Telemedicine

Sophie Lanzkron, MD, MHS
Professor of Medicine and Oncology
Johns Hopkins School of Medicine

Objectives

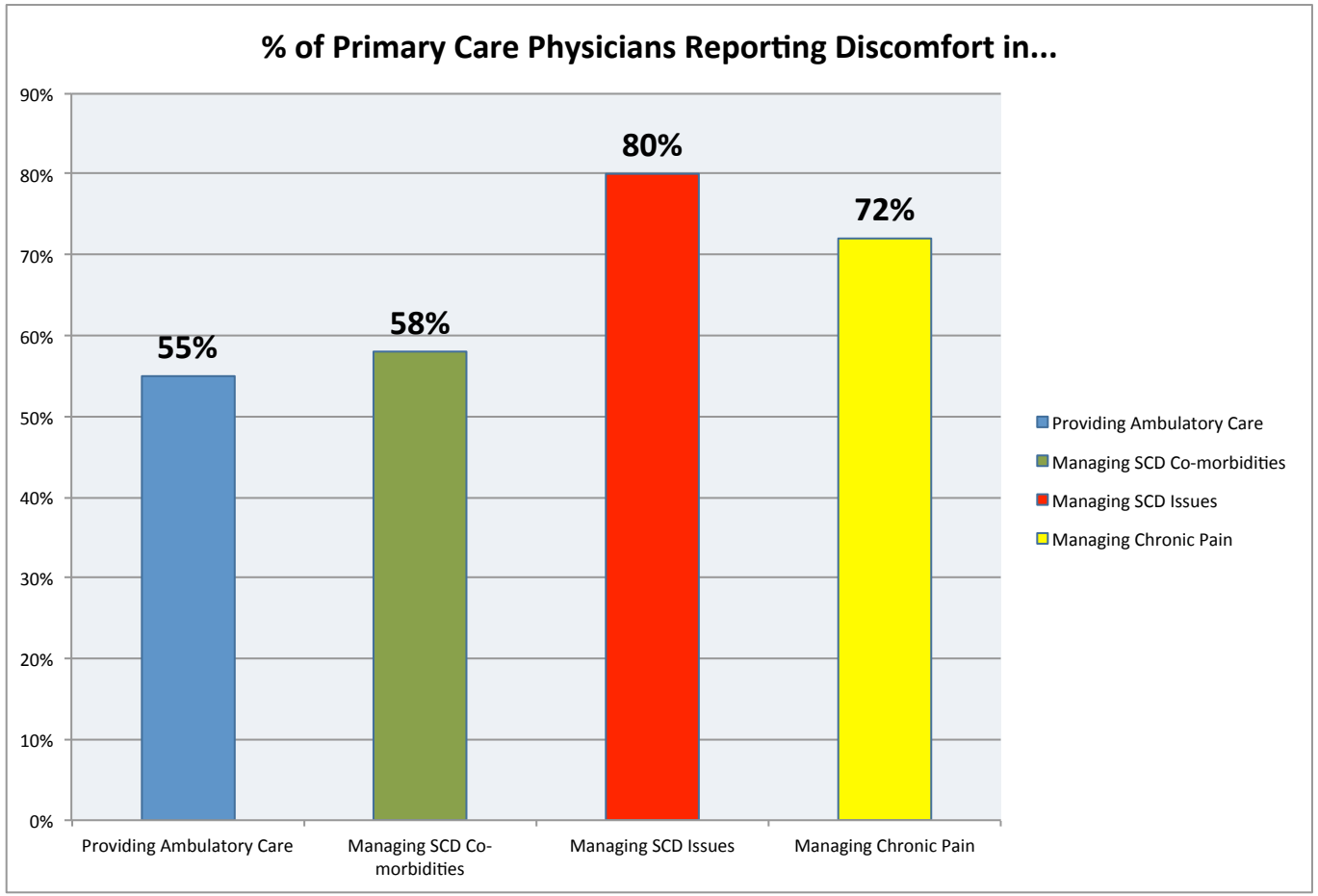
- Understand how adults with sickle cell disease view telemedicine as part of their care
- Understand the benefits and pitfalls of telemedicine in the care of adults with sickle cell disease

Major Need to Improve Access to High Quality Sickle Care

- A major barrier to the provision of high quality SCD care is the lack of available centers that can provide expert care to the SCD population
- Not enough adult hematologists (and likely there never will be)
- How do we overcome this lack of expertise

New Models Needed to Improve Access to High Quality Care

Surveys of Community Providers



South Med J. 2015 Sep;108(9):531-6.

Using Technology to Overcome Barrier to High Quality SCD Care-Telemedicine

The use of electronic information and communications technologies to provide and support health care when distance separates the participants

- Applications
  - Remote Consultation
  - Remote Monitoring
  - Remote Education

Medicine- patient/provider and specialist

Single provider single patient

Institute of Medicine, 1996

Telemedicine

- Helps to Even Maldistribution of health resources
  - Promotes equity
- Improves Access
- Eliminates Distance/Time/Travel
    - Patients and Families
    - Physician
- Diminishes Isolation of rural providers
- Prior to pandemic often **not reimbursable**
  - Outside of rural settings
  - Public insurance

Telemedicine Challenges

- Technology
  - Acceptance, adoption, functionality, understanding, quality and legislation
  - Lack of Internet access and slow Internet
- Gaps in data on the effectiveness of using telehealth
  - No guidelines or best practices for managing most medical conditions using TM
- Some examinations (e.g. blood taking, vaccination and physical examination) require face-to-face interaction

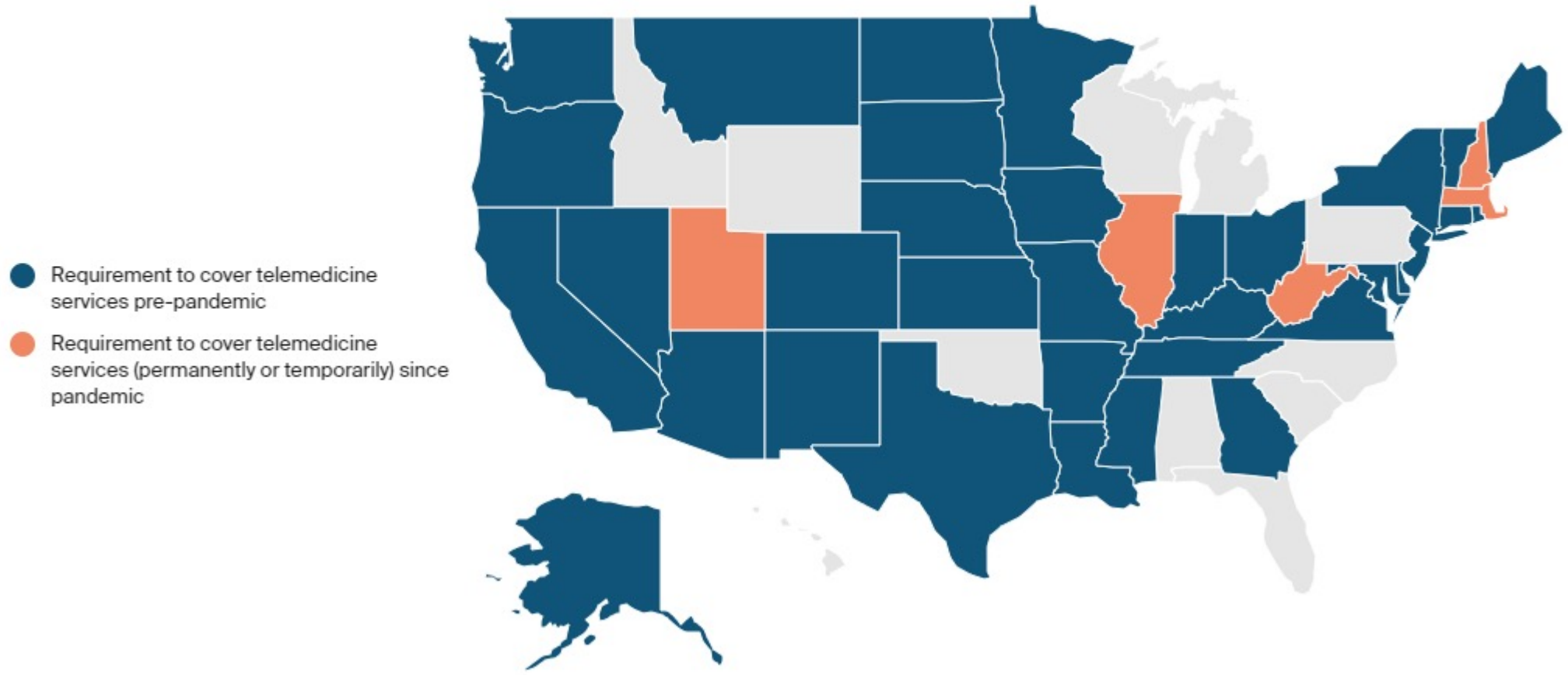
Comput Biol Med. 2021 Sep 20;138:104878.

Pandemic and Telemedicine

- COVID -19 pandemic caused a rapid, necessary transition to telemedicine, disrupting established care systems and therapeutic relationships
- Critical opportunity to study telemedicine:
  - Understand barriers, facilitators, risks and benefits to its use

JOHNS HOPKINS MEDICINE

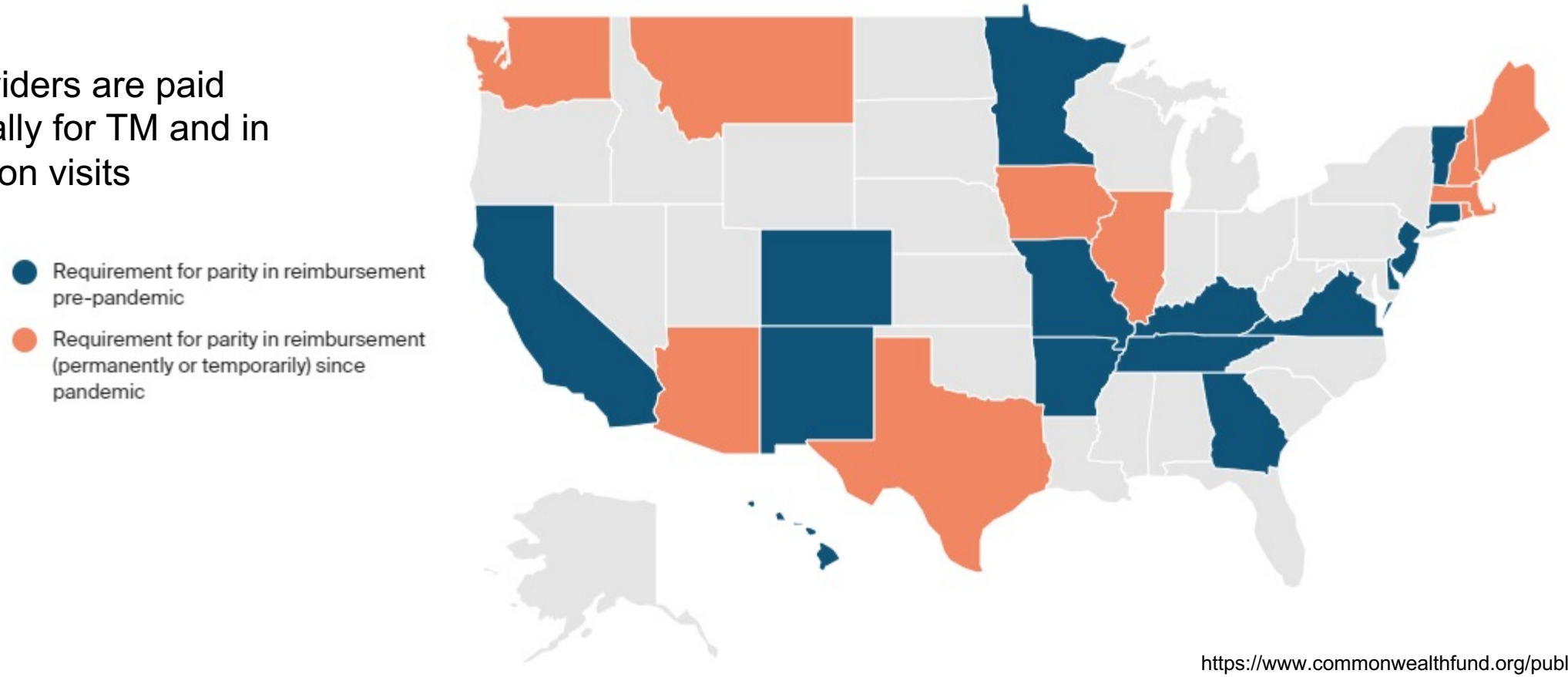
States Requiring Insurers Cover Telemedicine Services, Pre- and Post-Pandemic (as of March 15, 2021)



https://www.commonwealthfund.org/publications/issue-briefs/2021/jun/states-actions-expand-telemedicine-access-covid-19

States Requiring Insurers Have Parity in Provider Reimbursement for Telemedicine Services, Pre- and Post-Pandemic (as of March 15, 2021)

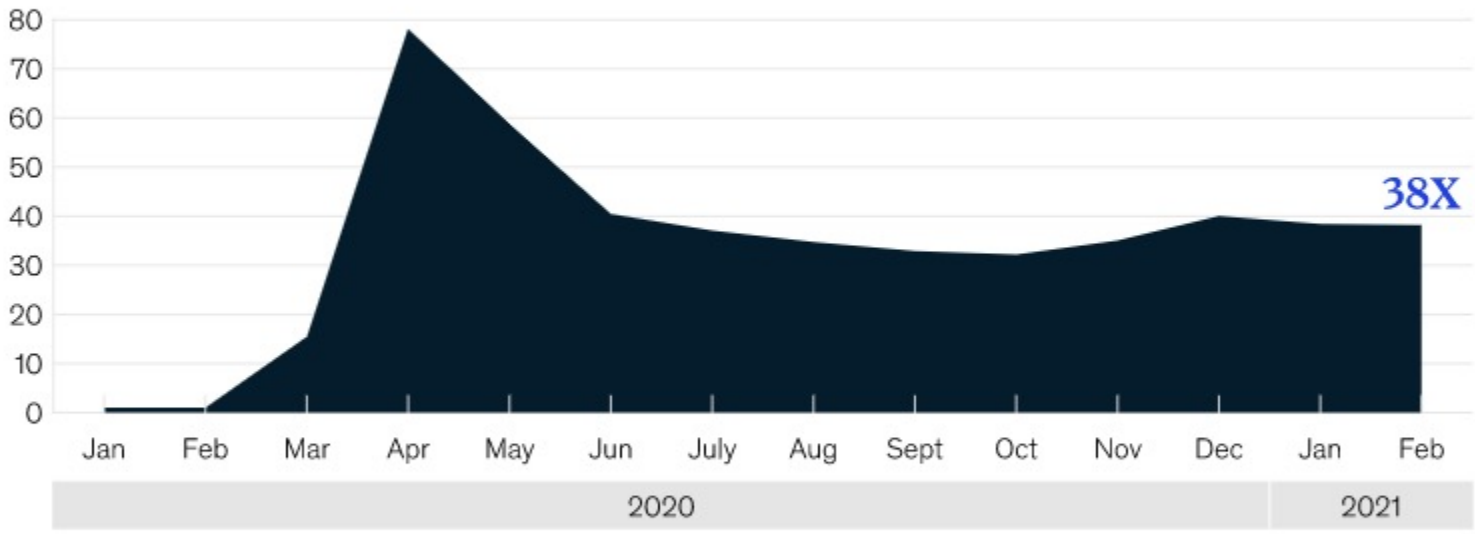
Providers are paid equally for TM and in person visits



https://www.commonwealthfund.org/publications/issue-briefs/2021/jun/states-actions-expand-telemedicine-access-covid-19

Growth in telehealth usage peaked during April 2020 but has since stabilized.

Telehealth claims volumes, compared to pre-Covid-19 levels (February 2020 = 1)[1]



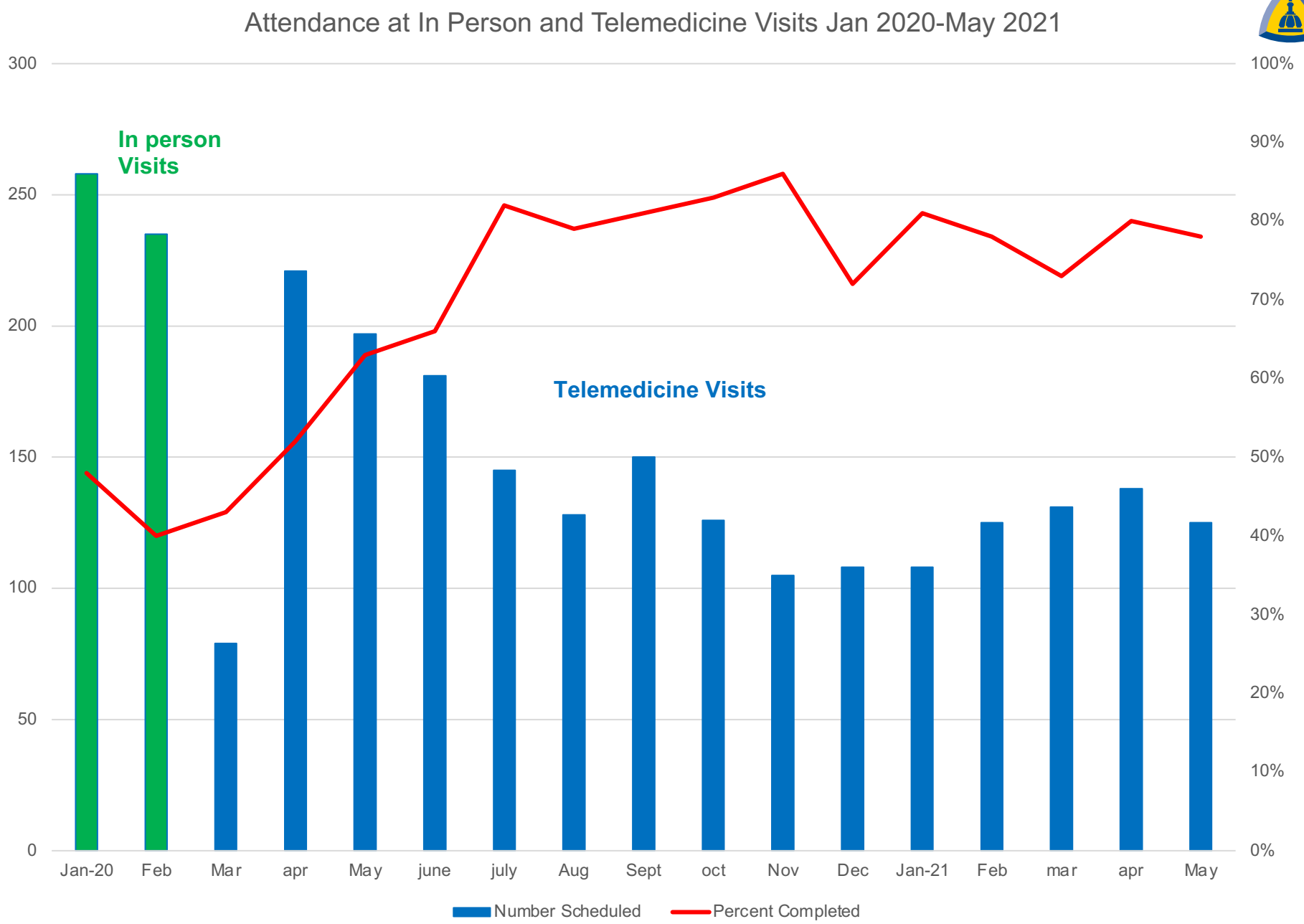
[1] Includes cardiology, dental/oral, dermatology, endocrinology, ENT medicine, gastroenterology, general medicine, general surgery, gynecology, hematology, infectious diseases, neonatal, nephrology, neurological medicine, neurosurgery, oncology, ophthalmology, orthopedic surgery, poisoning/drug tox./comp. of TX, psychiatry, pulmonary medicine, rheumatology, substance use disorder treatment, urology. Also includes only evaluation and management visits; excludes emergency department, hospital inpatient, and physiatry inpatient claims; excludes certain low-volume specialties.

Source: Compile database; McKinsey analysis

https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/telehealth-a-quarter-trillion-dollar-post-covid-19-reality

Technology and our Patients

- We utilized our community health worker, medical assistants and social worker to assist patients in accessing telemedicine
  - Most patients had technology
  - Many patients had never set up a Mychart EPIC account
- PCORI funded study to examine patients' perspectives on the use of telemedicine


Attendance at In Person and Telemedicine Visits Jan 2020-May 2021
In person Visits
Telemedicine Visits
300
250
200
150
100
50
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan-20
Feb
Mar
apr
May
june
july
Aug
Sept
oct
Nov
Dec
Jan-21
Feb
mar
apr
May
Number Scheduled
Percent Completed

Methods

- Contacted potentially eligible participants via EPIC mychart messages to introduce the study and provide an opportunity to opt out of further contact
  - 268 individual patients had TM visits between 3/19-8/20
- Research coordinators contacted via telephone or SMS message to provide more information about the study and if interested completed oral consent.
- Participants were emailed a link to an electronic survey
- Participants received a $30 gift card

Methods

- Survey questions based on the National Quality Forum domains for telemedicine evaluations
  - Domains include:
    - Telemedicine Satisfaction Questionnaire (TSQ)
    - Patient engagement by Patient Activation Measure (PAM)
    - Appropriateness of intervention (IAM)
    - Acceptability of telemedicine by Acceptability of Intervention (AIM)
    - Usability of the telemedicine by the System Usability Scale (SUS).
  - Administrative records were used to assess number of telemedicine visits, Emergency Department (ED) or Infusion Clinic (IC) visits and hospitalizations

Methods

- Evaluation of patient attitude toward telemedicine and association with baseline acute care utilization (ED, IC, hospitalization)
- Logistic regression to predict if the patient had acute care utilization in the 6 months associated with results of baseline surveys

Results

- September 2020 we enrolled 112 individuals with SCD who had at least one telemedicine clinic visit
- Of the consented participants 99 completed the baseline survey

Demographics of the Enrolled Sample (n =99)

Variable		N (%)
Age, yr (Mean SD)		39.1 (SD = 12.6)
Female sex		71 (71.7%)
Race		
	Black/African American	93 (94.0%)
	Multi-Race	3 (3.0%)
	Asian	2 (2.0%)
	Declined to answer	1 (1.0%)
Hispanic		5 (5.0%)
Have medical insurance		96 (97.0%)
Type of insurance		
	Public insurance	45 (45.5%)
	Private	39 (39.4%)
	Private/Medicare	5 (5.0%)
	Declined to answer	10 (10.1%)
Marital status		
	Single	57 (57.6%)
	Married	28 (28.3%)
	Significant other	5 (5.1%)
	Divorced	4 (4.0%)
	Separated	2 (2.0%)
	Declined to answer	3 (3.0%)
Reside with		
	Significant other	32 (32.3%)
	Parent/Other relative	27 (27.3%)
	Friend	10 (10.1%)
	Live alone	18 (18.2%)
	Other	10 (10.1%)
	Declined to answer	2 (2.0%)

Last grade completed	
Less than HS grad or HS grad/GRE	19 (19.2%)
Some college/ Trade school	39 (39.4%)
Bachelor's degree	20 (20.2%)
Post-baccalaureate degree	21 (21.2%)
Employment	
Unemployed	43 (43.4%)
Employed part time	15 (15.2%)
Employed full time	37 (37.4%)
Declined to answer	4 (4.0%)
On disability	48 (48.5%)
Income	
$0-20,000	27 (27.3%)
$21,000-40,000	23 (23.2%)
$41,000-60,000	8 (8.1%)
$61,000-80,000	8 (8.1%)
$81,000-100,000	8 (8.1%)
Over $100,000	5 (5.0%)
Prefer not to say	20 (20.2%)
Genotype	
HsS/beta+	2 (2.0%)
HbS/beta0	3 (3.0%)
HbSC	20 (20.2%)
HbSS	61 (61.6)
Missing	13 (13.2)

Descriptive Statistics of Telemedicine Attitude Questionnaires at Baseline

Variable	Range	M (SD)	Median	IQR 25%-75%
Telemedicine Satisfaction Questionnaire (TSQ)	40-70	57.4 (7.6)	56	52.5-64
System Usability Scale (SUS)	22.5-100	72.4 (14.8)	72.5	62.5-81.25
Acceptability of Intervention (AIM)	7-20	15.7 (3.3)	16	14.0-19.1
Intervention appropriateness measure (IAM)	8-20	15.8 (2.9)	16	14.0-17.5
Prefer Video Visits for Regular Hematology Care	1-10	6.6 (2.9)	7	5-9
Prefer Video Visits for Managing Pain	1-10	4.9 (3.2)	4	2-8

SUS score above a 68 would be considered above average and anything below 68 is below average

Telemedicine Satisfaction Survey

JOHNS HOPKINS MEDICINE

Questions n=99	Agree	Strongly agree	Total (%)
1. I can easily talk to my health-care provider.	40	47	87 (88)
2. I can hear my health-care provider clearly.	50	45	95 (96)
3. My health-care provider is able to understand my health-care condition.	41	51	92 (93)
4. I can see my health-care provider as if we met in person.	41	38	79 (80)
5. I do not need assistance while using the system.	39	48	87 (88)
6. I feel comfortable communicating with my health-care provider.	43	51	94 (95)
7. I think the health-care provided via telemedicine is consistent.	40	35	75 (76)
8. I obtain better access to health-care services by use of telemedicine.	18	13	31 (31)
9. Telemedicine saves me time travelling to hospital or a specialist clinic.	32	60	92 (93)
10. I do receive adequate attention.	44	31	75 (76)
11. Telemedicine provides for my health-care need.	43	23	66 (67)
12. I find telemedicine an acceptable way to receive health-care services.	48	21	69 (70)
13. I will use telemedicine services again.	49	38	87 (88)
14. Overall, I am satisfied with the quality of service being provided via telemedicine.	51	27	78 (79)

Additional Survey Responses

Acceptability of Intervention Measure (AIM)			
	Agree	Completely agree	Total (%)
1. Telemedicine visits meet my approval	55	29	84 (85)
2. Telemedicine visits are appealing to me	38	25	63 (64)
3. I like telemedicine visits	42	27	69 (70)
4. I welcome telemedicine visits	49	29	78 (78)
Intervention Appropriateness Measure (IAM)			
1. Telemedicine visits seem fitting	47	25	72 (73)
2. Telemedicine visits seem suitable	56	22	78 (79)
3. Telemedicine visits seem applicable	56	24	80 (81)
4. Telemedicine visits seem like a good match	45	24	69 (70)

Baseline Utilization Outcomes

Variable	Range	M (SD)	% with 1 or more	Median	IQR 25%-75%
Hospital Admissions at 6 months	0-5	0.5 (1.0)	26 (26.3%)	0	0-1
Number of ED or IC Visits at 6 months	0-24	1.3 (3.1)	34 (34.3%)	0	0-1
Number of Hematology visits at 6 months	0-10	2.1 (1.8)	82 (82.8%)	1	1-2

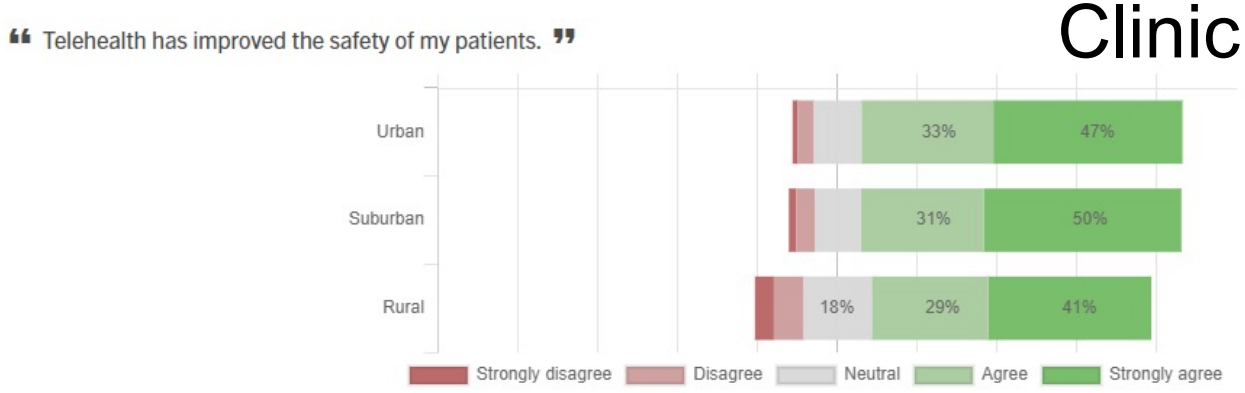
Preferences towards telemedicine were not associated with healthcare utilization

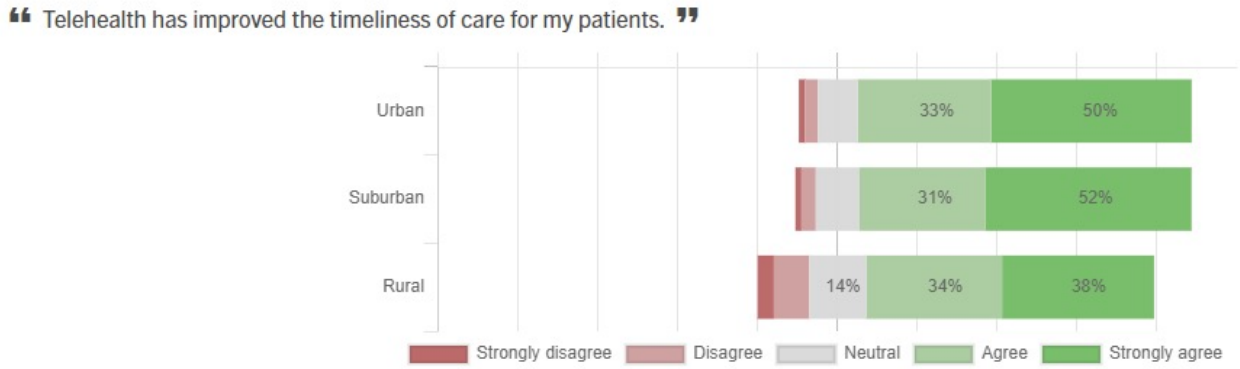
Plan to repeat at 6 and 12 months

Future of Telemedicine

- CMS made telehealth coverage for a number of CPT codes permanent in the 2021 physician fee schedule final rule
- Unclear if waiver for public health emergency that allowed telehealth to be provided for Medicare beneficiaries outside of rural areas and from home rather than from a provider's office will remain
- Unclear if other insurers will continue to reimburse for TM services

Clinician Perspectives

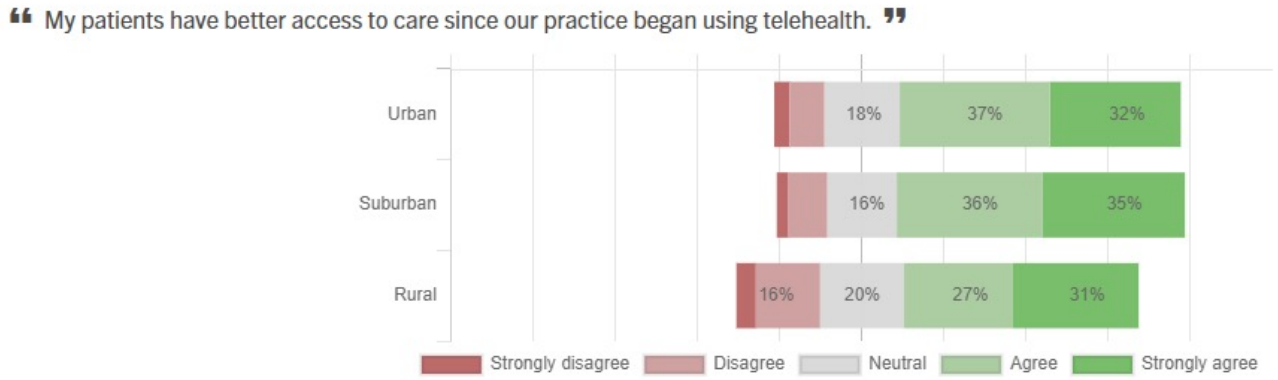




Telehealth Physician Impact Study- an initiative of the COVID-19 Healthcare Coalition

Managed through the Mayo Clinic health services research team

Survey responders included 1594 physicians and other qualified healthcare professionals from across the U.S. A

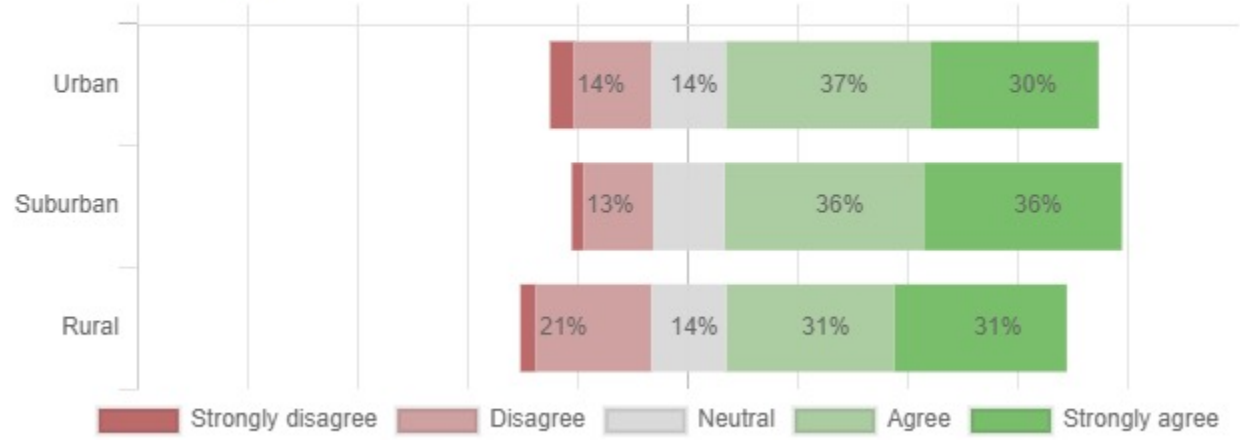


https://c19hcc.org/telehealth/physician-survey-analysis/

Clinician Perspectives

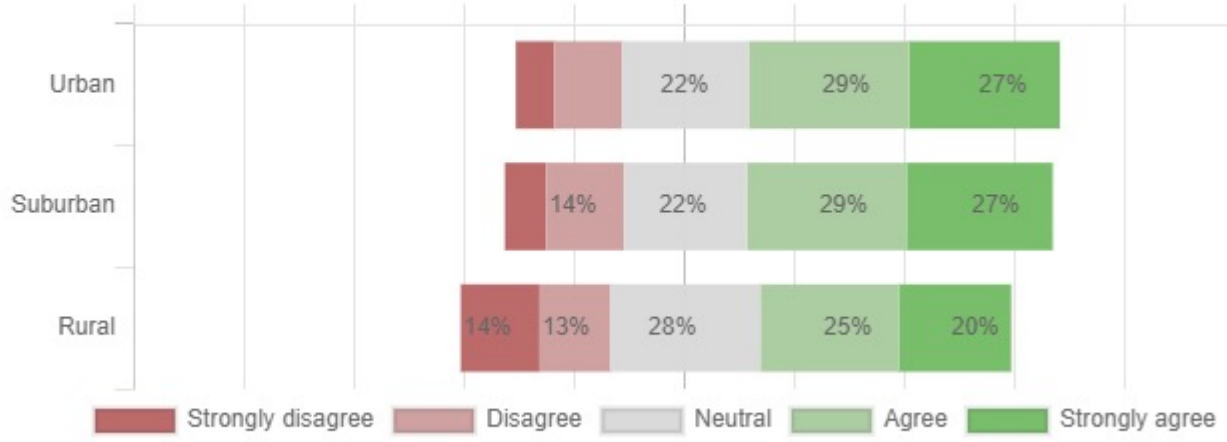
JOHNS HOPKINS MEDICINE

"It has been simple for me to use telehealth in my practice."



https://c19hcc.org/telehealth/physician-survey-analysis/

"Telehealth has improved the satisfaction of my work."



Benefits of Telemedicine

- More patients use and access mychart
  - Can now see labs and notes
  - Communicate with providers easily (good for patients not clear it is doable for clinicians without lots of help)
- Patients find TM technology usable, accessible and satisfactory for care
- Providers like using TM
  - Seeing patients in their homes adds perspective

Downside of Telemedicine

- Patients want to ensure that they have in person access to providers when having pain
- Some patients will never be able to successfully use the technology
- Concern that something is missed without the physical exam
- Privacy concerns
  - Clinic visits while patients are at work or out eating lunch in a public space

Telemedicine and Heart Failure

- All ambulatory cardiology visits for heart failure at a multisite health system from April 1, 2019, to December 31, 2019 (pre-COVID) or April 1, 2020, to December 31, 2020
- Compared with in-person visits, video visits were used more often by younger (mean 64.7 years versus 74.2), males and privately insured.
- Remote visits for heart failure care were associated with:
  - Reduced diagnostic testing
  - Reduced guideline-directed medical therapy prescription
- Telephone but not video visits were associated with increased 90-day mortality

Circ Heart Fail. 2021 Sep 30:CIRCHEARTFAILURE121008573.

Future

- Assess digital literacy more broadly
- Assess as a tool to help patients living in rural areas get access to high quality care
  - Decrease the number of non-affiliated patients by getting them seen by sickle cell specialist
- Add digital tools
  - Patient-reported outcomes electronically entered into EHR and use them to as a tool for assessing disease status
- Must collect data on outcomes

Questions