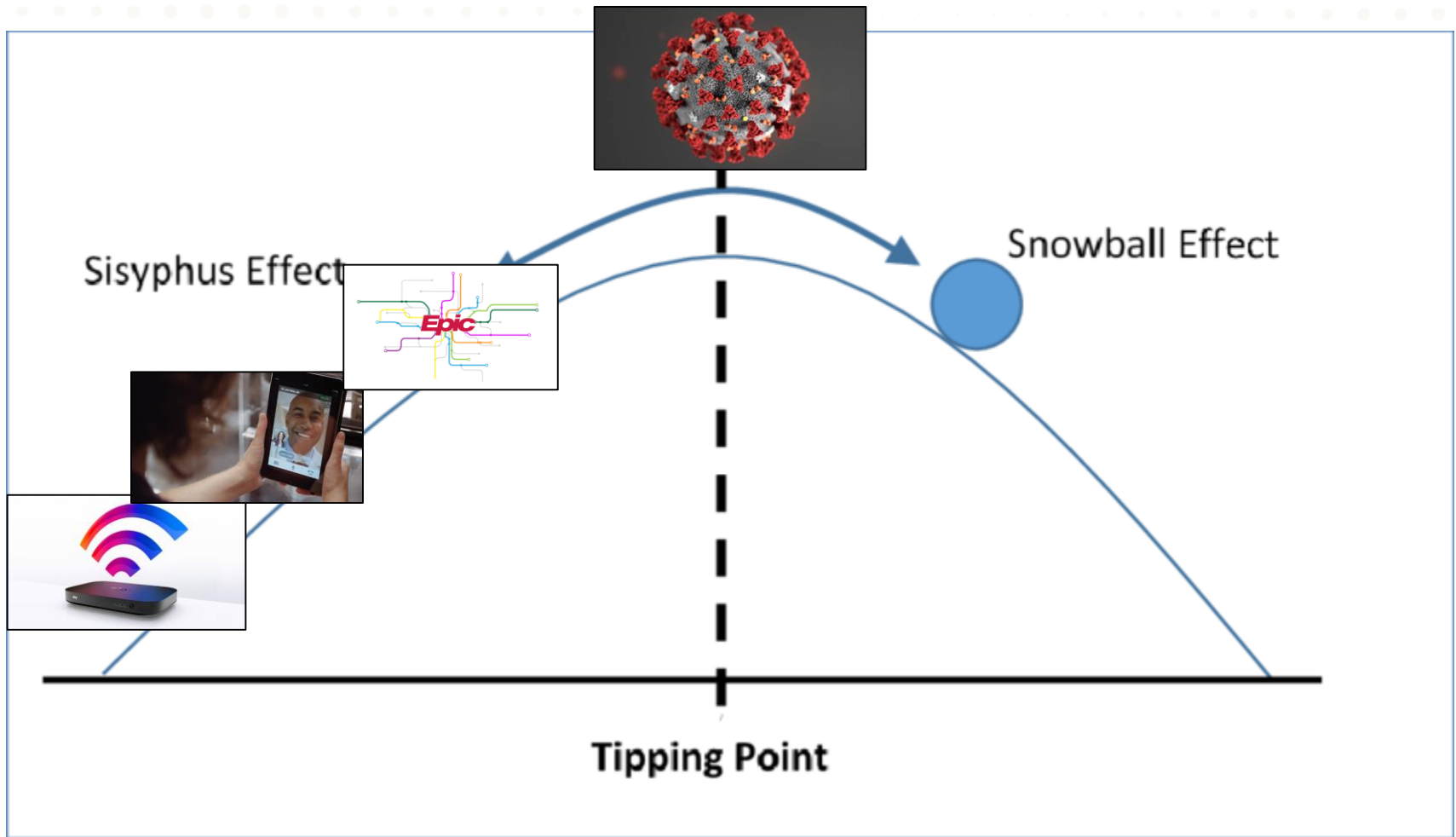
Program Director, Vascular Neurology Fellowship

Wake Forest®
School of Medicine

Telehealth is not new to neurology: Wake Forest Telestroke Network

H = WFBH
H = VMC

🏥 = WF Telestroke Site

Telehealth Tipping Point

Sisyphus Effect

Snowball Effect

Tipping Point

Outpatient Telehealth

Kristen Dodenhoff, Class of 2022

Roy Strowd, Vice Chair Health System Integration and Outreach

Carly Olszewski, Class of 2022

Lauren Strauss, Chair Telehealth Committee

Alex Ambrosini, Class of 2022

Sharon Thomson, Class of 2022

WF Neurology Telehealth Timeline

March 2020

3/17: Non-essential surgeries, procedures, ambulatory appointments rescheduled

3/24: clinician phone visits begun in ambulatory clinics (Cartwright)

3/26: video visits begun in ambulatory clinics (Strauss, Bushnell, others)

3/20: video visits piloted in neurology (Strauss)

3/24-4/3: patient-provider tele rounds piloted in NICU (Sarwal)

4/6: virtual patient rounds coincides with nursing efforts on 4AT (Perez)

4/8: next day virtual visits for urgent patient and PAL calls (Pinyan)

4/9: code stroke tele policy on main campus being researched (Guzik)

4/15: Resident clinic video visits implemented, Doximity pilot

4/17: Patient surveys sent and follow up feedback calls begun

PCORI grants submitted to study telehealth deployment and impact on stroke and gen neuro patients

| Week 0 | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 26 |

Medicare waives patient copay for telehealth

3/20: institutional policy on telehealth released, OpEx Governance Committee released plans for phased rollout

4/2: first 100 telehealth visits reached

4/2: telehealth research group starts (Duncan, Wells, Munger Clary)

4/3: resident clinics operating via telemedicine

4/9: telehealth committee and weekly Q&A meets (Strauss)

4/13: Virtual rounds with patient and families pilot on 4AT (Perez)

4/16: >100 telehealth visits IN A DAY reached

4/20: >1000 telehealth visits in neurology

4/22-29: medical students integrated into tele clinics

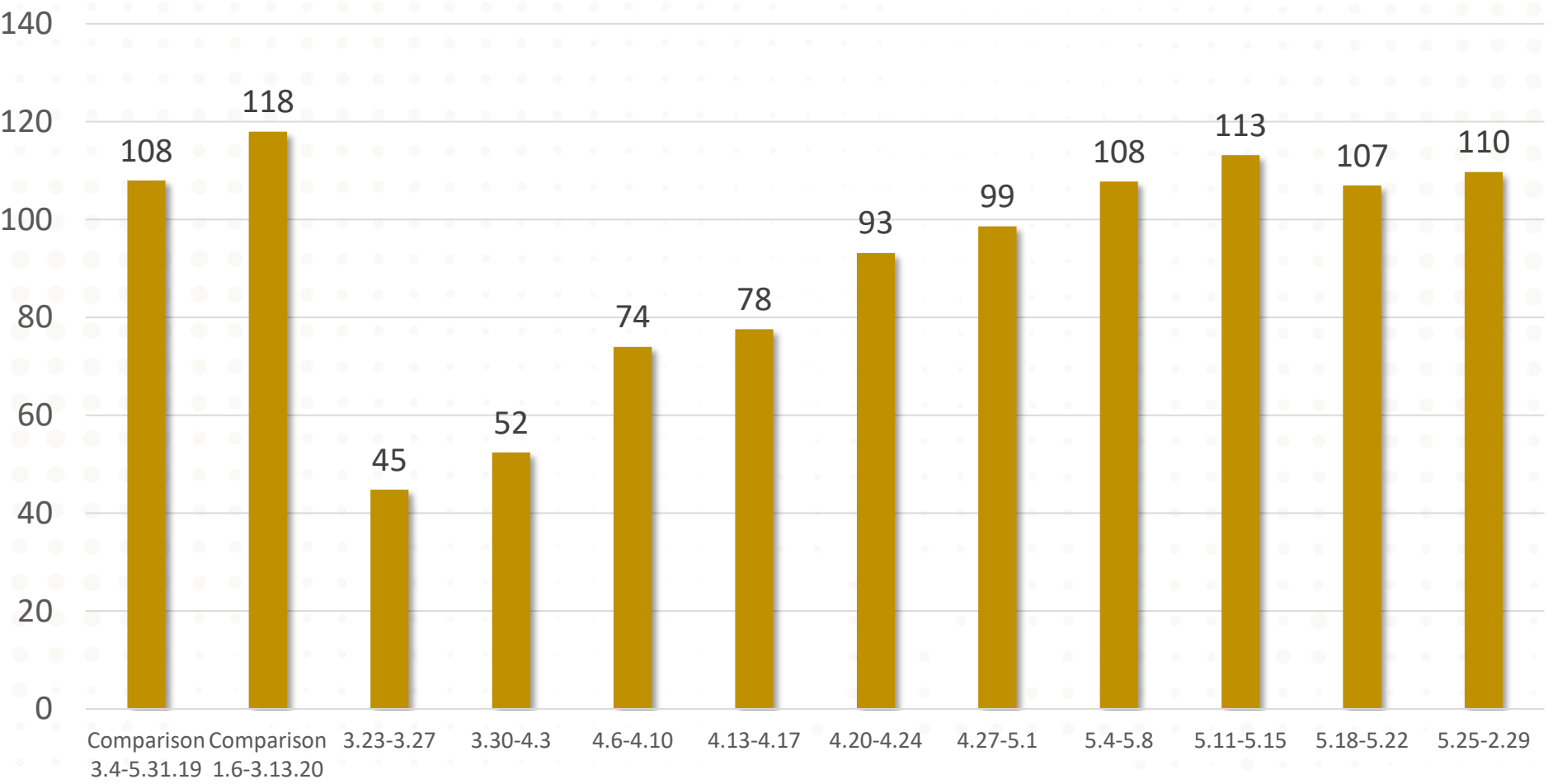**4/27:** efforts explored at expanded tele credentialing at network hospitals

How do we rapidly shift and expand our telehealth visit volumes?

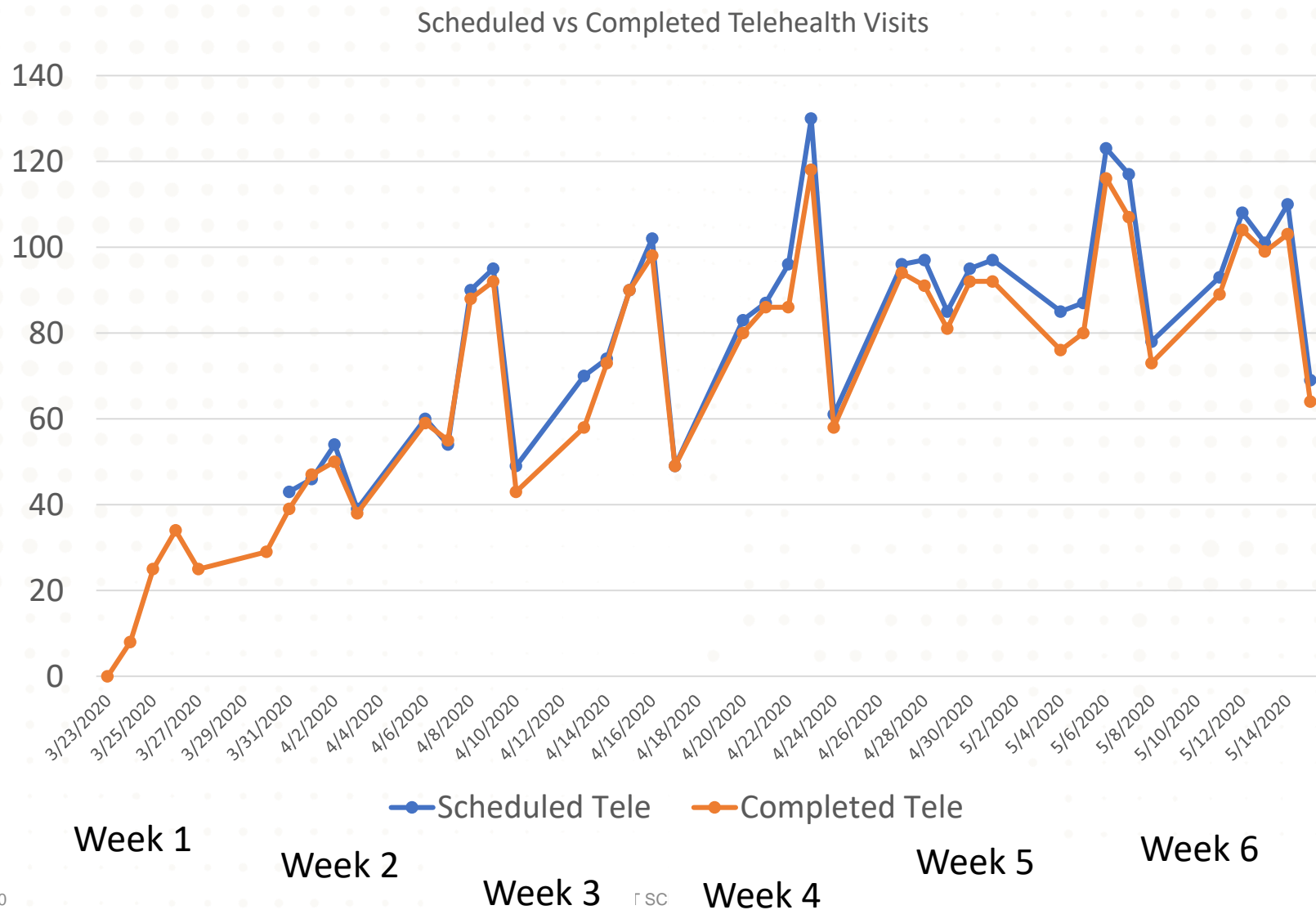# We generated a rapid uptick in telehealth
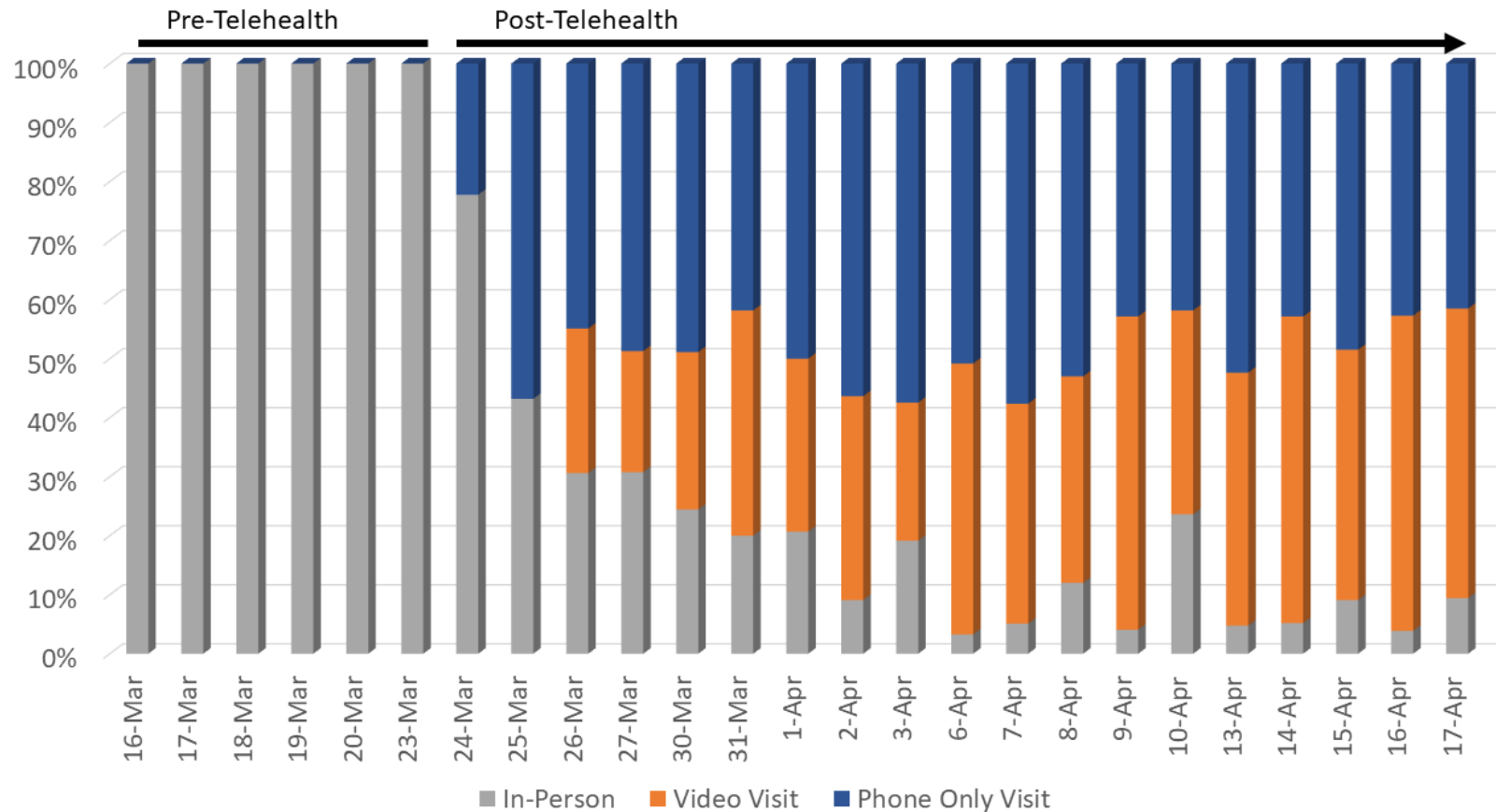
The volumes were sustained over time

Average Daily Visit Volume*

	3.23-3.27	3.30-4.3	4.6-4.10	4.13-4.17	4.20-4.24	4.27-5.1	5.4-5.8	5.11-5.15	5.18-5.22	5.25-2.29
vs pre-COVID	38%	44%	63%	66%	79%	84%	91%	96%	91%	93%
vs last year	41%	49%	69%	72%	86%	91%	100%	105%	99%	102%

Chart values: Comparison 3.4-5.31.19: 108; Comparison 1.6-3.13.20: 118; 3.23-3.27: 45; 3.30-4.3: 52; 4.6-4.10: 74; 4.13-4.17: 78; 4.20-4.24: 93; 4.27-5.1: 99; 5.4-5.8: 108; 5.11-5.15: 113; 5.18-5.22: 107; 5.25-2.29: 110

Telehealth no shows over time

Scheduled vs Completed Telehealth Visits

Video vs Phone Visits

Rapid rise in VV that stabilize around 55%

Percent of telehealth visits that are scheduled as video visit

0% 0% 0% 35% 31% 41% 54% 38% 38% 29% 47% 38% 40% 54% 44% 48% 55% 47% 55% 55%

3/23/2020 – 4/17/2020
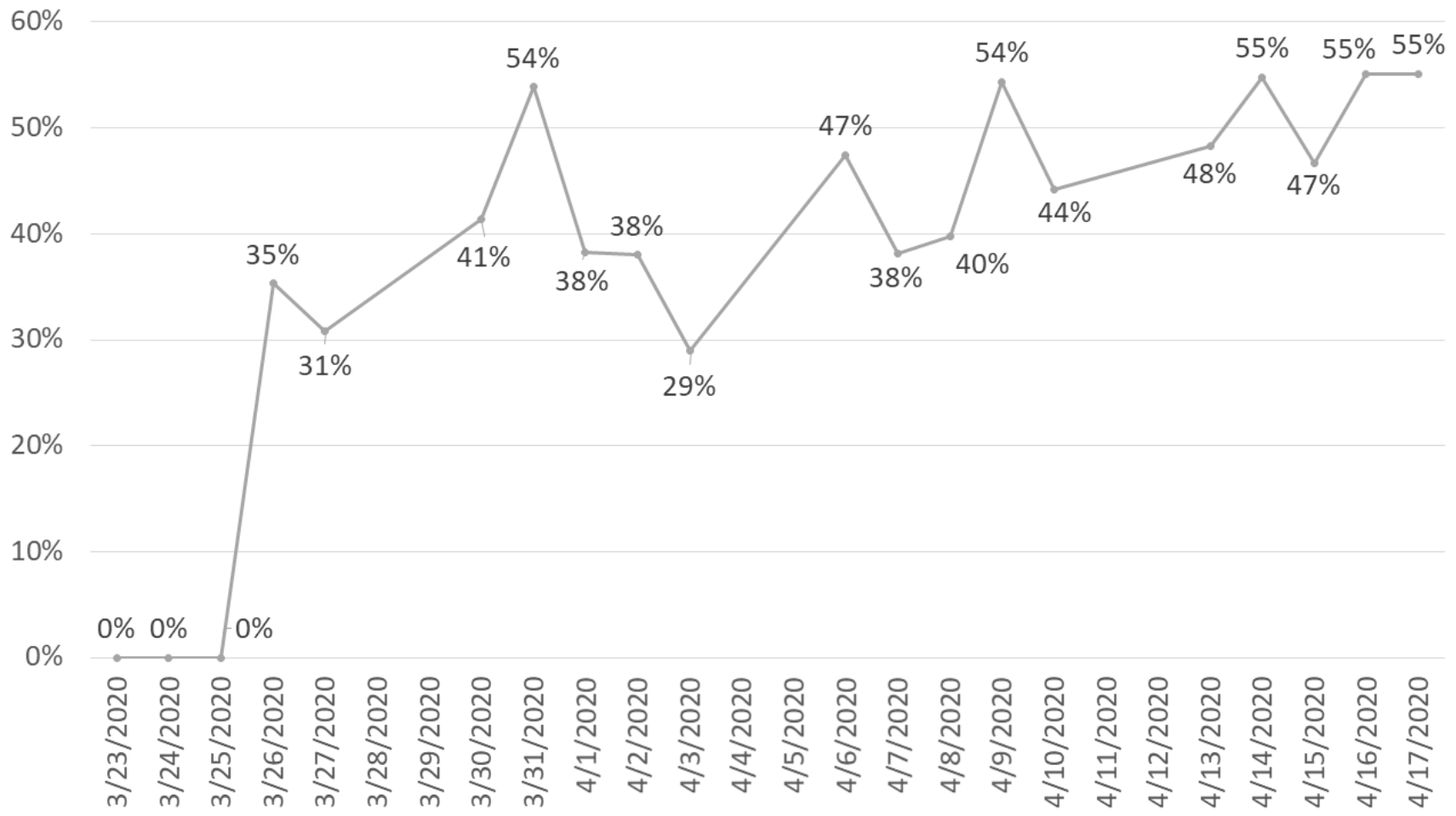
Telehealth Catchment
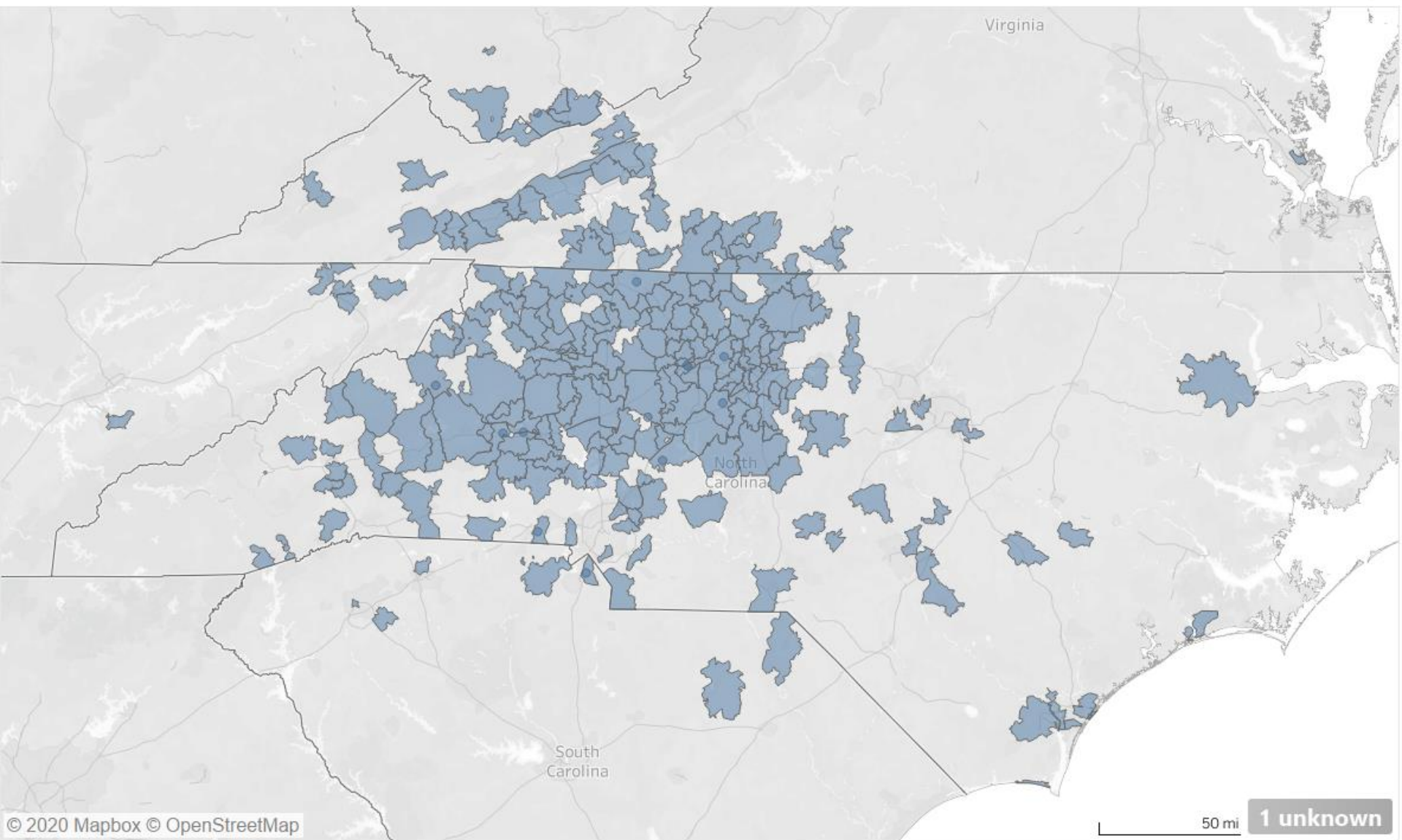
CPV + VV Catchment
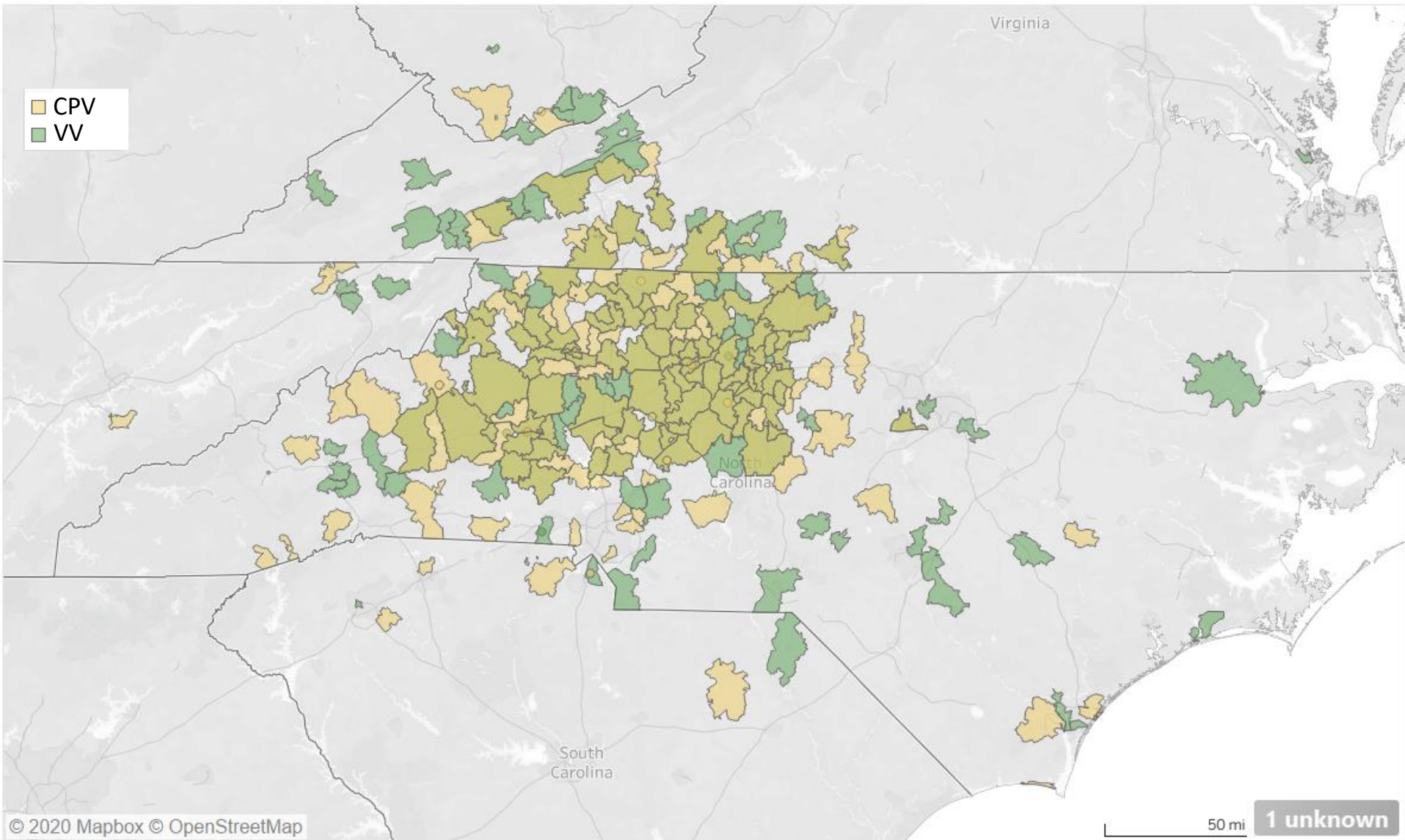
Barriers to video visits for patients in our catchment

Table 2. Univariate and Multivariable Logistic Regression on Odds of Completing a Video Visit

Variable	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
Age (years)	0.98	0.98 – 0.99	<0.001	0.98	0.98 – 0.99	<0.001
Sex (male)	0.71	0.55 – 0.91	0.007	0.76	0.58 – 0.99	0.047
Race						
White or Caucasian	Ref			Ref		
Black or African American	0.59	0.41 – 0.85	0.004	0.64	0.44 – 0.95	0.025
Other	0.66	0.40 – 1.10	0.11	0.56	0.33 – 0.97	0.038
Insurance						
Private	Ref			Ref		
Government	0.26	0.20 – 0.34	<0.001	0.31	0.23 – 0.41	<0.001
Other	0.26	0.12 – 0.56	0.001	0.30	0.13 – 0.66	0.003

Caption: results of univariate and multivariable logistic regression incorporating significant variables (p<0.05) into the multivariable model. The outcome variable is completion of a video visit compared to phone-only visit. These data show that the odds of completing a video visit were 2% lower for each 1 year increase in age (p<0.001), 24% lower for men than women (p=0.047), 36% lower for Black or African American patients compared to White or Caucasians (p=0.025), and 69% lower for patients with government insurance compared to private (i.e. managed care or commercial, p=<0.001).
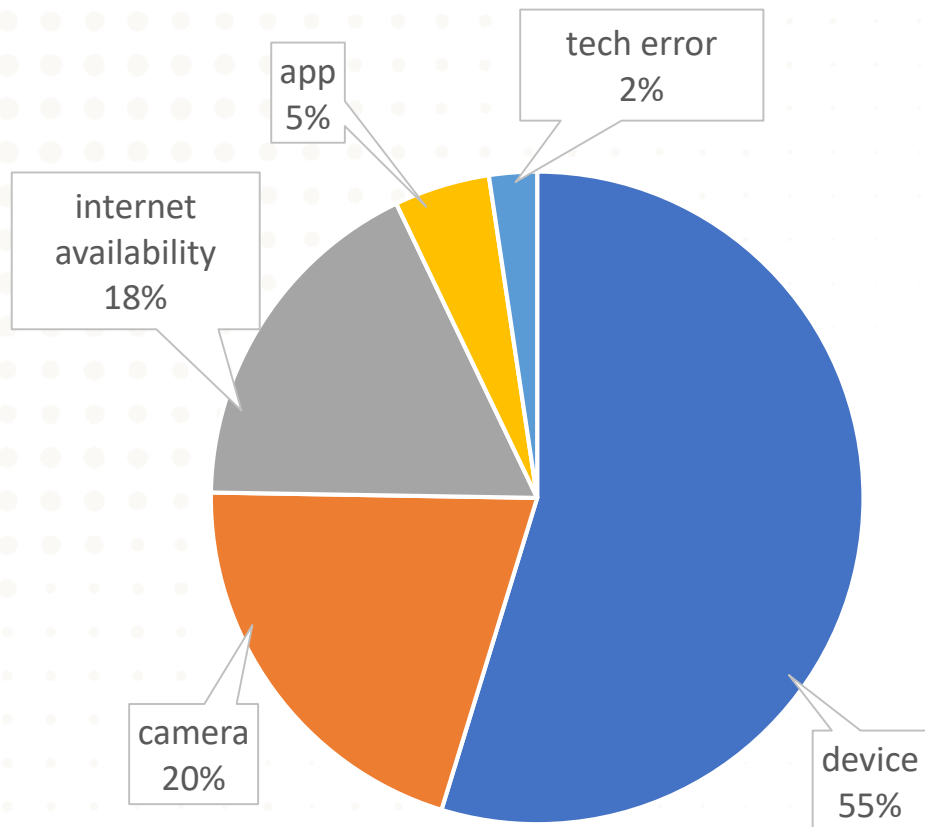
Other lessons- Distance

- Patient needs met? No difference based on distance
- Greater distance: More likely to have video visit and more likely to do a video visit in the future
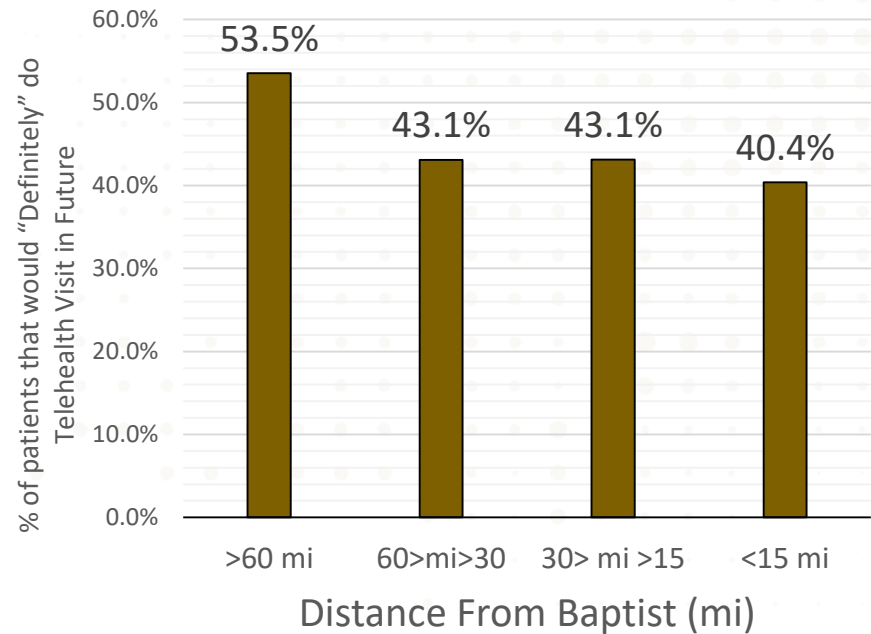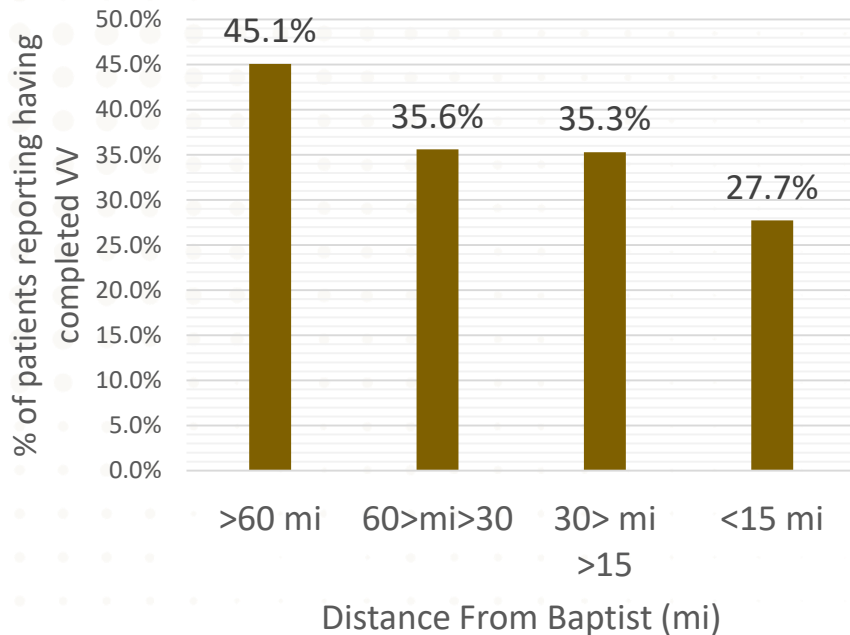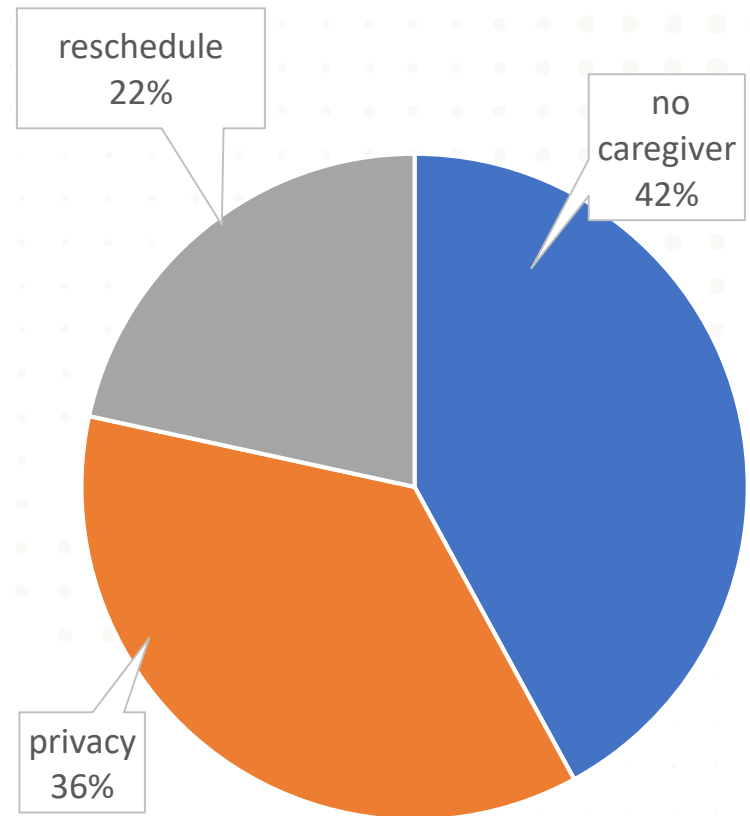
Reasons for declining video visits

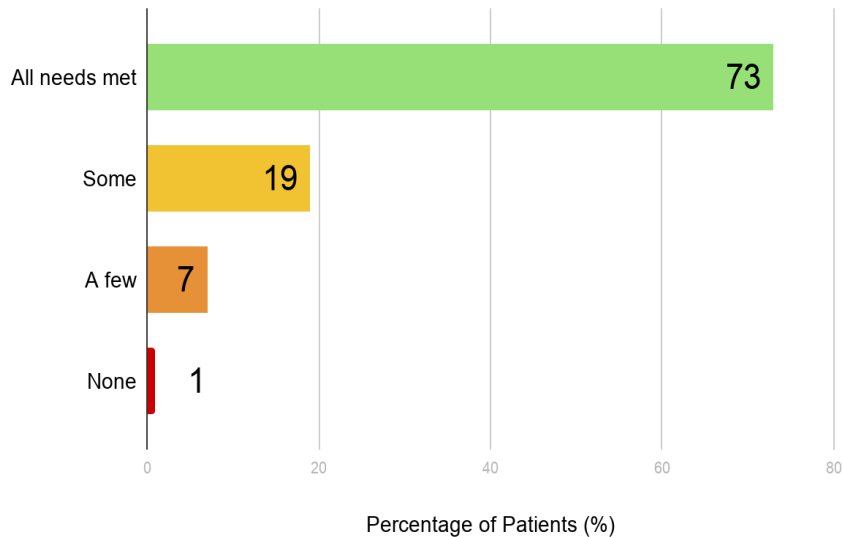

Patient Technological Barriers

- tech error 2%
- app 5%
- internet availability 18%
- camera 20%
- device 55%

Patient Concerns
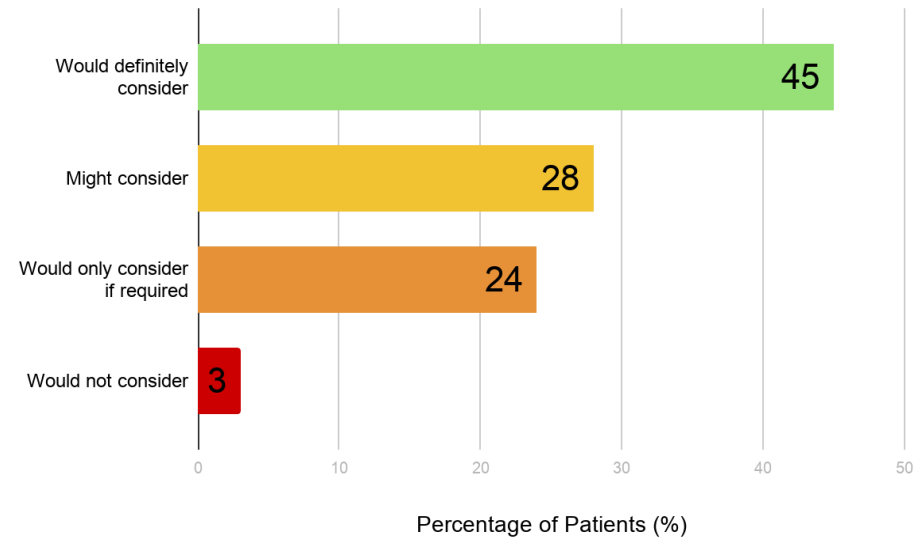
- reschedule 22%
- no caregiver 42%
- privacy 36%

Patient Satisfaction

73% of telehealth patients reported that "*all*" of their needs were met, and 45% would "*definitely*" consider a future visit

### Q2. Whether the telehealth visit met the patient's needs

All needs met: 73
Some: 19
A few: 7
None: 1

Percentage of Patients (%)

Q3. Whether the patient would want a future telehealth visit

Would definitely consider: 45
Might consider: 28
Would only consider if required: 24
Would not consider: 3

Percentage of Patients (%)

Video users and rural patients were more likely to consider a future telehealth visit

Q2. Whether the telehealth visit met the patient's needs
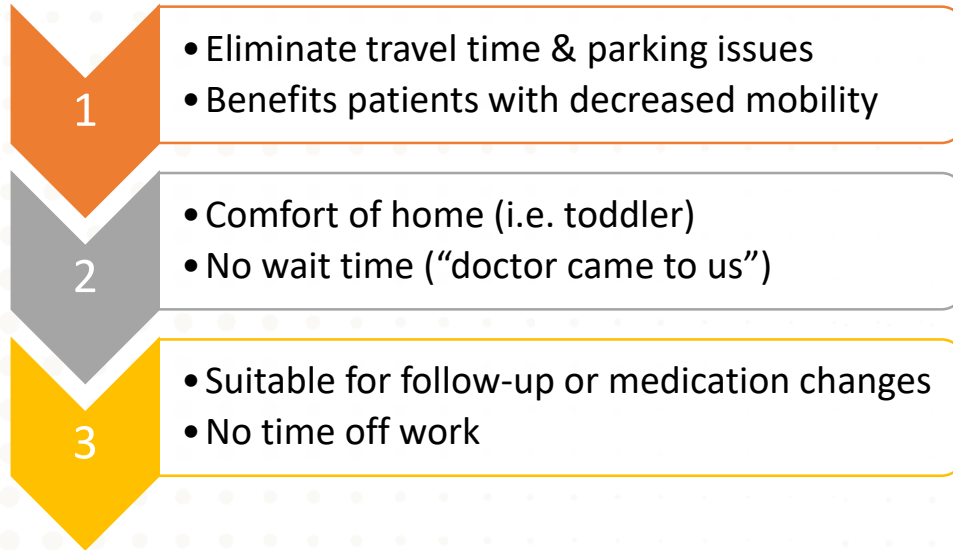

Percentage of patients (%) who reported "all" needs met
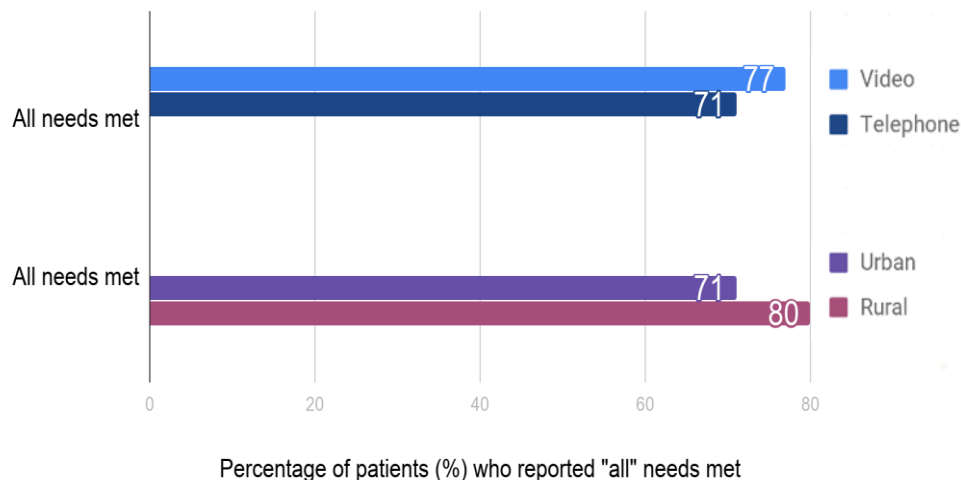
- Regardless of whether a **video** or a **telephone** visit was completed, patients were similarly likely to have all of their needs met (p=0.34).
- A similar proportion of patients from **urban** and **rural** communities reported that all of their needs were met (p=0.27).

Q3. Whether the patient would want a future telehealth visit

Percentage of patients (%) who would "definitely" consider
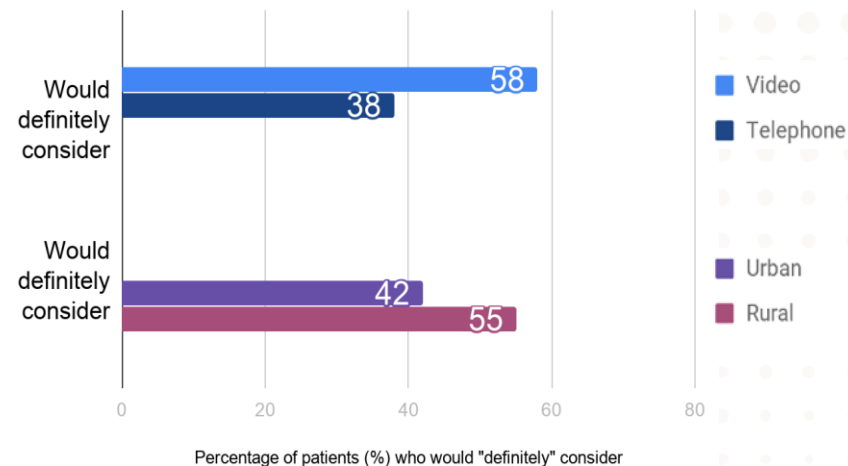
- Patients who completed a **video** visit were more likely to definitely consider a future visit compared to patients who completed a **telephone** only visit (p=0.02).
- Patients from **rural** communities were more likely to definitely consider a future visit compared to those from **urban** communities (p=0.05).
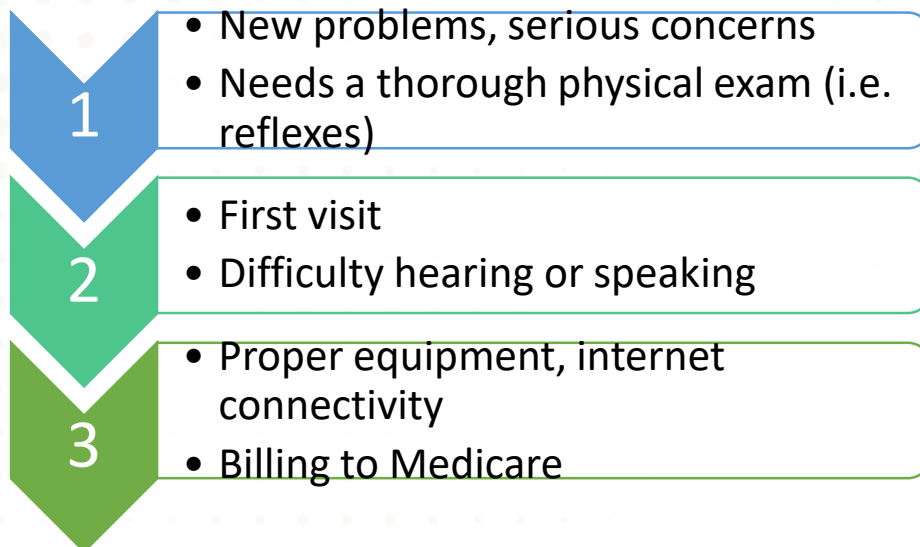
Patient Feedback

1 • Eliminate travel time & parking issues
• Benefits patients with decreased mobility

2 • Comfort of home (i.e. toddler)
• No wait time ("doctor came to us")

3 • Suitable for follow-up or medication changes
• No time off work

"PLEASE keep offering them, we live 3 hours away."

"It went very well, it was a lot nicer to be in my reclining chair rather than in the waiting room."

"I thought it was much more convenient, I didn't have to ask off of work; this would actually be my preference."

1 • New problems, serious concerns
• Needs a thorough physical exam (i.e. reflexes)

2 • First visit
• Difficulty hearing or speaking

3 • Proper equipment, internet connectivity
• Billing to Medicare

"I would definitely consider a video visit for follow-up or unimportant visits but if it was something serious, I would prefer to see the doctor in person."

"An in-person visit would have been good because this was my first visit, so they weren't able to assess my strengths and weaknesses."

"I was satisfied with the services she rendered, but I prefer an in-person visit because I had to ask my daughter for her equipment in order to do the video conference."

Provider Feedback

Provider Insight: Top Benefits and Challenges

Benefits

- Able to work remotely (71.1%)
- Flexibility in schedule (65.8%)
- Decreased no shows (57.9%)
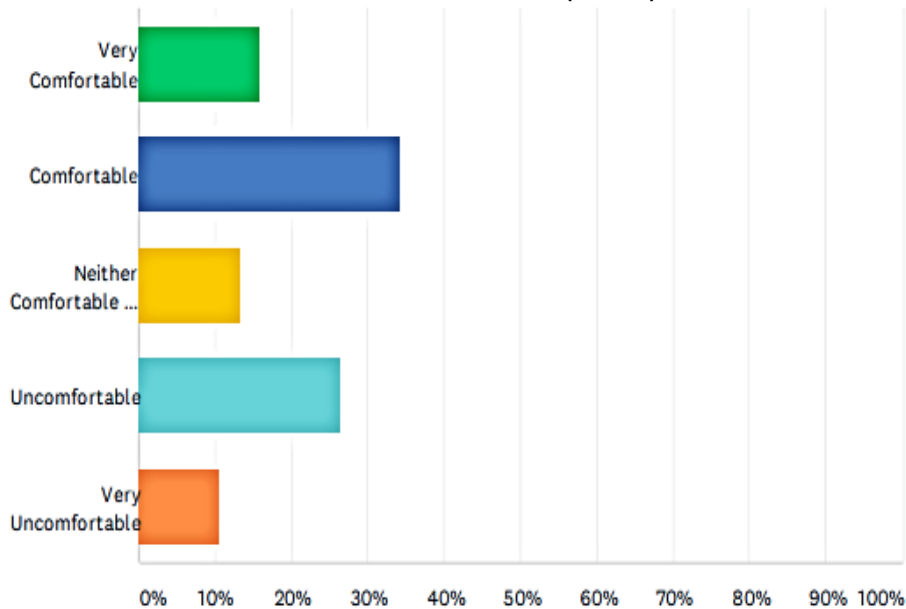- Flexibility with childcare coverage (26.3%)

- NO Benefit (15.8%)

Challenges

- Patient internet connectivity/access (71%)
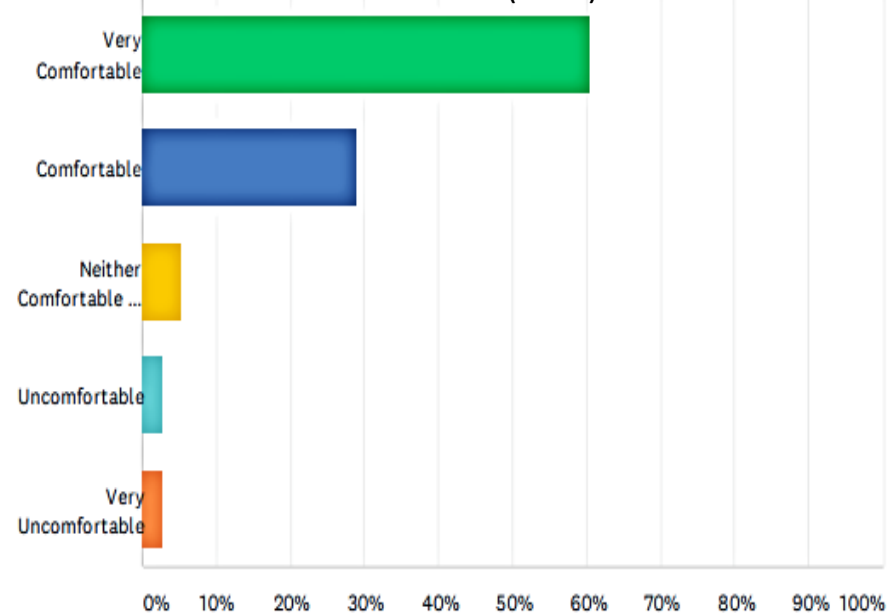- Limited/different neurology exam (60.5%)
- Patient device access (36.8%)

Future Telehealth

- What percentage do you envision your outpatient clinic session being telehealth? 44%

NEW PATIENT VISITS (NPVs)

RETURN VISITS (RPVs)

Inpatient Telehealth

Aims

- Support Patients
  - Gold Standard of Care Across the System
  - Keep patients in their community whenever possible
- Support Local Providers
  - Hospitalists at Spokes without continuous access to Neurology
  - Emergency Department Assessments solved with neuro backup
- Support WFB Neurology
  - Call burden on General Neurology Attending
  - "Free advice" line
- Evaluate volumes & workflow for a sustainable system
  - Tracking PAL and Teleconsult Data to inform next steps

System Teleneurology

What's Next?

Thanks to …

- Lauren Strauss, DO
- Roy Strowd, MD

Clinic Team

- Rachel Graham
- Marnie Fidishun
- Lea Morris
- Ashley Whitaker
- Erica Pender
- Jasmine Aikens

- Telehealth Committee

- Telehealth Student Team

- Teleneurology Pilot Team

- Pam Duncan
- Heidi Munger-Clary
- Rebecca Wells