



VIRTUAL
2020 NATIONAL
RYAN WHITE
CONFERENCE ON
HIV CARE & TREATMENT

Telehealth to Support HIV Prevention and Care in South Carolina

August 11-14, 2020

Marty Player, MD, MSCR
Eric Meissner, MD, PhD
Ryan Kruis, MSW

Medical University of South Carolina



Agenda



- Introduction to MUSC Center for Telehealth
- Telehealth Interventions for HIV Prevention and Treatment
 - South Carolina Tele-PrEP Pilot
 - Text messaging between providers and patients living with HIV in South Carolina
 - Adaptation of Clinic Operations Utilizing Telehealth due to SARS-CoV-2 Pandemic
- Technical Assistance Resources

Acknowledgements



- *These projects are supported in part by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number U66RH31458, Telehealth Center of Excellence. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.*
- *The tele-PrEP pilot project was funded in part by the SC Telehealth Alliance pilot grant program.*
- *The mobile text messaging project discussed was funded by ViiV HealthCare.*

MUSC Center for Telehealth



SOUTH CAROLINA
Telehealth
ALLIANCE

 **MUSC Health**
Medical University of South Carolina



2005-2009

Maternal Fetal
Telemedicine,
Telestroke, ICU,
School-based

2013

State of SC
telehealth
investment; MUSC
Center for
Telehealth founded

2014

SCTA
founded;
headquartered
at MUSC

2017

Designated by
HRSA as a
National
Telehealth Center
of Excellence

2019

Awarded ATA's 2019
President's Award for
Transformation of
Health Care Delivery
(SCTA)



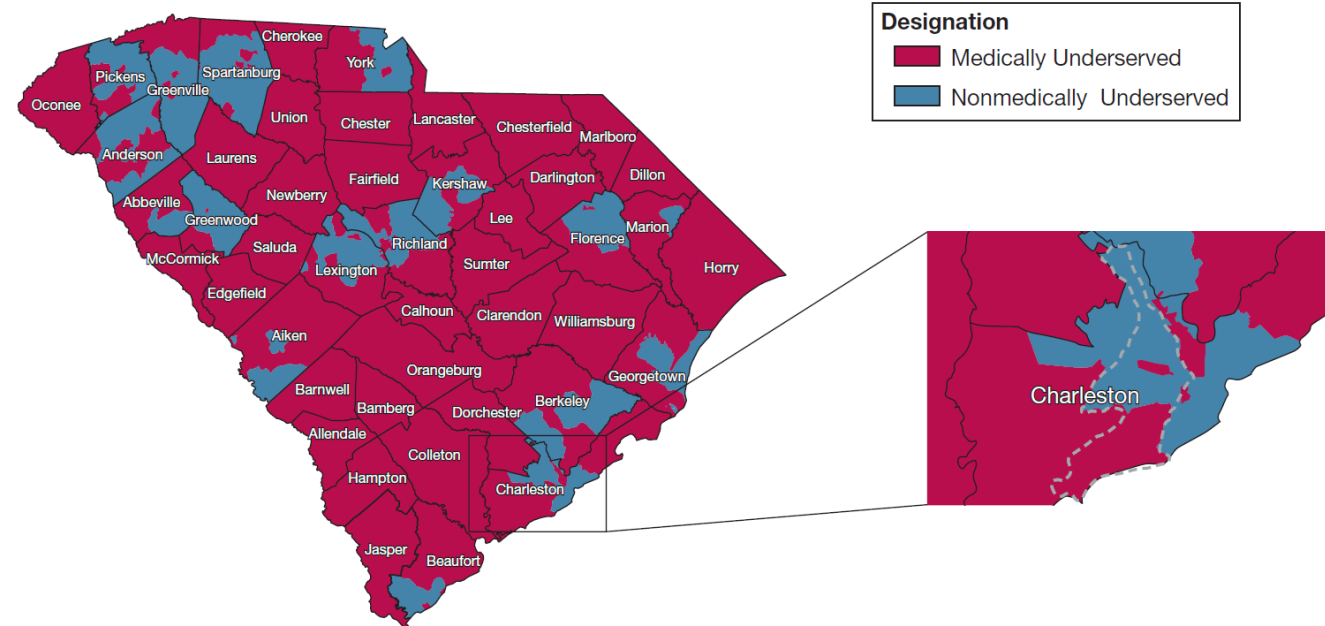
Health Resources & Services Administration

MUSC Telehealth Breadth and Depth



VIRTUAL
2020 NATIONAL
RYAN WHITE
CONFERENCE ON
HIV CARE & TREATMENT

- MUSC 2019
- 100+ unique telehealth services
- 346 telehealth sites (located in 46 SC counties)
 - 40 Hospitals
 - 160+ Outpatient clinics
 - 80+ schools (support an additional 400 students)
 - 80+ other sites (SNFs, correctional facilities, other)
- Many services direct-to-patient
- 78% of services in completely or partially medically underserved regions



Goodwin AG et al. Chest 2016;150(4):829

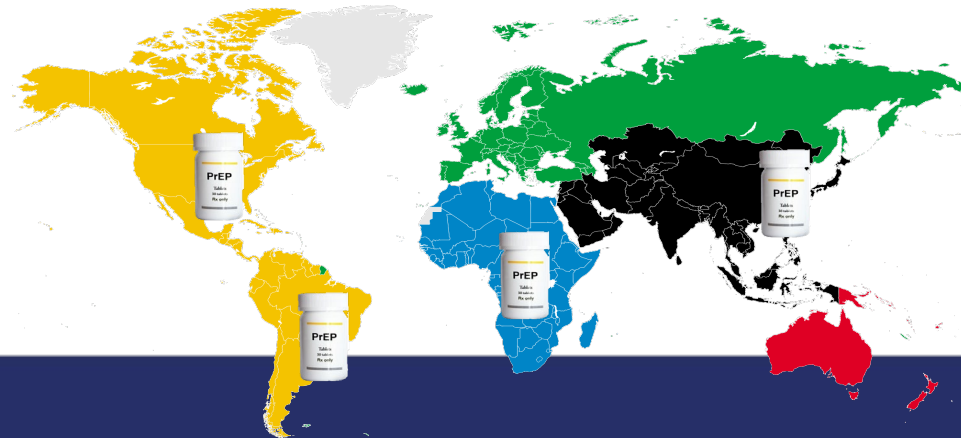


VIRTUAL
2020 NATIONAL
RYAN WHITE
CONFERENCE ON
HIV CARE & TREATMENT

South Carolina Tele-PrEP Pilot

What is PrEP?

- PrEP - once-daily pill for people who do not have HIV, meet certain risk factor criteria and want added protection.
- Food and Drug Administration approved an indication for for preexposure prophylaxis (PrEP) in adults and adolescents who weigh at least 35 kg (77 lb)
 - Truvada (emtricitabine/tenofovir disoproxil 200mg/300mg) approved 2012
 - Addition of adolescents May 2018
 - Descovy (emtricitabine/tenofovir alafenamide 200mg/25mg) approved 2019



PrEP across the US



- CDC estimates ~1.2 million persons were eligible for PrEP in 2015
 - 492,000 men who have sex with men
 - 115,000 persons who inject drugs
 - 624,000 heterosexually active adults*
- 2017 study estimates that 100,282 persons were prescribed PrEP

*Smith DK, Van Handel M, Wolitski RJ, et al. Vital signs: estimated percentages and numbers of adults with indications for preexposure prophylaxis to prevent HIV acquisition—United States, 2015. MMWR Morb Mortal Wkly Rep. 2015;64(46):1291-1295.

**Sullivan PS, Giler RM, Mouhanna F, et al. Trends in the use of oral emtricitabine/tenofovir disoproxil fumarate for pre-exposure prophylaxis against HIV infection, United States, 2012-2017. Ann Epidemiol. 2018;28(12):833-840.

PrEP in SC



- Number of PrEP users, 2018
 - 1,269
- Rate of PrEP users per 100,000 population, 2018
 - 30
- Percent of PrEP users, by Sex, 2018
 - 93.5% male | 8.1% female
- The 2018 PrEP-to-Need Ratio (PNR)
 - ratio of the number of PrEP users in 2018 to the number of people newly diagnosed with HIV in 2017
 - serves as a measurement for whether PrEP use appropriately reflects the need for HIV prevention. A lower PNR indicates more unmet need.
- PNR, 2018 for South Carolina
 - 1.78

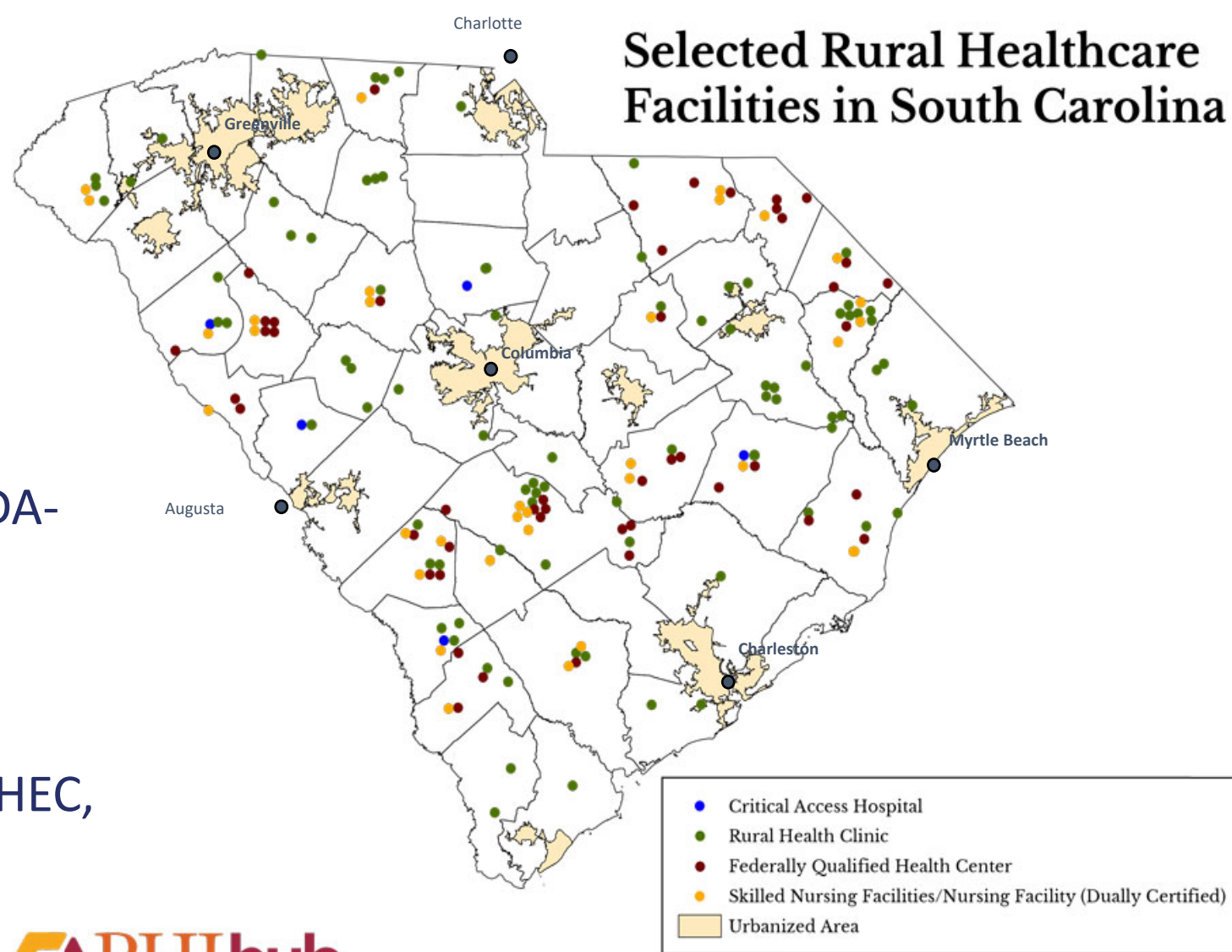
1. Local Data: South Carolina. AIDSvu. <https://aidsvu.org/local-data/united-states/south/south-carolina/>. Published 2019. Accessed September 19, 2019.

2. Pre-Exposure Prophylaxis (PrEP). Centers for Disease Control and Prevention. <https://www.cdc.gov/hiv/risk/prep/index.html>. Published August 20, 2019. Accessed September 19, 2019

- Trump administration announced in 2019 goal of ending the HIV epidemic in the US within 10 years
- Ending the HIV Epidemic: A Plan for America
 - proposed to reduce new HIV infections in the United States
 - by 75 percent in five years
 - by 90 percent by 2030
 - proposes numerous tools to achieve this goal including the use and expansion of PrEP
 - South Carolina identified as one of 7 priority states with high rural burden
 - 10% or more of new diagnoses in 2016 and 2017 were in rural areas

Rural Population in SC

- 15% SC population in rural areas*
 - About 747,000 people (USDA-ERS, 2016)
- 27.1% SC population in primary care HPSAs
 - About 1,254,000 people (DHEC, 2017)



Source(s): HRSA Data Warehouse, U.S. Department of Health and Human Services, December 2016

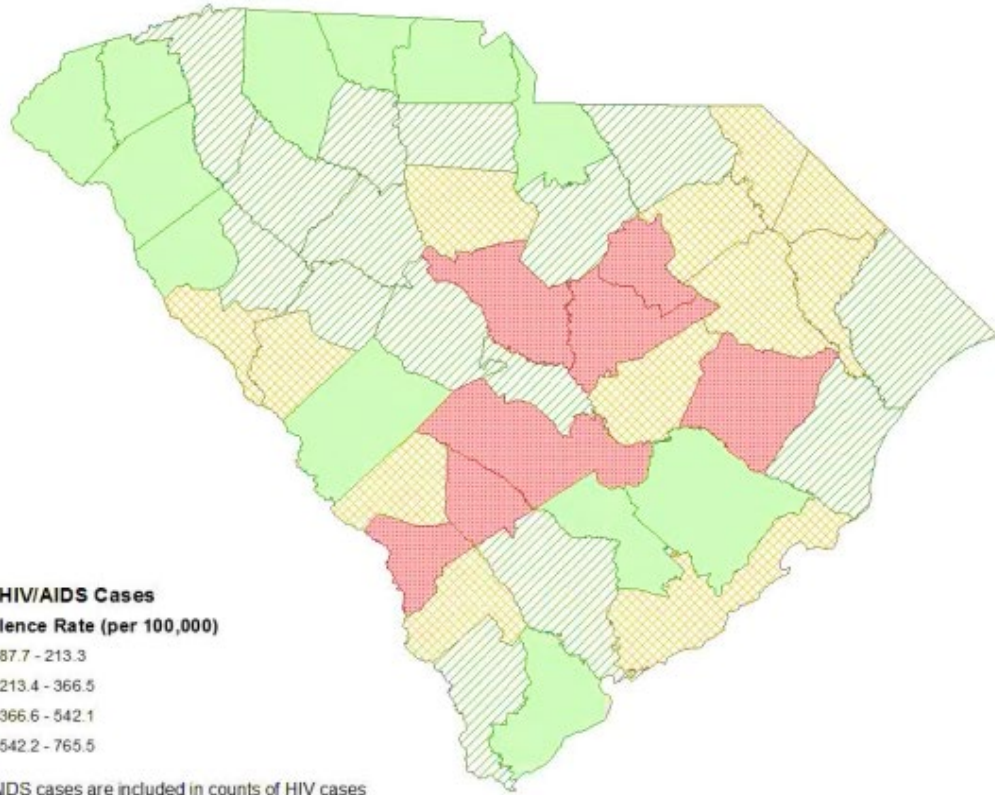
*Rural is defined as counties without metropolitan areas (based on population and labor market) – USDA-ERS

Rural Population of South Carolina

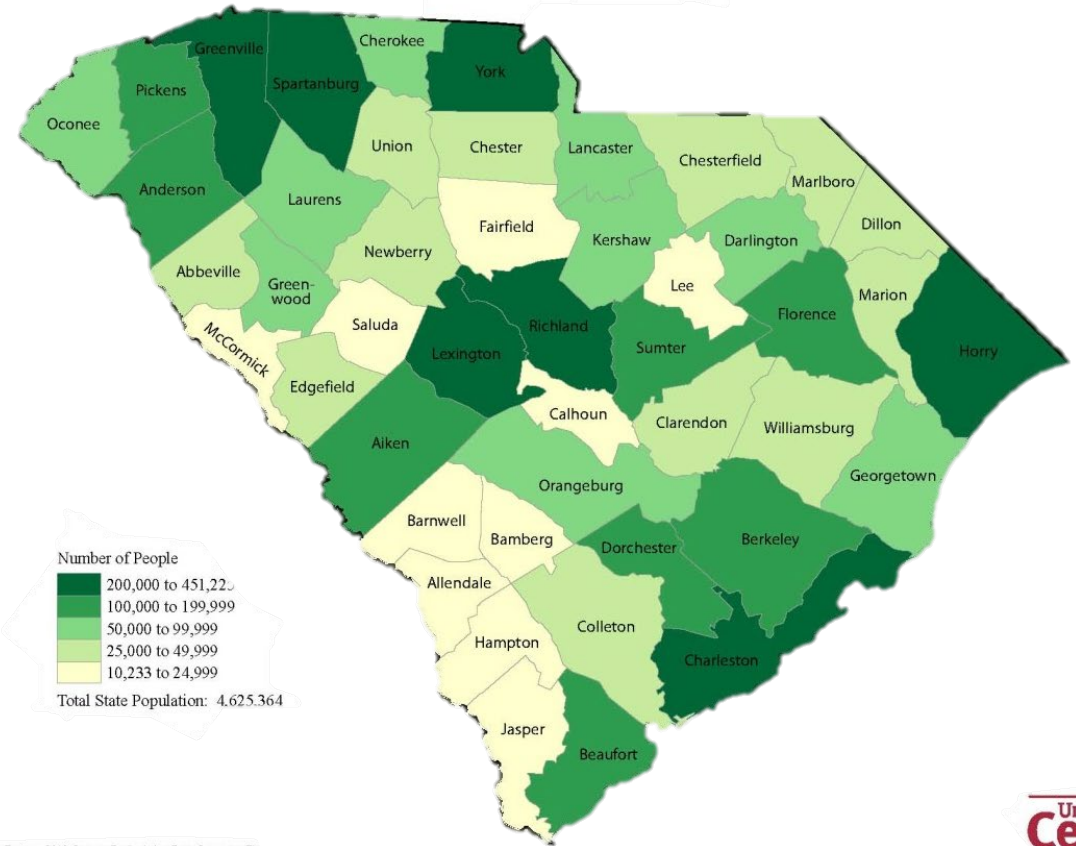


VIRTUAL
2020 NATIONAL
RYAN WHITE
CONFERENCE ON
HIV CARE & TREATMENT

2017 South Carolina HIV/AIDS Prevalence Rate



SOUTH CAROLINA - 2010 Census Results Total Population by County



Source: U.S. Census Bureau, 2010 Census Redistricting Data Summary File
For more information visit www.census.gov



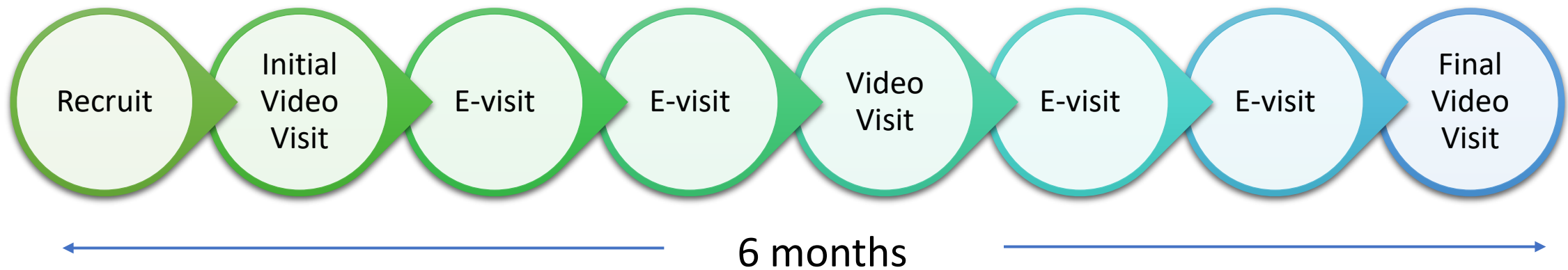
Tele-PrEP Program



- SCTA Telehealth Pilot Grants
 - Support South Carolina clinicians/researchers to develop innovative, scientifically meritorious telehealth projects with an overarching objective of collecting preliminary data
 - \$25,000
- Collaboration with community partners
 - Palmetto Community Care – formerly known as Low Country AIDS Services

Study Timeline

- 12-month feasibility study
 - Start up- 2 months
 - Recruitment- 3 months
 - Study period: 6 months
 - Evaluation- 2 months



Methods



Palmetto Community Care Collaboration

- Recruitment
- Recurring lab work

Surveys

- Initial survey: Technology use comfort
- Final Survey: Satisfaction

Telehealth: E-visits and Video Visits

- 4 Electronic visit questionnaires between video visits
- Video visits: beginning, 3 months, and 6 months

Data Analysis

- Chi square: missed doses compared to age, education

PrEP Workflow



PCC = Palmetto Community Care

EPIC = electronic health record database
MyChart = patient portal

Study lasts for 6 months, but participants have the option to continue with medication



Results



- Referrals: 40
- Enrolled: 20
- Completed Initial Survey: 20
- Completed All Video Visits: 16
- Completed All 4 E-visits: 12
- Completed Study: 16
- Drop-outs: 4

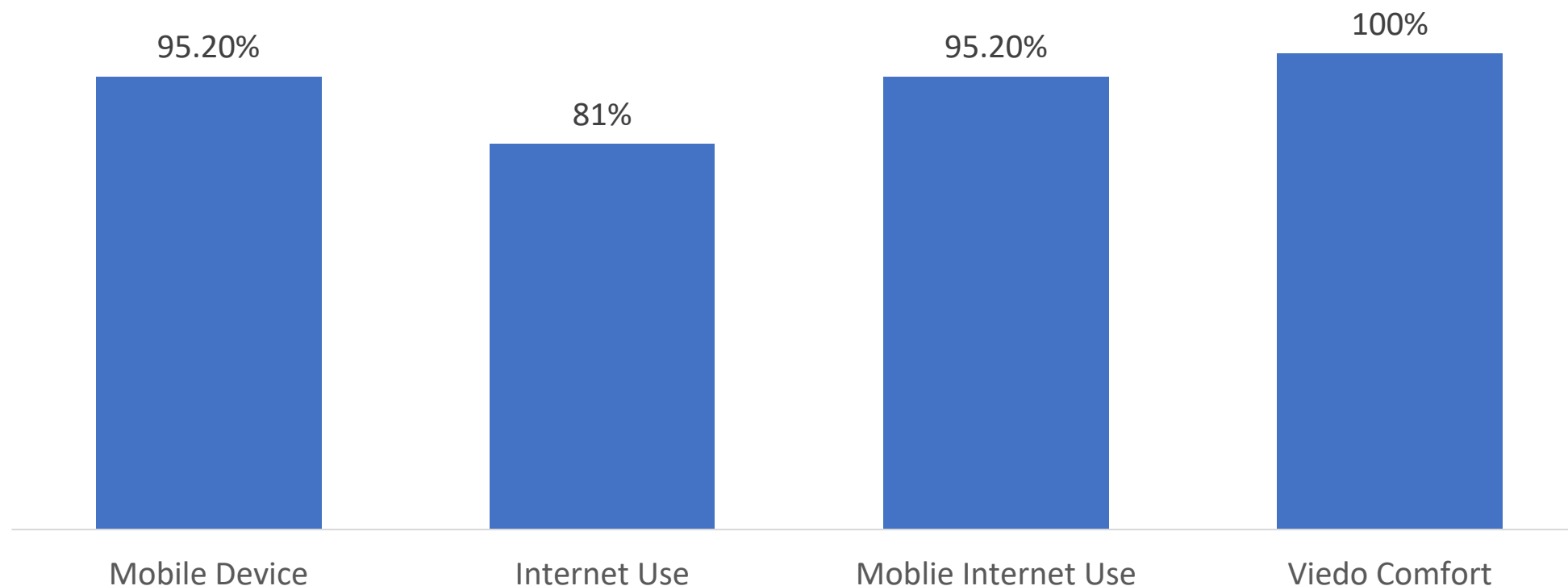
Initial Survey (n=20)



- Assessed demographics, technology engagement
 - Mean age: 36
 - 100% Cisgender Male (self identified)
 - 100% Gay (self-identified)
 - 95.0%- Caucasian, 5.0%- African American
 - 52.4% College graduate or post-graduate degree
 - 76.2% Reported having a PCP
 - 61.9% Reported being seen within the last 6 months

Technology comfort

- Comfort with technology and use was high across all participants:
 - Owning a mobile phone for 3+ years
 - Using the internet multiple times a day on computer or mobile device
 - Comfort using video on computers or mobile devices



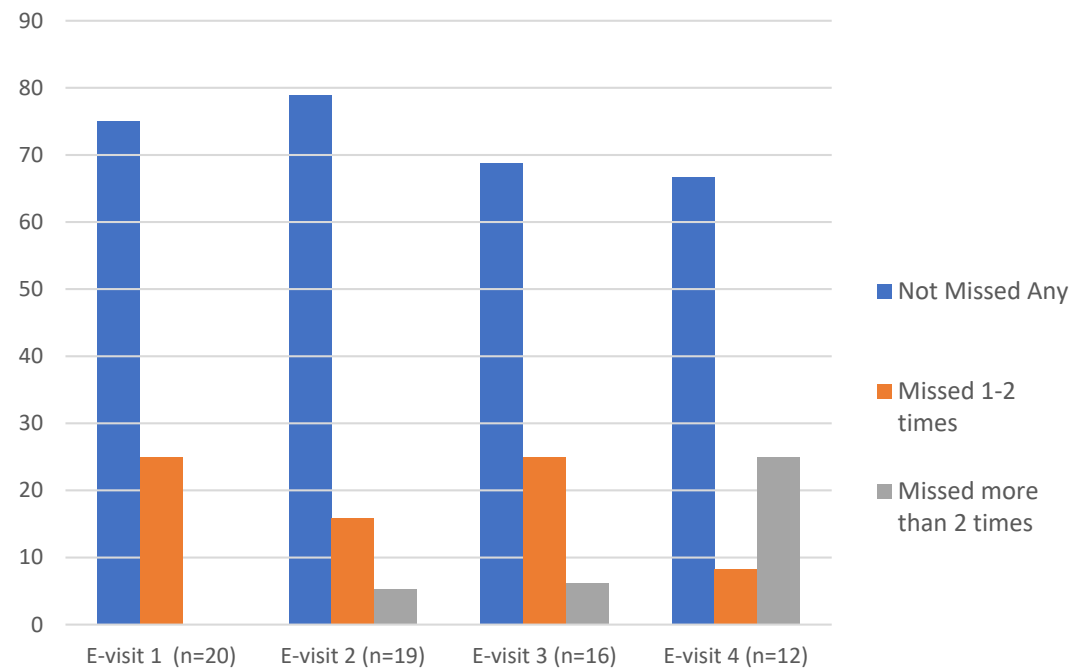
E-visit 1 Follow-Up Questionnaire



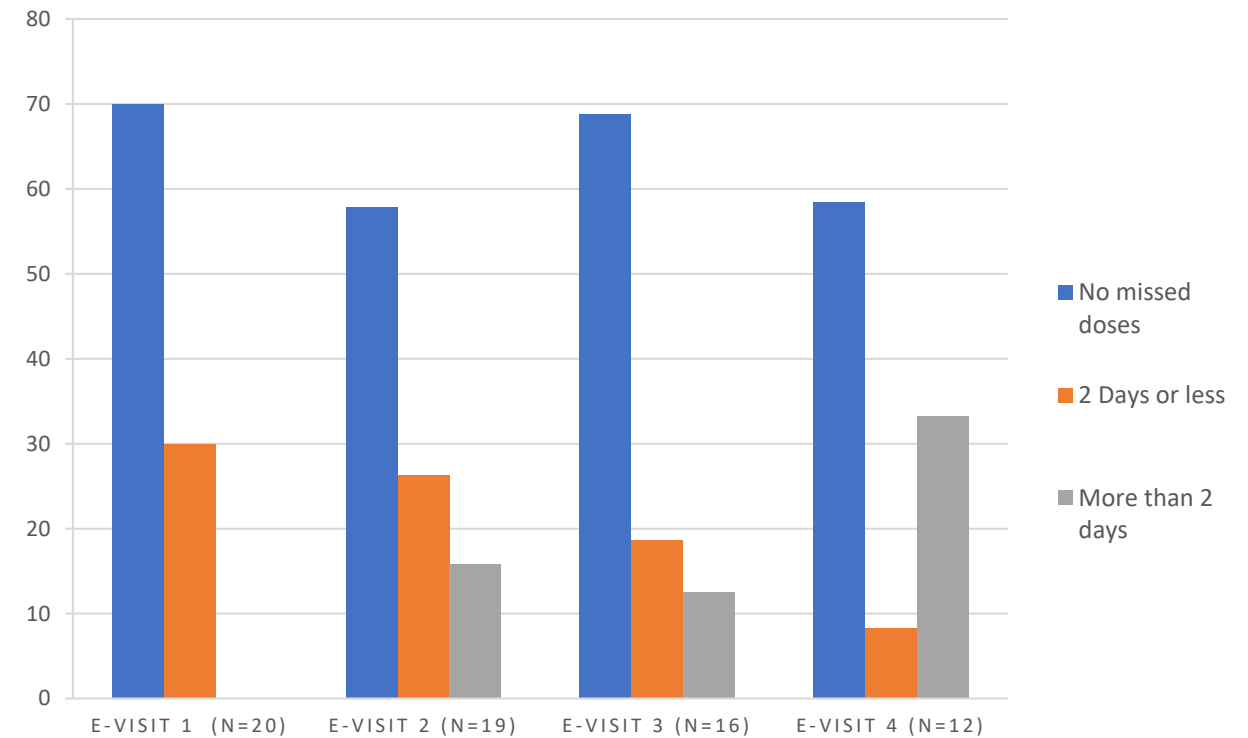
Category	Questions	% (n=20)
Medication Adherence	Do you ever forget to take your medication?	75.0% No
	Are you careless at times about taking your medication?	90.0% No
	Sometimes, if you feel worse do you stop taking your medication?	100% No
	Thinking about last week, how often have you not taken your medication?	25.0% Missed 1-2 doses
	Did you not take any of your medication over the past weekend?	95.0% No
Side Effects	Do you have any of the following side effects?	10.0% Nausea 15.0% Abdominal Upset 10.0% Loose Stools 20.0% Flatulence 10.0% Headache 60.0% None

Medication Adherence

Medication Adherence in the Last Week



Medication Adherence Since Last Visit



*No difference in reported medication adherence by age or education level

Additional Diagnoses



- 4 patients had a total of 5 additional STI diagnosis over the study period:
 - HIV diagnosis = 0
 - Gonorrhea = 1
 - Chlamydia (urine) = 2
 - Chlamydia (rectal) = 2

Program Satisfaction

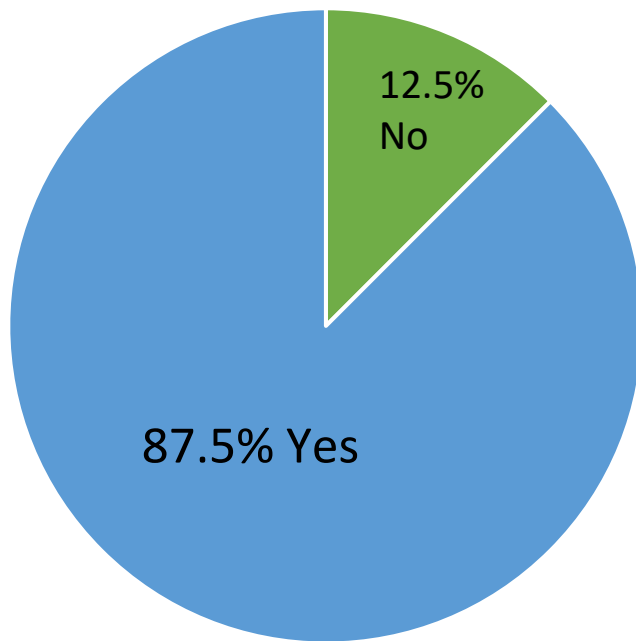
Satisfaction survey

(n=16)

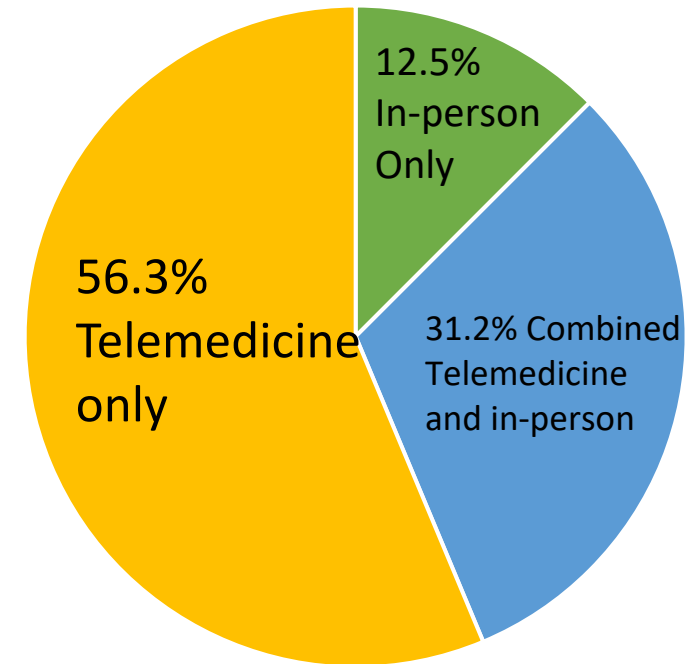
100% reported they would recommend telehealth to others for PrEP therapy

60.0% continued receiving PrEP through telehealth

Likely to Use Service Again



Preferred Method For PrEP



Successes/Strengths



- Partnerships with community
- Dedicated coordinator
- Good participation and adherence
- Integrates well with regular practice
- Good patient satisfaction and continuation

Challenges/Limitations

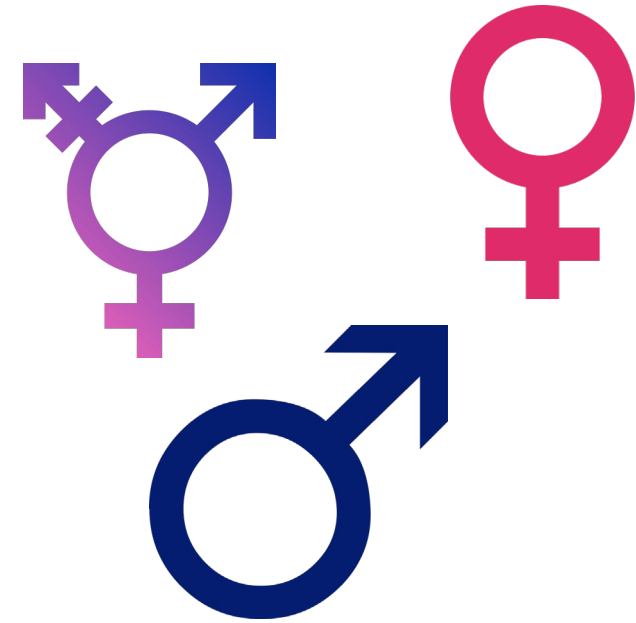


- Financial
 - Labs, visits, medication
- Availability of wi-fi or cellular connectivity and devices
- Expanding/larger in scope and reach

The Future of TelePrEP in SC



- Partner with state health departments/DHEC
 - Expand to rural counties
 - Expand patient population reached
 - Home lab testing
 - PrEP on demand

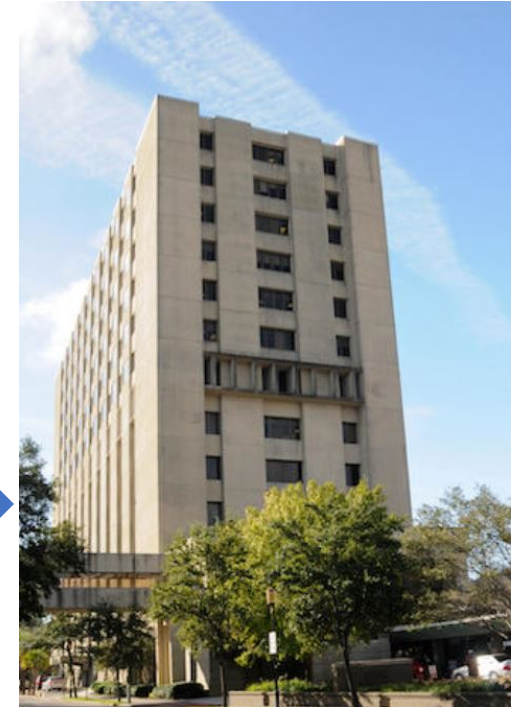
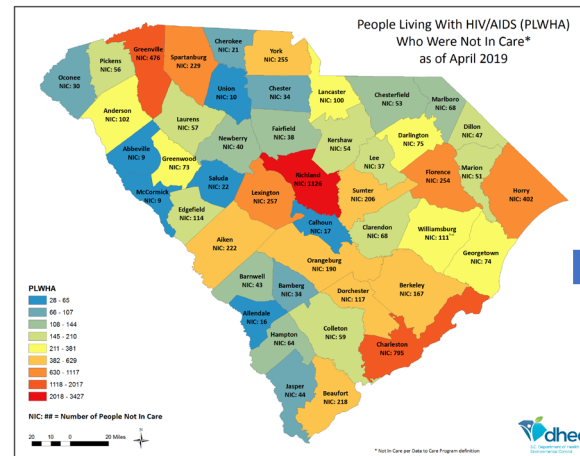


Text messaging between providers and patients living with HIV in South Carolina

Barriers and facilitators to implementation

HIV in South Carolina

- ~20,000 people living with HIV in South Carolina
 - Only ~50% are retained in continuous HIV-related medical
 - ~750 new infections per year

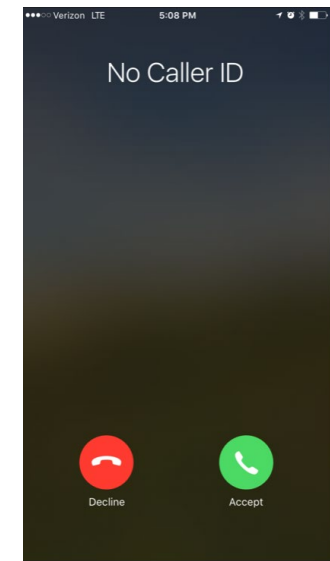


- Sustained HIV treatment → healthy patients → no onward transmission
- Communication vital to patient engagement and retention

MUSC HIV Clinic



- MUSC HIV Clinic: ~1,200 patients
 - Over 250 patients receive case management services
 - Almost all patients have cell phones (most are Smart phones)
- Standard clinic operations:
 - Landline telephones used for communication, but
 - Patients decline to answer calls from blocked numbers
 - Voice mailboxes are full or have not been set-up
 - Providers play phone tag all day
 - Patients ask to be texted, not called



Hypothesis and Research Aim



- Hypothesis: Having the capacity to text between patients and clinic providers (specifically case managers and pharmacists) will improve:
 - Linkage and retention in clinical care
 - Patient satisfaction with clinical services
- Research Aim:
- Phase 1: To understand acceptability, preferences, and barriers/facilitators to texting among patients and providers
 - Included assessing preference for encrypted app (Qliq) vs. standard texting
- Phase 2: Implement a texting program between providers and patients

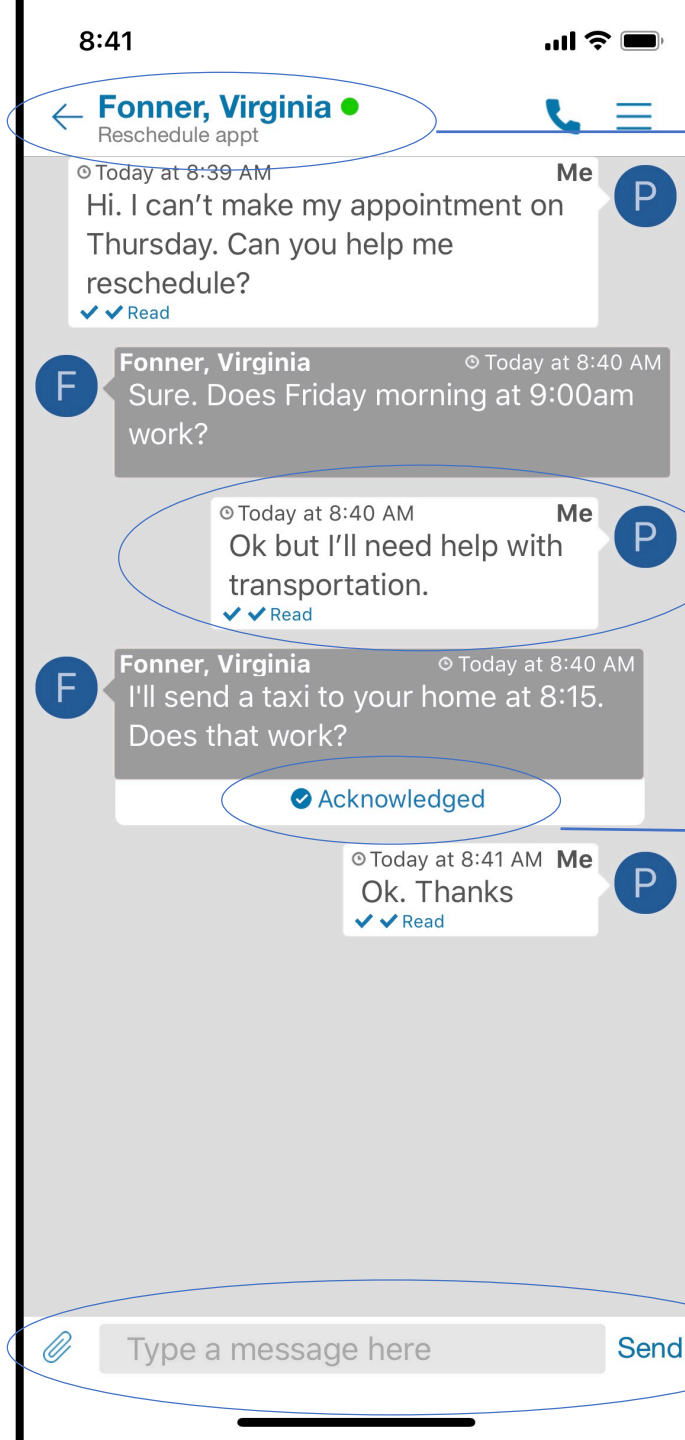
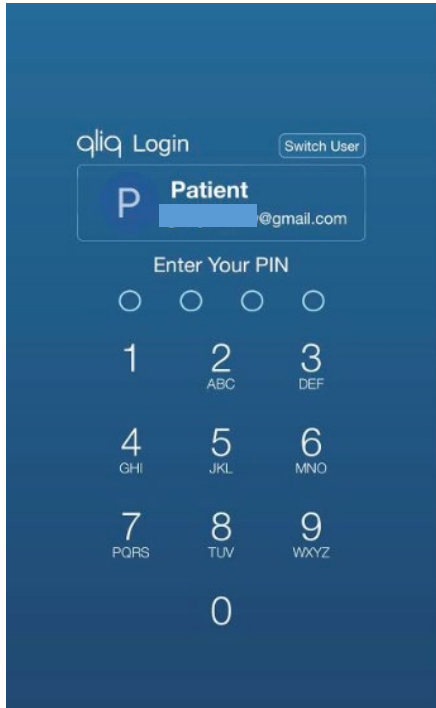
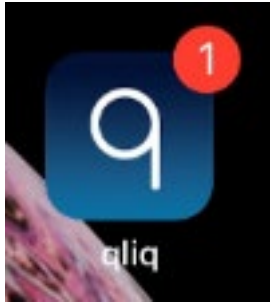


Qliq App vs. Plain Texting



	Text messaging	Qliq
Ease of use	On all phones	App (free for patients)
Contacts	Same as on phone	<ul style="list-style-type: none">• Separate contacts• Account requires name + phone number/email
Sending a message	Type and hit “send”	Type and hit “send”
Privacy	Based on phone privacy settings	<ul style="list-style-type: none">• Passcode protected• Can remotely delete messages if device is lost/stolen• HIPAA compliant (messages are encrypted)
Receive notifications	Yes	Yes, might need to configure settings

Qliq



Can change status ("online," "away," or "do not disturb")

Can see when someone has read a text

Can request acknowledgement

Standard way of typing and sending messages. Can also send pictures

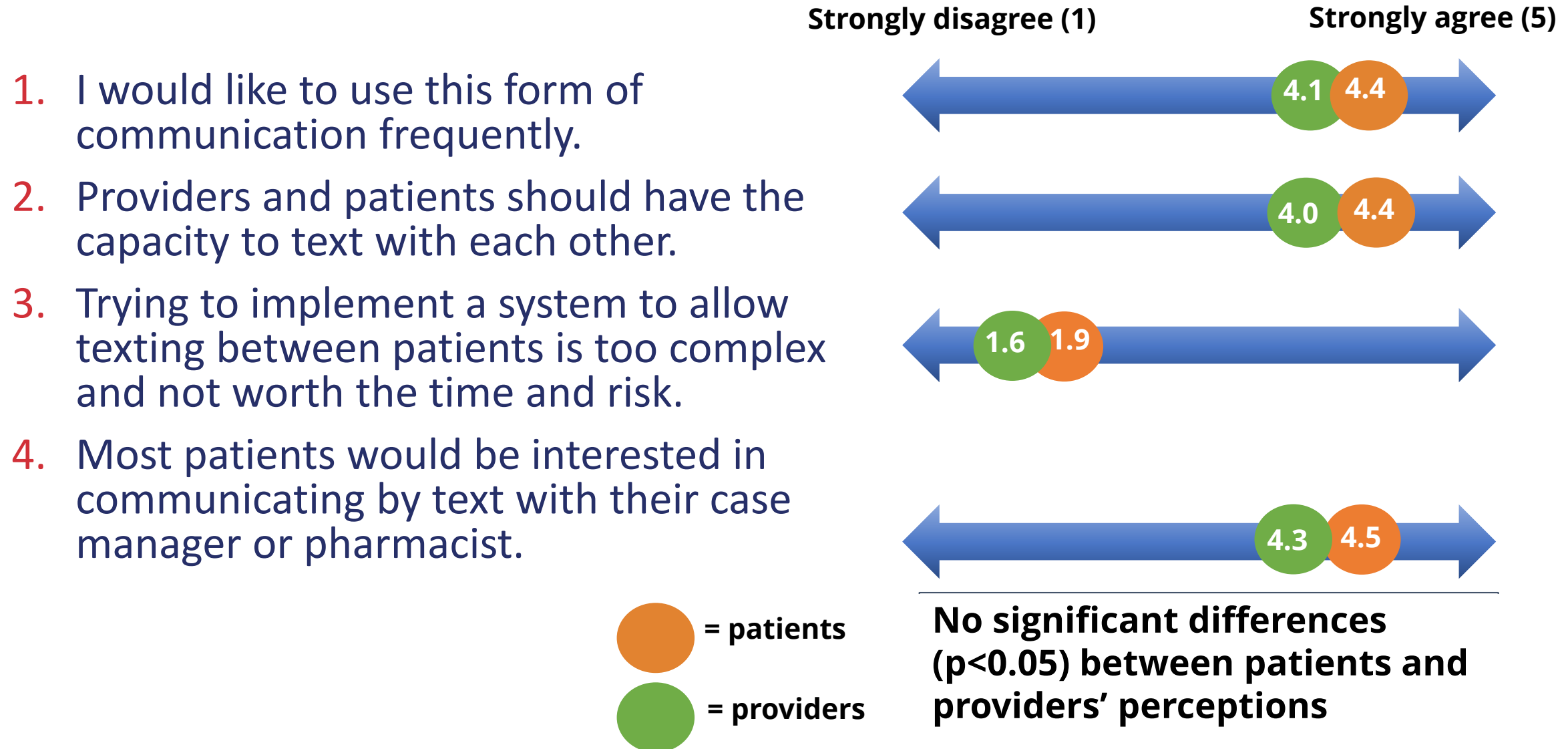


Phase 1: Semi-Structured Interviews



- Semi-structured in-depth interviews with patients (n=12) and providers (n=14)
 - Purposeful sampling (variation of provider role and patient age/gender)
 - Providers: social support (6), medical (5), and support staff (3)
 - Patients were 83% African-American and 50% female
- Interviews included:
 - Open-ended questions
 - Demonstration of a secure texting app (Qliq)
 - Close-ended Likert scale questions related to intervention acceptability
- Interviews transcribed, coded using deductive and emergent codes
- Thematic analysis

Quantitative Results: Acceptability



Technology Preferences: Qliq App vs. Plain Texting

Patients

- 10/12 (83%) preferred Qliq



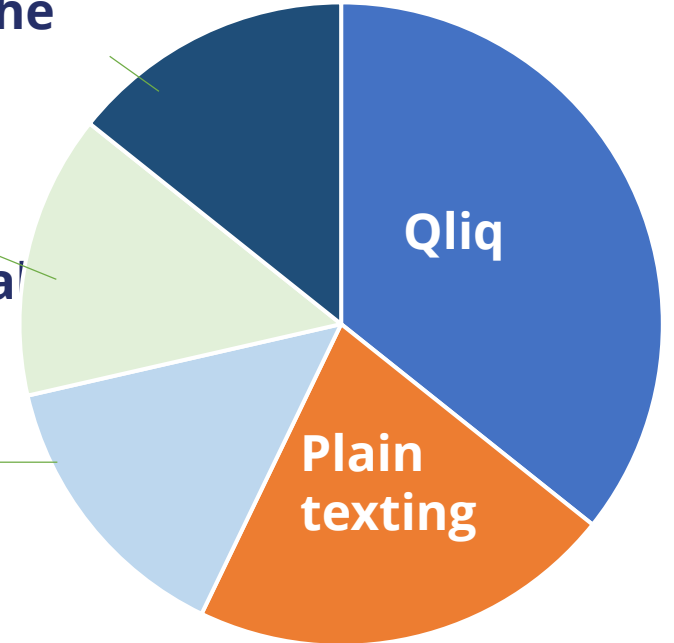
Providers

- Qliq preferred but more variation

Prefers using the patient portal instead

Prefers both methods available

No preference



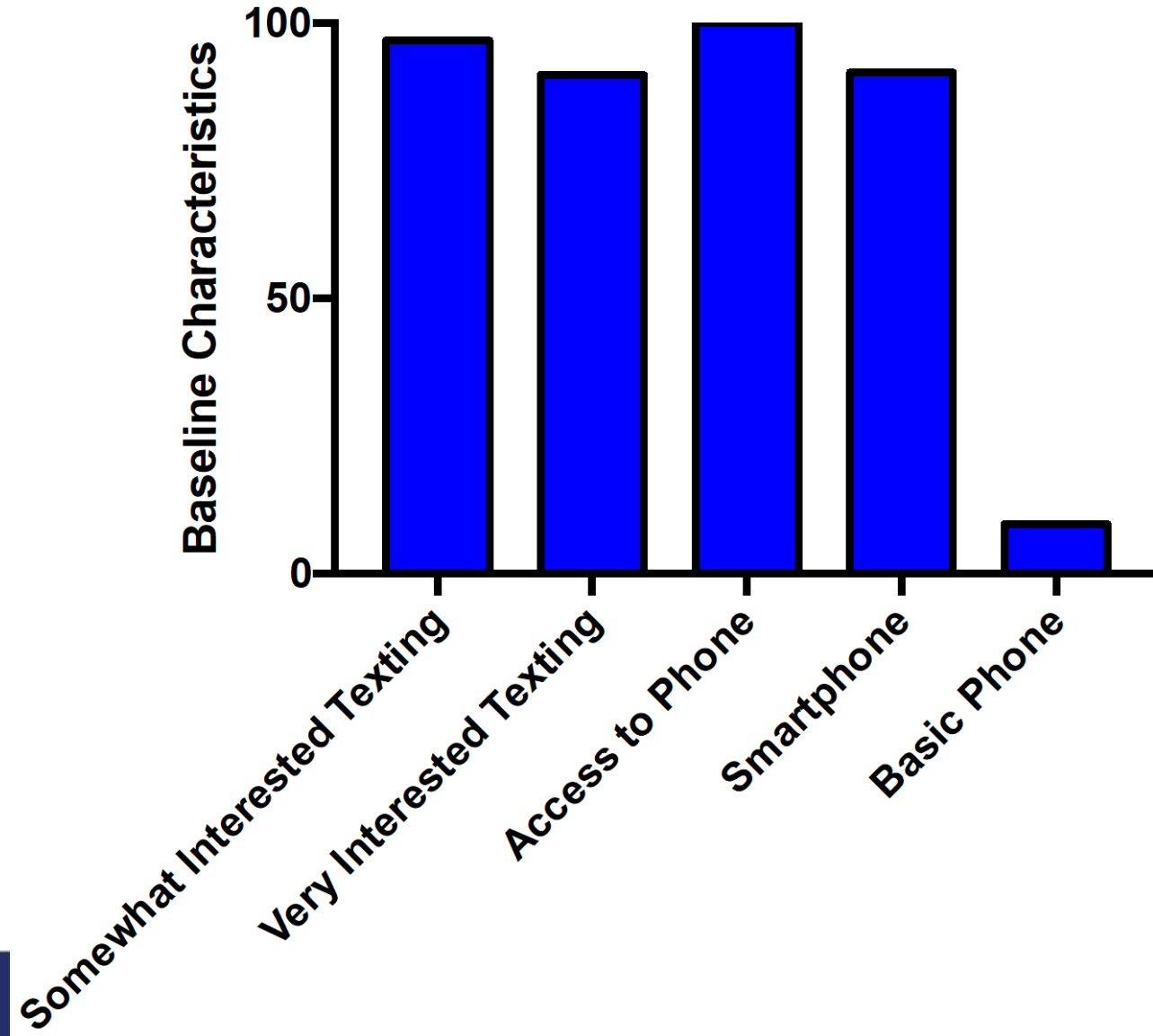
Perceived Benefits and Challenges



Benefits	Challenges
Quick and efficient	Impersonality
Convenient	Expectations of instant access (provider)
Ease of use	Potential for overutilization (provider)
	Privacy and security
	Cost and access

Phase 2: Intervention Phase

- Enrollment November 2019 -> March 2020
- 64 subjects enrolled (75 planned, but halted due to SARS-CoV-2)
- 4 providers enrolled (3 case managers, 1 pharmacist)



Phase 2: Subject Demographics



Survey Respondent Demographics (n = 64)

Variable	Values shown as Percentages
Sex	Male (56), Female (41), Transgender (2)
Age	18-30 (30), 31-45 (34), 46-60 (25), >61 (11)
Years since HIV Diagnosis	<1 yr (8), 1-3 yrs (17), 3-5 yrs (11), >5 yrs (61)
Ethnic Background	Black (81), White (13), Other (6)
Sexual Orientation	Heterosexual (47), Homosexual (33), Bisexual (16)
Relationship Status	Single (59), Relationship not married (23), Married (5), Other (5)
Employment Status	Full-time (38), part-time (19), unemployed (39)
Insurance Status	Uninsured (11), ACA (27), Private (11), Medicare (13), Medicaid (16), Other (11)
Annual Income	<\$10K (42), \$10-25K (40), \$25-50K (15), >\$50K (2)
Highest Level of Education	Middle school or less (3), Some high school (11), High school graduate/GED (31), Some college or associate degree (36), College grad (11), Graduate education or degree (3)

Phase 2: Testing Impressions

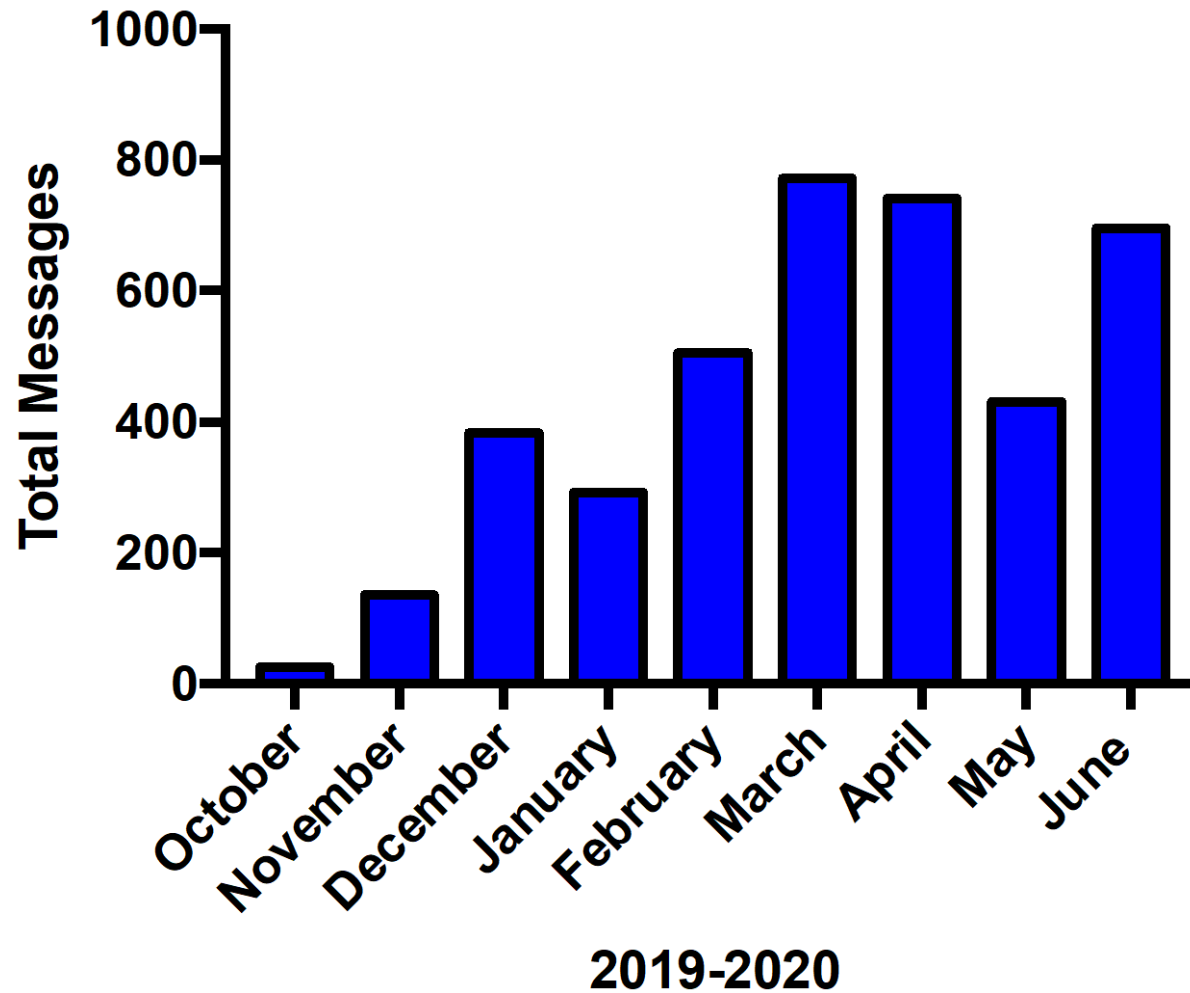


Feasibility of Mobile Health Interventions among Survey Respondents (n = 64)

Variable	Categories
Access to a Cell Phone	Smartphone (89), Basic phone (11)
Description of Texting Behavior	All the time (91), Limited due to cost (3), Don't like prefer calls (6)
Privacy Concerns over Texting	Not concerned at all (33), Thought about it but still text (50), Concerned enough to limit texting (15)
Comfort with Texting	Love it no problems (67), OK for certain people (23), Prefer calling (8)
Comfort with Smartphone	Love it, cannot stand to be away from it (64), OK for certain things (25), Only for calls (5), Don't own a smartphone (5)
App Usage	All the time, like to try new apps (66), Yes but less than 25 on phone (17), Use a couple of apps (9), Don't use or don't know much (5)

Phase 2: App is Well-Used

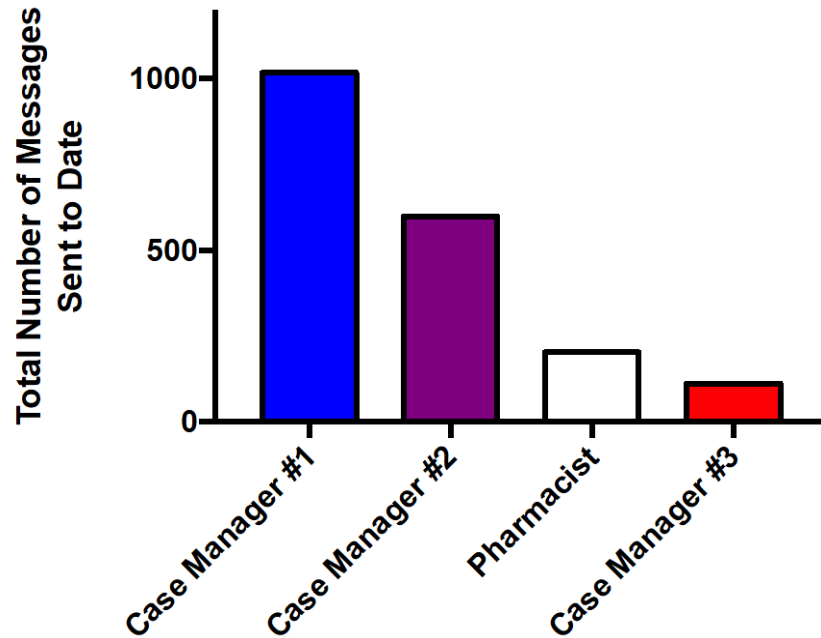
Total Messages Sent per Month



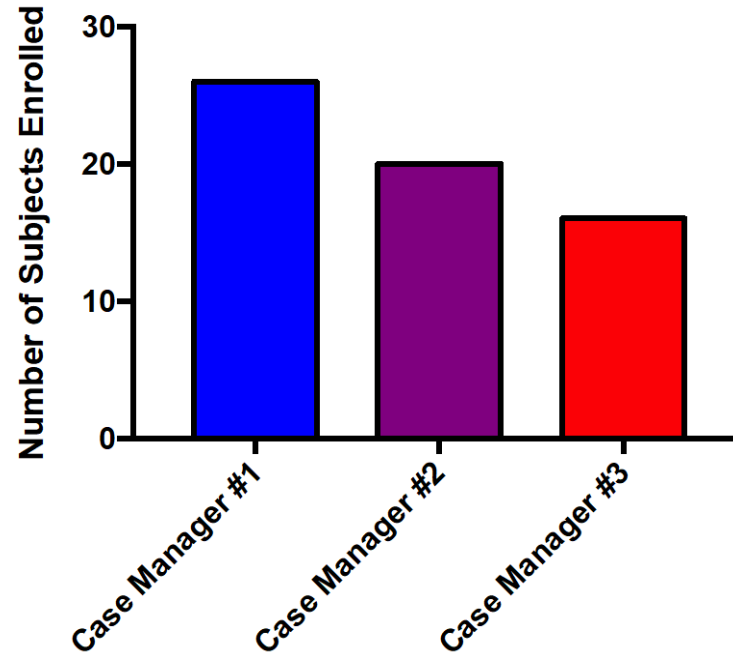
Phase 2: Varied Use Amongst Providers



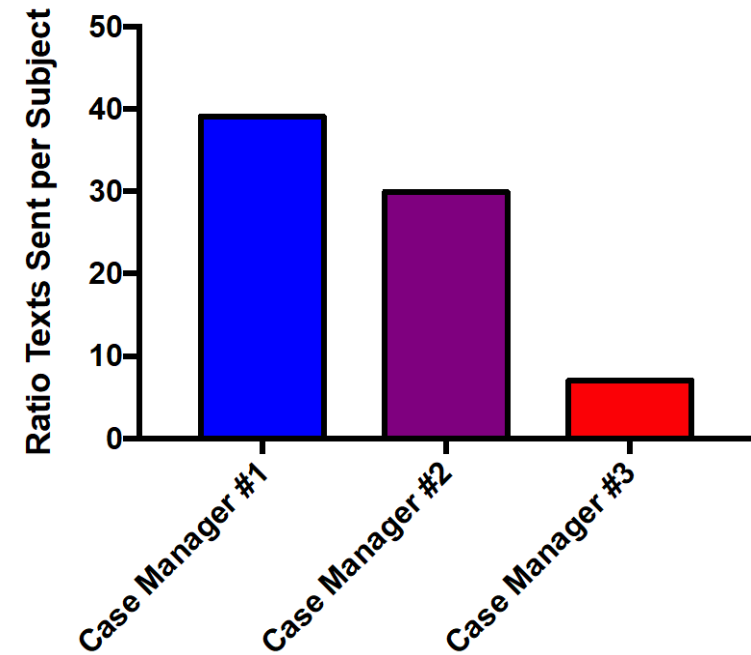
Total Number of Texts Sent



Number of Subjects per Case Manager



Ratio of Texts Sent Per Subject

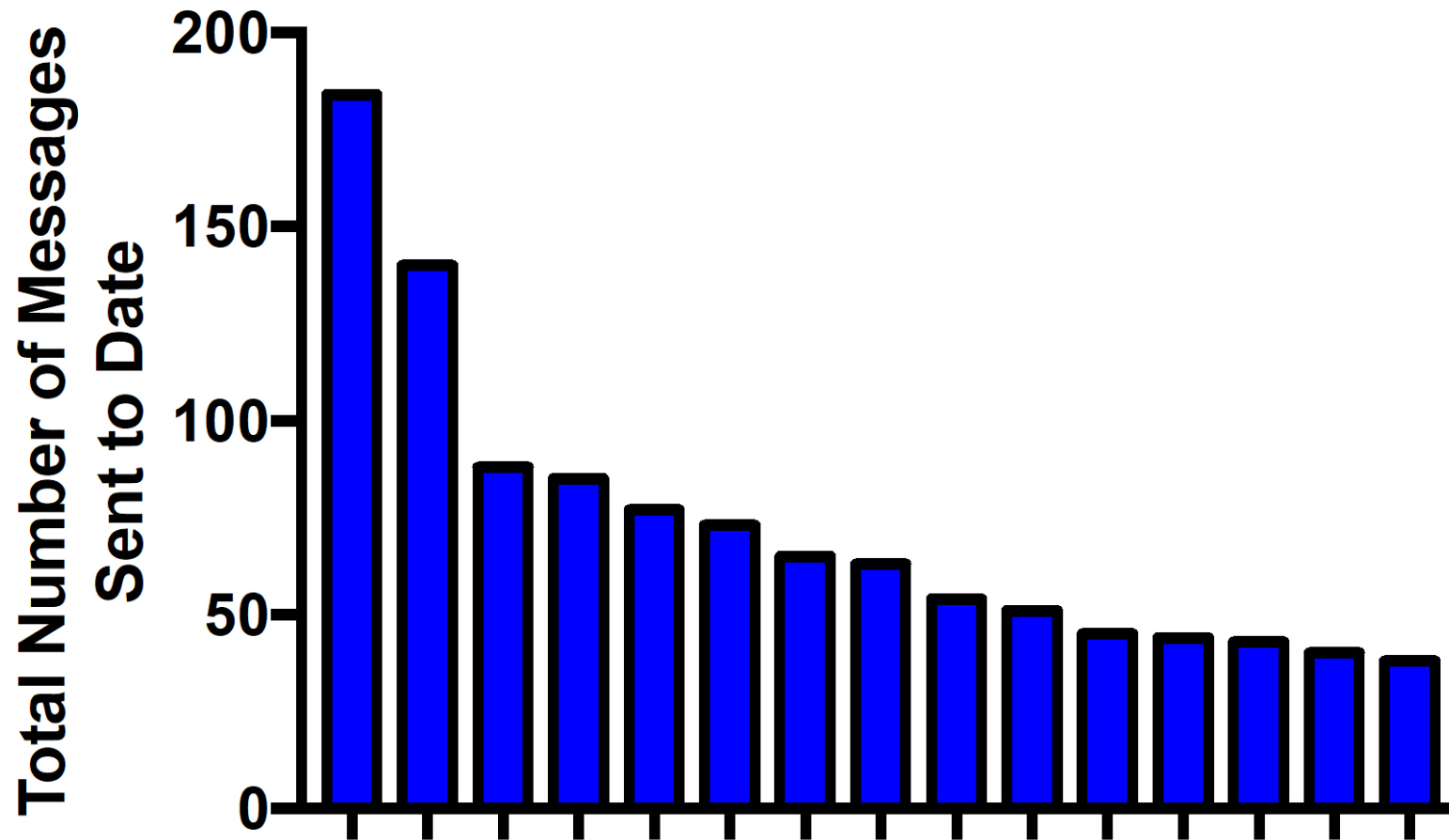


Phase 2: High Usage in Some Subjects



VIRTUAL
2020 NATIONAL
RYAN WHITE
CONFERENCE ON
HIV CARE & TREATMENT

Top Subject Users



Data are since study start November 2019 – June 2020

Lessons Learned



- Text messaging acceptable among patients and case managers/ pharmacists
- Utilization varies by provider and patient
- Initial reaction from providers has been mostly positive but some concerns over logistical challenges of using app vs. plain texting
- Impact on clinical outcomes will be measured after 1 year
- Uptick in usage of the app during closure of the clinic due to COVID

Adaptation of Clinic Operations Utilizing Telehealth due to SARS-CoV- 2 Pandemic

What we have learned during COVID?



- A sizeable portion of conditions can be managed with telehealth
- The infrastructure is widely available, in part because of smart phones
- The necessary logistics of training, staffing and work flow can be put together with minimal disruptions
- Little or no resistance from patients or providers is seen when it is protective for both
- The government has relaxed restrictive regulations including interstate licensure, data confidentiality and reimbursement

MUSC COVID-19 Telehealth Initiatives

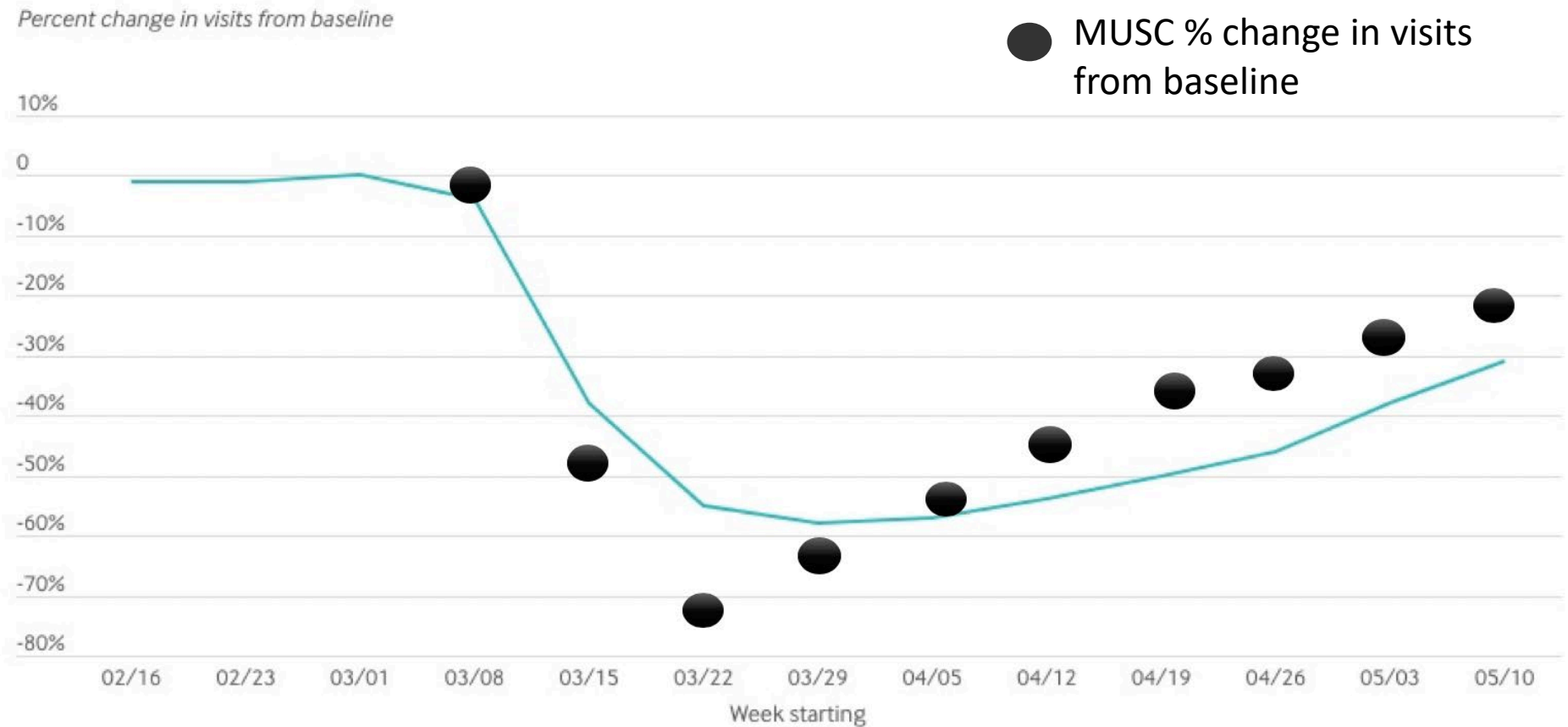


- Ambulatory Video Visits →
- Virtual Visit Screening
- COVID Remote Patient Monitoring (RPM)
- Minimize Healthcare Worker (HCW) Exposure
- Family Connection

- **>60,000 virtual visits between 3/22 – 6/1**
- **Includes MUSC HIV Clinic**

National Comparison

MUSC
recovered
faster



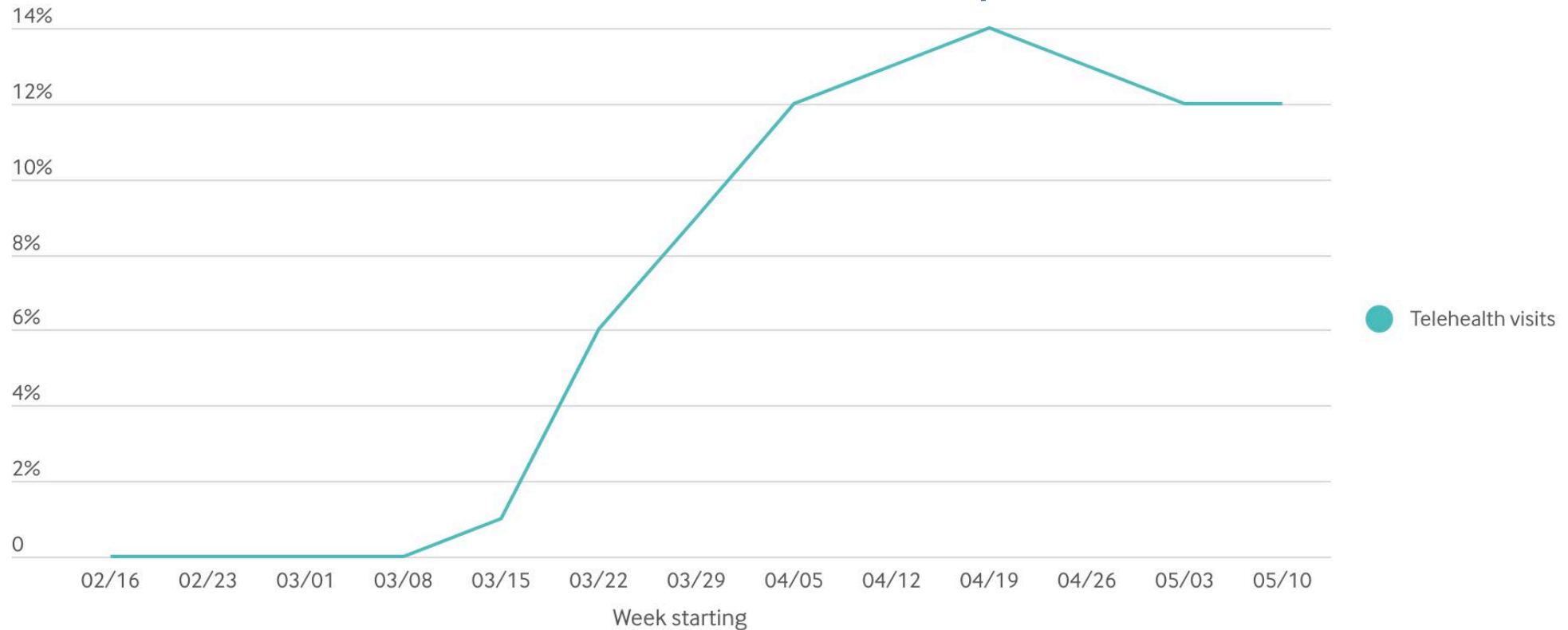
Source: Ateev Mehrotra et al., "The Impact of the COVID-19 Pandemic on Outpatient Visits: A Rebound Emerges," *To the Point* (blog), Commonwealth Fund, May 19, 2020. <https://doi.org/10.26099/ds9e-jm36>

Source: <https://www.commonwealthfund.org/publications/2020/apr/impact-covid-19-outpatient-visits>

National Comparison

MUSC
recovered with
significantly
more virtual
care

Number of telehealth visits in a given week as a percent of baseline total visits



Source: Ateev Mehrotra et al., "The Impact of the COVID-19 Pandemic on Outpatient Visits: A Rebound Emerges," *To the Point* (blog), Commonwealth Fund, May 19, 2020. <https://doi.org/10.26099/ds9e-jm36>

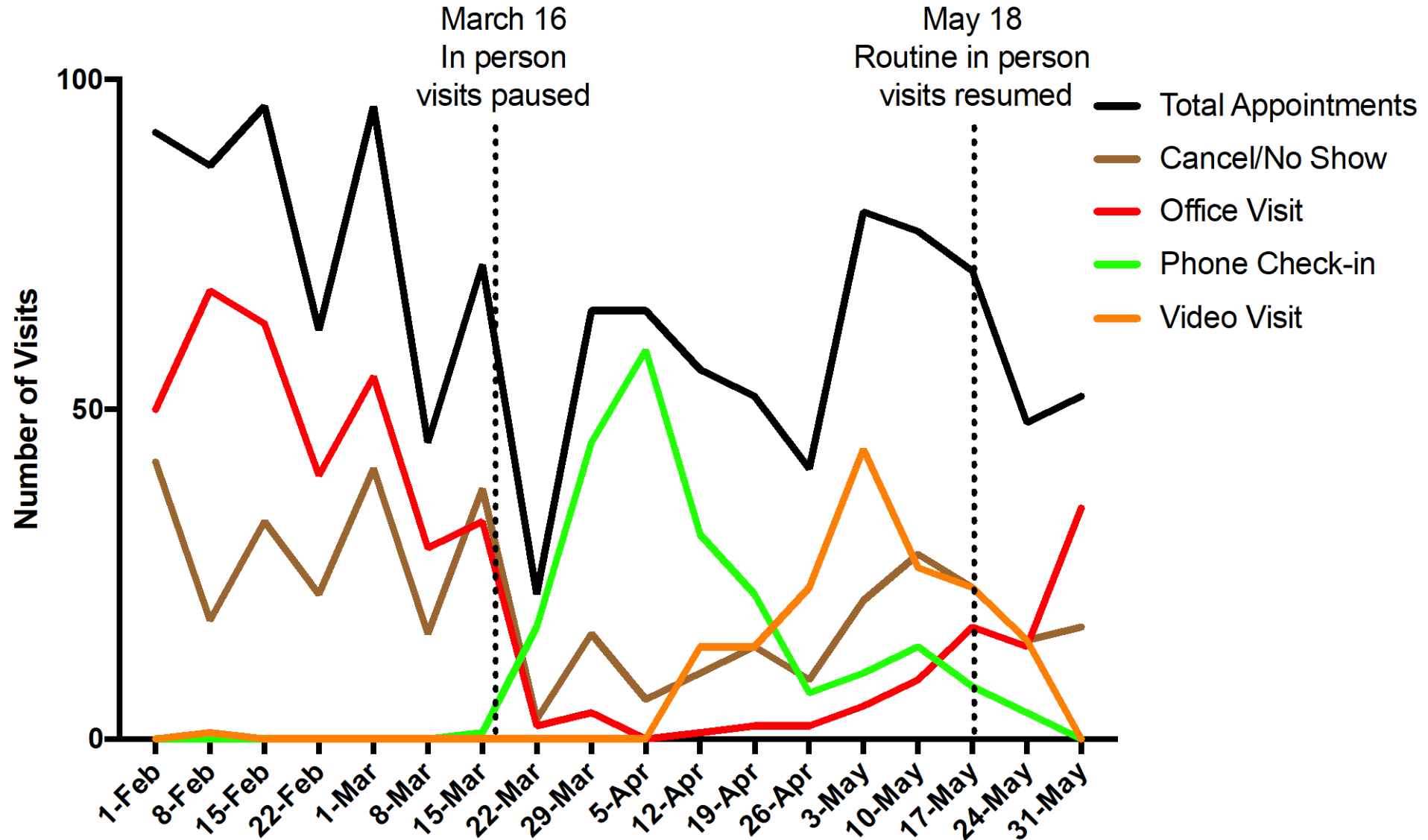
Source: <https://www.commonwealthfund.org/publications/2020/apr/impact-covid-19-outpatient-visits>

HIV Clinic Operations During SARS-CoV-2 Outbreak



- Paused in person visits on March 16th
- Added telephone virtual check in option on March 16th
- Added doxy.me video visit option on April 12th
- Transitioned back to partial operations on May 18th

HIV Visit Metrics During COVID-19



Observations



- Not immediately ready for video telehealth visits at time of COVID clinic shutdown; this predicated temporizing with phone calls
- "No show" rate was reduced somewhat, this in part may be from aggressive outreach to discuss scheduling options as well as some level of "auto" rescheduling
- A healthy number of patients preferred in-clinic visits over video visits in spite of COVID
- Other patients were overjoyed to use video rather than come to clinic, alluded to desire to continue to have this as an option after COVID over
- Currently we are seeing a trend back towards increased tele-visits given our COVID surge

Lessons Learned – From Colleagues



- Having a point person in charge of the transition
- Little training of clinic personnel for how to smoothly transition
- Lack of organizational change process
- Age old struggle with updated contact info to facilitate phone and tele visits
- Technical difficulties with video visits
 - Poor internet access or insufficient data/cell phone plans
 - Spanish speaking patients
 - Providers need for equipment to work from home (camera)



VIRTUAL
2020 NATIONAL
RYAN WHITE
CONFERENCE ON
HIV CARE & TREATMENT

Telehealth Technical Assistance Resources

Telehealth Technical Assistance Resources



- **National Consortium of Telehealth Resource Center:** <https://www.telehealthresourcecenter.org/>
 - HRSA-funded to provide technical assistance, education, and information
 - 12 regional TRCs and 2 national (policy and technology-focused)
- **Telehealth HHS Website:** <https://telehealth.hhs.gov/>
 - HHS website developed during COVID to support patients and providers
- **MAO Telehealth Resource Center:** <http://maoi.org/get-connected/telehealth/>
 - RWHAP org with long history of telehealth and HIV care in Alabama
- **Expanding HIV Care Through Telehealth (CareAction Newsletter):** <https://hab.hrsa.gov/sites/default/files/hab/Publications/careactionnewsletter/telehealth.pdf>
 - RWHAP newsletter featuring telehealth HIV programs and additional resources
- **MUSC Telehealth Center of Excellence:** <https://muschealth.org/medical-services/telehealth/about/coe>

Contact Us



Marty Player, MD, MSCR

Associate Professor
Co-Director Primary Care Telemedicine
Department of Family Medicine
Medical University of South Carolina
playerm@musc.edu

Eric Meissner, MD, PhD

Assistant Professor
Director of HIV and Hepatitis Patient Care and Research
Division of Infectious Diseases
Department of Microbiology and Immunology
Medical University of South Carolina
meissner@musc.edu

Ryan Kruis, MSW

Manager
Telehealth Center of Excellence & SC Telehealth Alliance
Center for Telehealth
Medical University of South Carolina
kruis@musc.edu

