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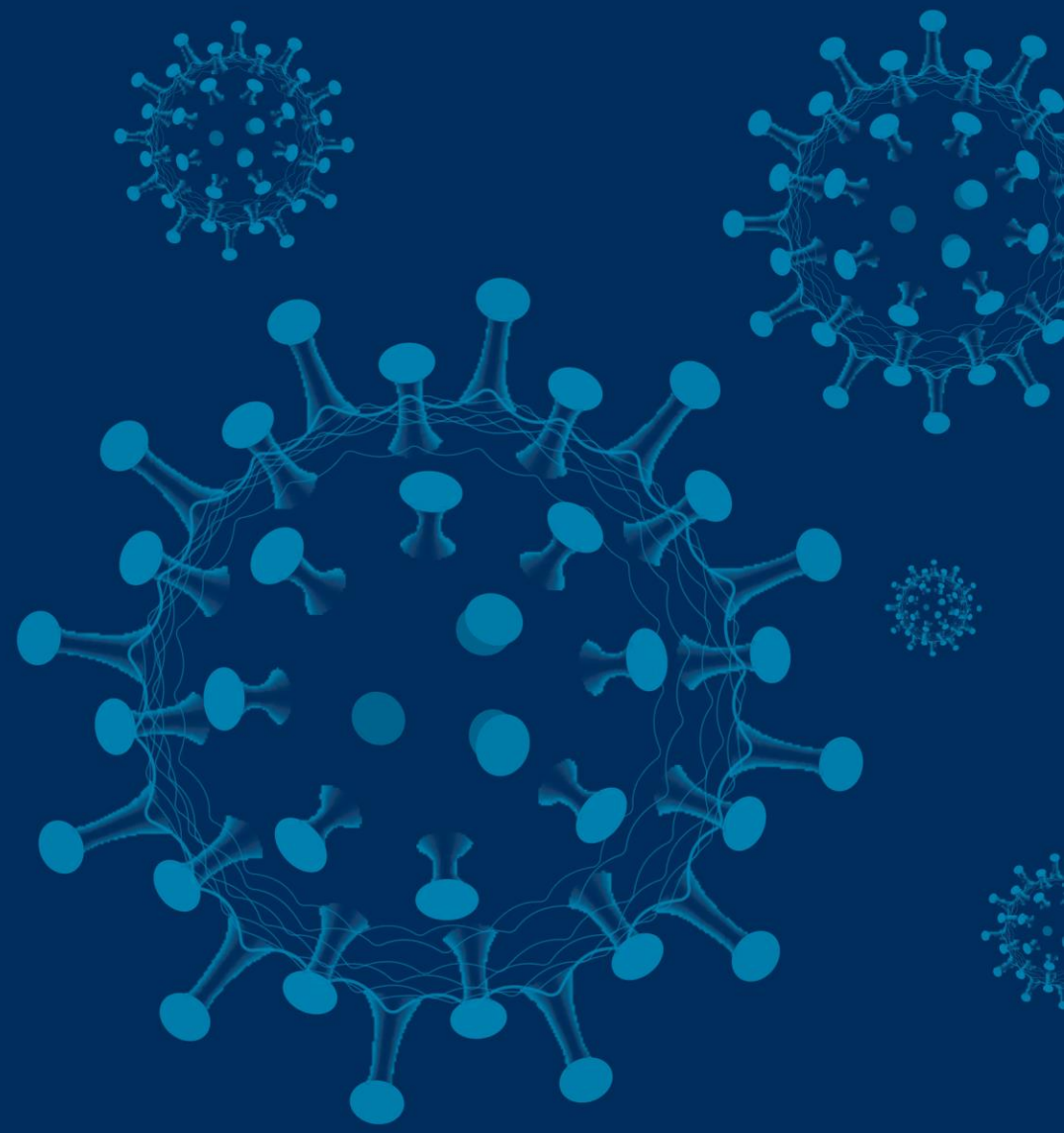
COVID-19

CV Virtual Care: Lessons Learned for Chronic Disease Management



Recorded on 6/12/2020

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Speakers

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Presenter Disclosure Information

Nicole Cyrille-Superville, MD
Speaker: Pfizer/Tafamidis

Ariane M. Fraiche, MD
Nothing to disclose

Nasrien Ibrahim, MD, FACC
Honoraria: Novartis; Roche Diagnostics

Ian Kronish, MD, MPH
Grant Funding: AHRQ;NIH

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Why Chronic Cardiovascular Disease is the Ideal Case for Virtual Care

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Objectives

- Describe how patients with cardiovascular disease are at increased risk of adverse outcomes in the COVID-19 era
- Introduce preexisting telehealth practices in cardiovascular disease management
- Highlight current impetuses for implementing virtual care in cardiovascular disease management
- Advocate for on-going virtual care for cardiovascular patients considering the benefits and limitations

Keeping our patients safe

- Patients with pre-existing cardiovascular disease are vulnerable to COVID-19 infection and adverse outcomes
- SARS-CoV-2 virus is associated with cardiovascular injury and mortality
- Social distancing efforts and stay-at-home orders limit typical in-person clinical care strategies
- Negative impact of COVID-19 pandemic on cardiovascular patients may include delays in presentation and treatment for acute cardiovascular conditions

TABLE 1 Relative Frequency of CV Risk Factors or Underlying CV Conditions in Available COVID-19 Cohorts and Representative Parent Populations

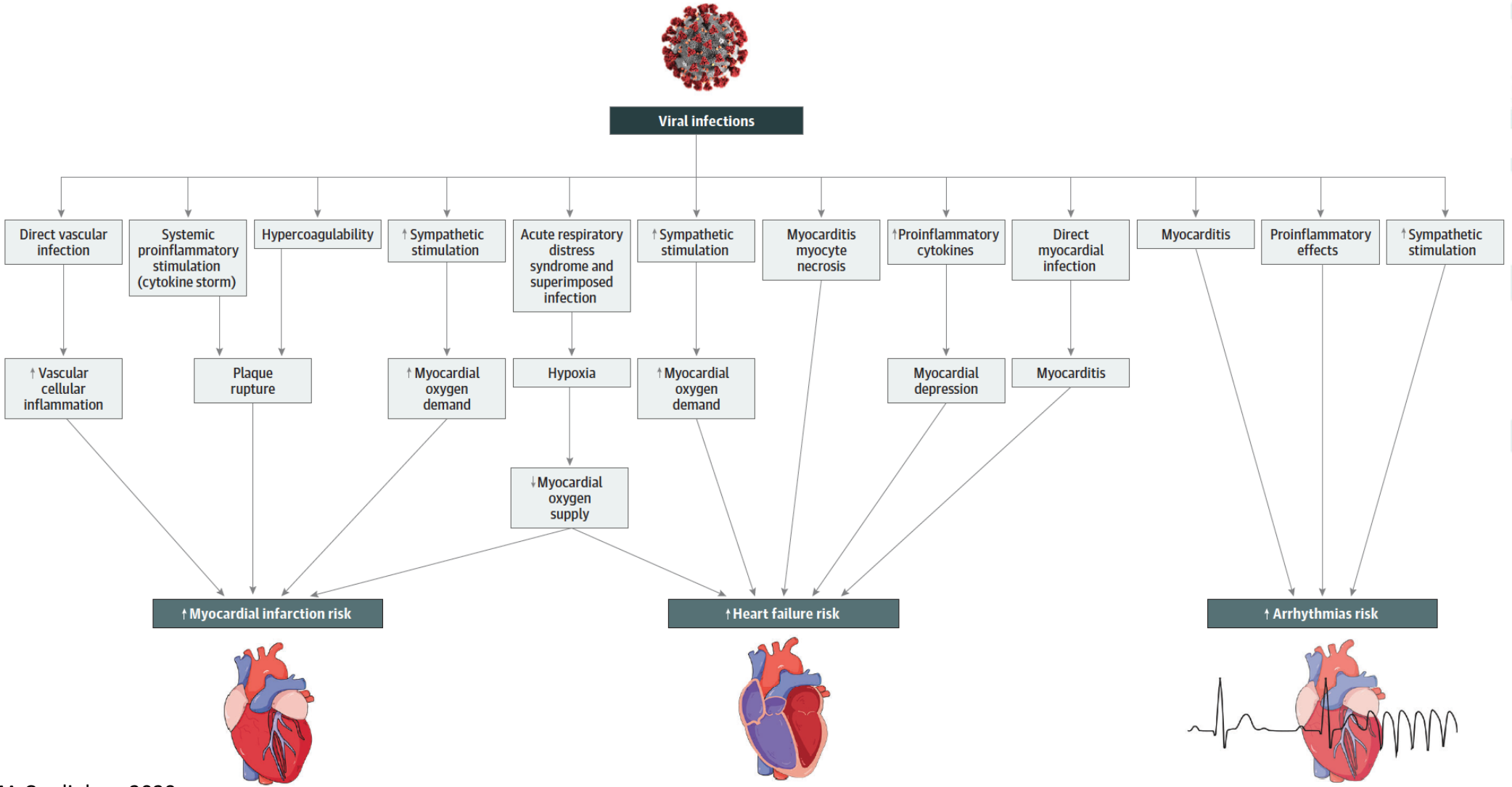
First Author, Year (Ref. #)	CVD	Diabetes	Hypertension	Smoking	Coronary Artery Disease	Cerebrovascular Disease
Guan et al. 2020 (29) (N = 1,099)	–	81 (7.3)	165 (15.0)	158 (14.4)	27 (2.5)	15 (1.4)
Zhou et al. 2020 (6) (N = 191)	–	36 (18.8)	58 (30.4)	11 (5.8)	15 (7.9)	–
Wang et al. 2020 (20) (N = 138)	20 (14.5)	14 (10.1)	43 (31.2)	–	–	7 (5.1)
Huang et al. 2020 (1) (N = 41)	6 (14.6)	8 (19.5)	6 (14.6)	3 (7.3)	–	–
Ruan et al. 2020 (22) (N = 150)	13 (8.7)	25 (16.7)	52 (34.7)	–	–	12 (8.0)
Wu et al. 2020 (28) (N = 201)	8 (4.0)	22 (10.9)	39 (19.4)	–	–	–
Wu et al. 2020 (16)* (N = 44,672)	4,690 (10.5)†	3,261 (7.3)	2,903 (6.5)	–	–	–
Fang et al. 2020 (100)* (N = 2,818)	233 (8.3)†	206 (7.3)	376 (13.3)	–	–	–
Lu et al. 2018 (101)§ (N = 12,654)	1,455 (11.5)	2,125 (16.8)	4,884 (38.6)	4,985 (39.4)	–	278 (2.2)

Values are n (%). To date, no publications have described these statistics for COVID-19 patients from other areas including South Korea, Iran, Italy, Spain, and others. Therefore, the comparator parent population was chosen from China. *These studies by Wu et al. (16) and Fang et al. (98) include a large, population-based dataset and a systematic review, respectively, from China that are inclusive of the other displayed cohort studies. †Composite of CVD and cerebrovascular disease. §Chinese population prior to COVID-19 included for comparison. Please note that disease ascertainment was different in this study compared with studies of patients with COVID-19.

COVID-19 = coronavirus disease 2019; CV = cardiovascular; CVD = cardiovascular disease.

Driggin E. et al. J Am Coll Cardiol. 2020;75(18):2352–71.

Figure. Potential Mechanisms for Acute Effects of Viral Infections on Cardiovascular System



Madjid et al. JAMA Cardiology 2020.

https://www.insider.com/artist-draws-about-coronavirus-pandemic-2020-3#gripless-is-an-anonymous-artist-who-illustrates-puns-inspired-by-celebrities-characters-and-current-events-1

https://mamasgeeky.com/2020/04/quarantine-weight-gain-memes.html

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Why Chronic Cardiovascular Disease is the Ideal Case for Virtual Care

Patients may not seek care or present late for acute cardiac conditions during the pandemic

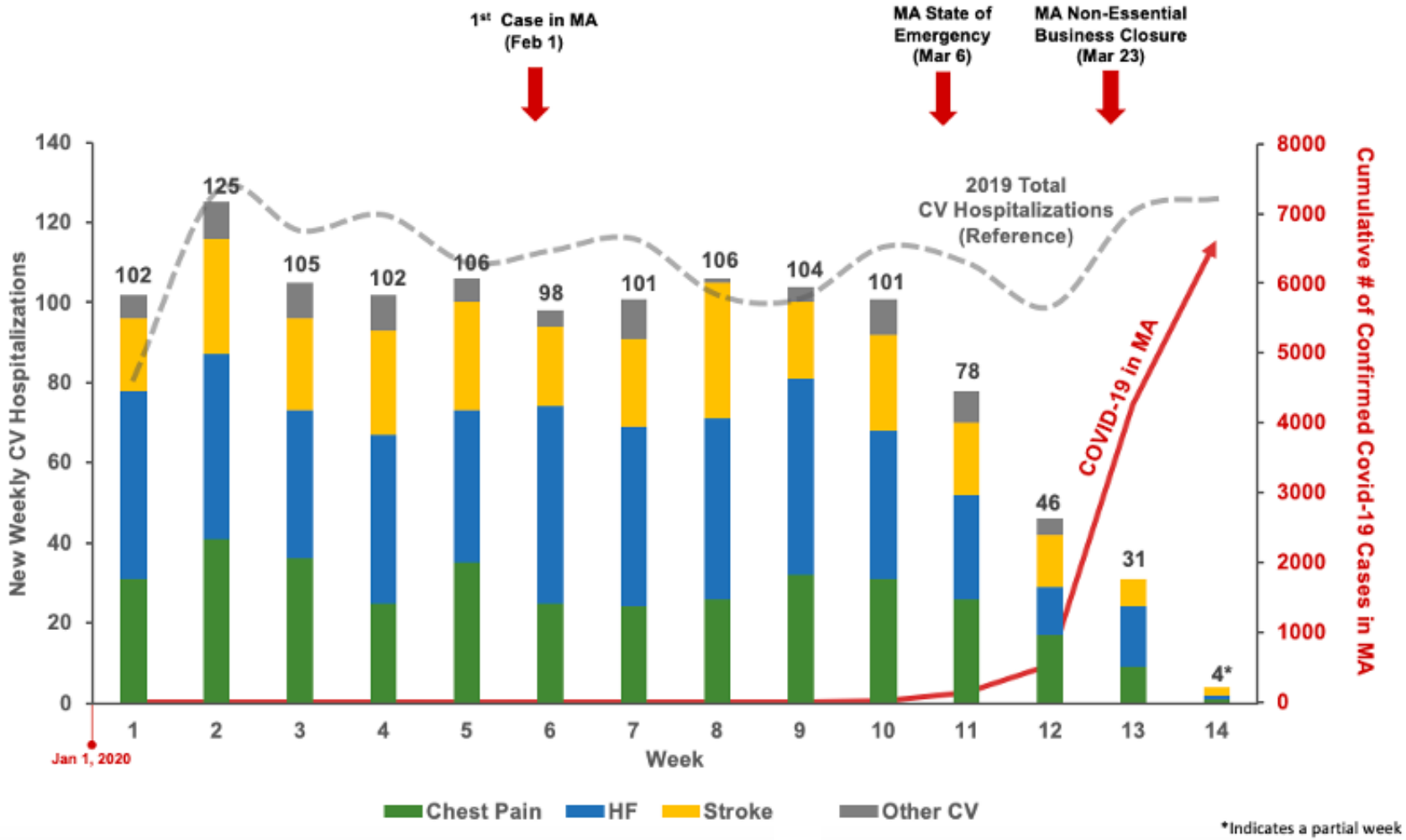
Where Have All the Heart Attacks Gone?

Except for treating Covid-19, many hospitals seem to be eerily quiet.

Stuart Bradford

By Harlan M. Krumholz, M.D.

Published April 6, 2020 Updated May 14, 2020 1068



*Indicates a partial week

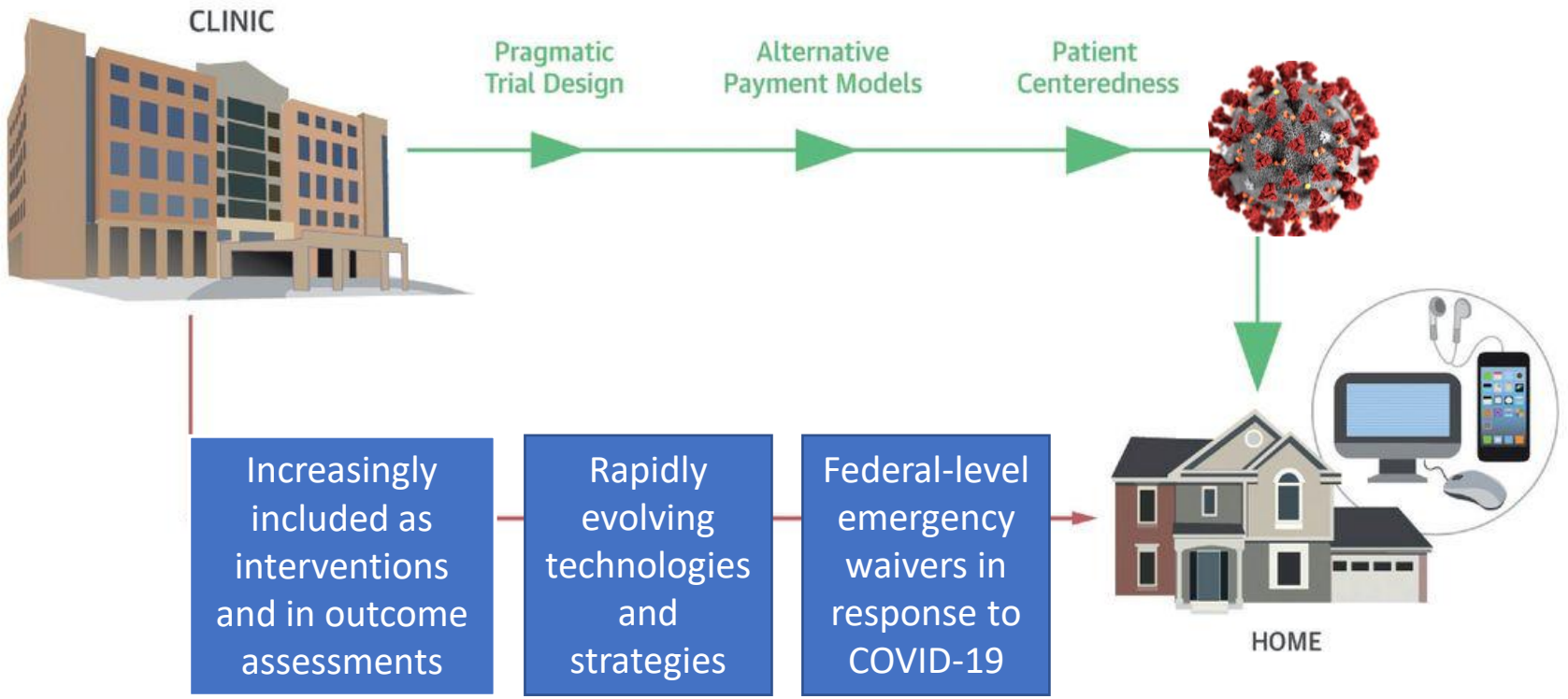
Bhatt AS, et al. J Am Coll Cardiol 2020.

Foundations for Telehealth in Cardiovascular Disease Management

- Telehealth strategies are well-established methods for cardiovascular disease management
  - Remote monitoring of cardiovascular implantable electronic devices (CIEDs)
  - Implantable HF monitoring devices such as CardioMEMS
  - Remote assessments using home blood pressure cuff and scales
  - Wearable biosensers
  - Smartphone applications
  - Telephone-based pharmacist-directed pathways for medication titration
  - Telerehabilitation

Zeitler EP, et al. Trends Cardiovasc Med. 2016;26:568-77.
Abraham WT, et al. Lancet 2011;377:658–66.
Devore AD, et al. J Am Coll Cardiol HF 2019: 922-32.
Perez MV, et al. N Engl J Med 2019;381:1909–17.
Blood AJ, et al. Clinical Cardiol 2020;43:4-13.

CENTRAL ILLUSTRATION: Shifting Heart Failure Management From the Hospital to the Home: Catalysts and Obstacles to the Adoption of Telehealth Strategies



Fraiche, A.M. et al. J Am Coll Cardiol HF. 2017;5(4):297-304.

Benefits

Table 1. Benefits and Value of Virtual Visits

Group	Potential benefits
Patient	• Provide access • Receive medical advice • Reduce in-person exposure to SARS-CoV-2 • Reduce distress • Involve caregivers
Clinician	• Serve patients • Reduce in-person exposure to SARS-CoV-2 • Maintain connection between patient and provider
Health care systems	• Reallocate resources • Generate revenue • Support research efforts

Limitations/Challenges

- Accessibility for vulnerable populations
  - Internet
  - Smartphones/tablets
  - Non-English-speaking patients
- Limited physical exam
- Lack of diagnostic tools

Gorodeski EZ, et al. J Cardiac Fail 2020.
Eberly LA, et al. Circulation 2020.
Nouri S, et al. Engl J Med Catalyst 2020.

Takeaways

- Patients with cardiovascular disease are at increased risk of adverse outcomes in the COVID-19 era warranting enhanced methods to keep them **safe** while supporting chronic management
- The environment is ripe for putting into practice **established** telemedicine tools in cardiovascular disease management.
- There are **benefits and limitations** of virtual care for cardiovascular patients to acknowledge and confront.

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Hypertension Management Using Remote Patient Monitoring

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Center for Behavioral Cardiovascular Health

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What is Remote Patient Monitoring?

- Method of health care delivery that uses technology (e.g., wireless home BP device) to gather information outside of usual healthcare settings

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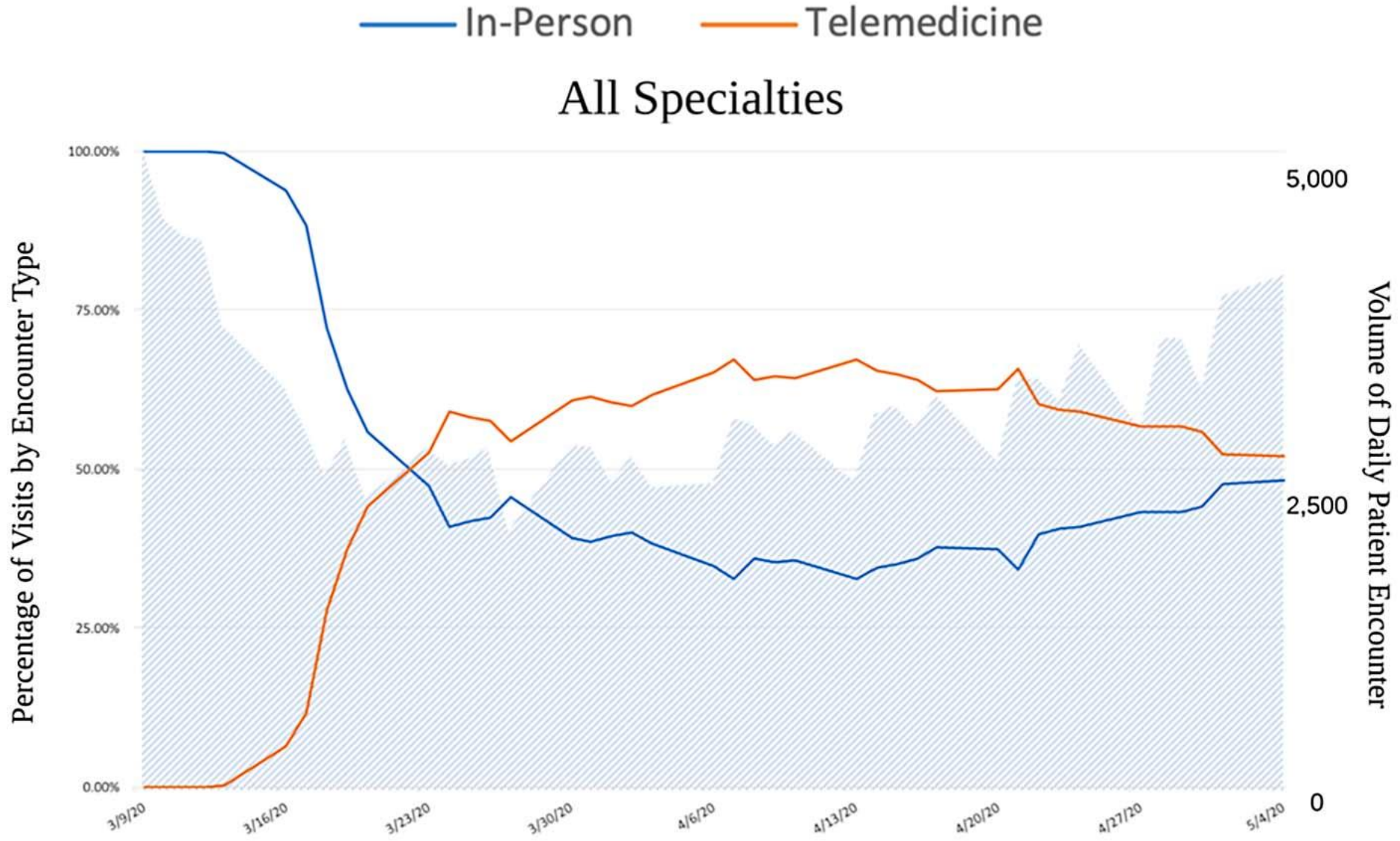
Why Remote Patient Monitoring for Hypertension?

Reason #1: Limitations of usual office BP management

1. Inaccurate office measurement
   - Measurement error
   - Office setting ≠ real world
   - Home BP better predicts CVD events
2. Clinical inertia
   - Remote monitoring provides more opportunities to titrate medications
3. Does not engage patient

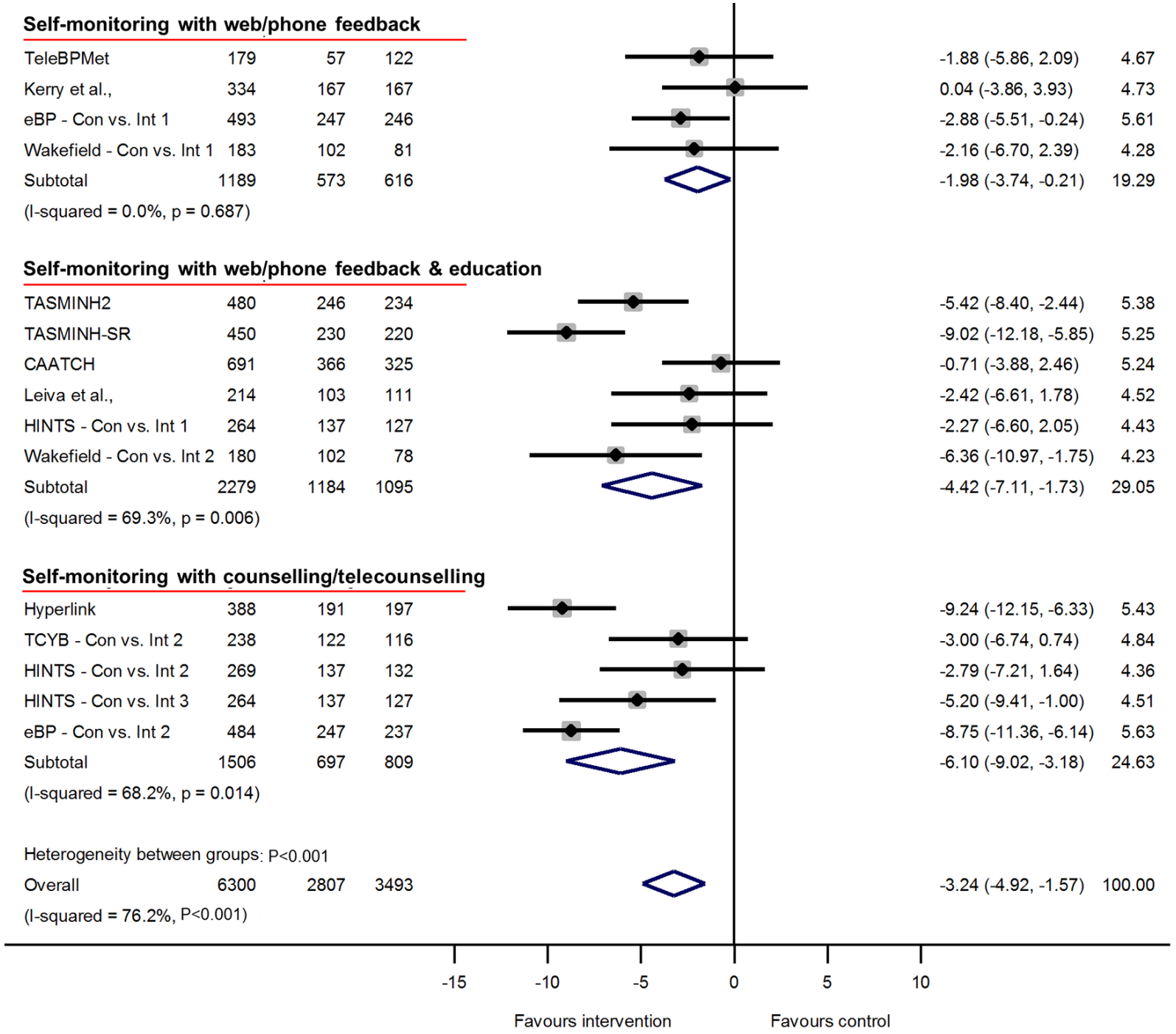
Pickering et al. *Hypertension*. 2005

Reason #2: Facilitates telemedicine



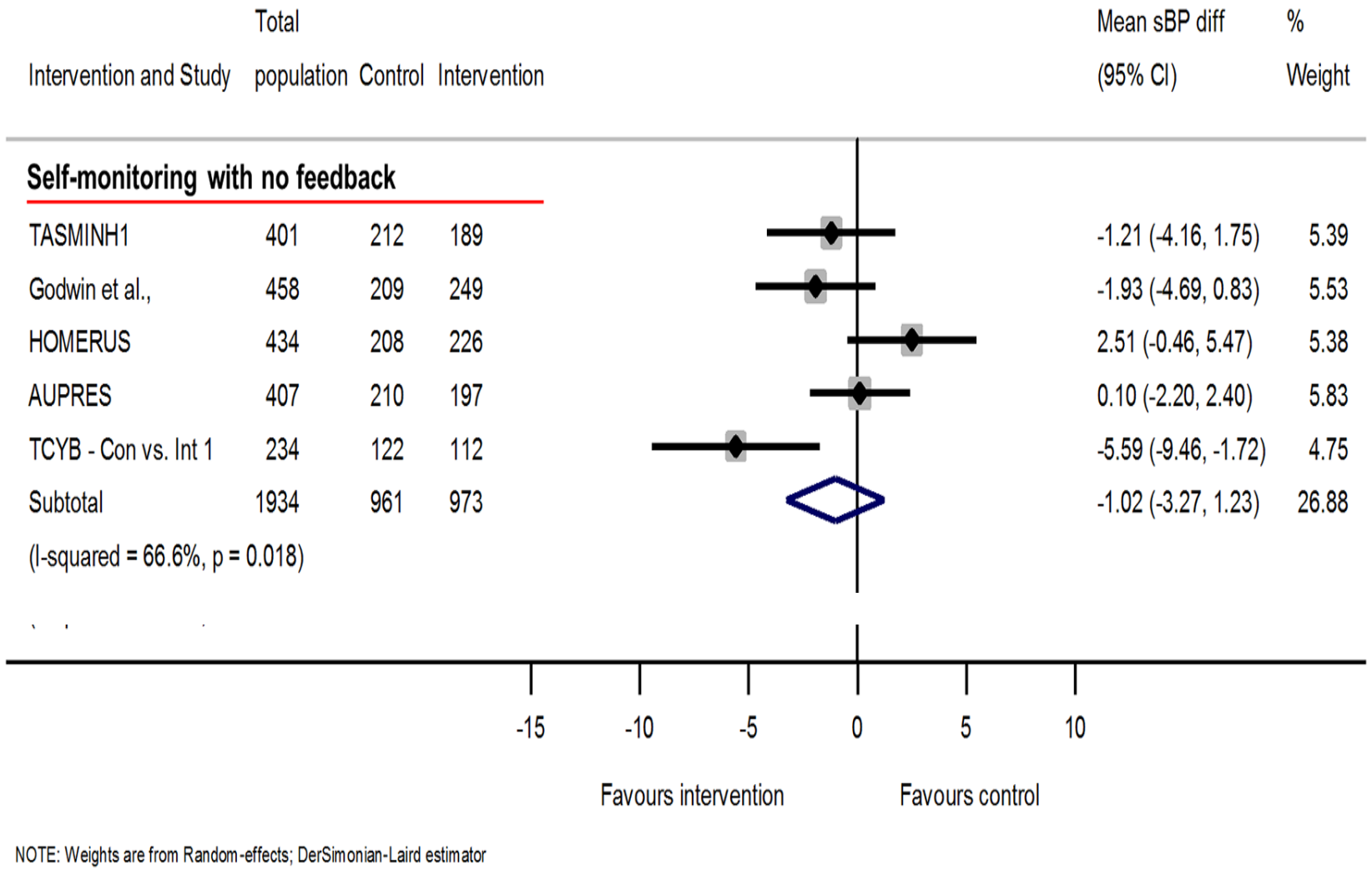
University of California, San Diego Daily Ambulatory Visits during COVID surge; This Week at UC San Diego, May 21, 2020

Reason #3: Increase the uptake of evidence-based supported SMBP



Tucker et al. *PLOS Med*. 2017

SMBP, without support, does not lower BP

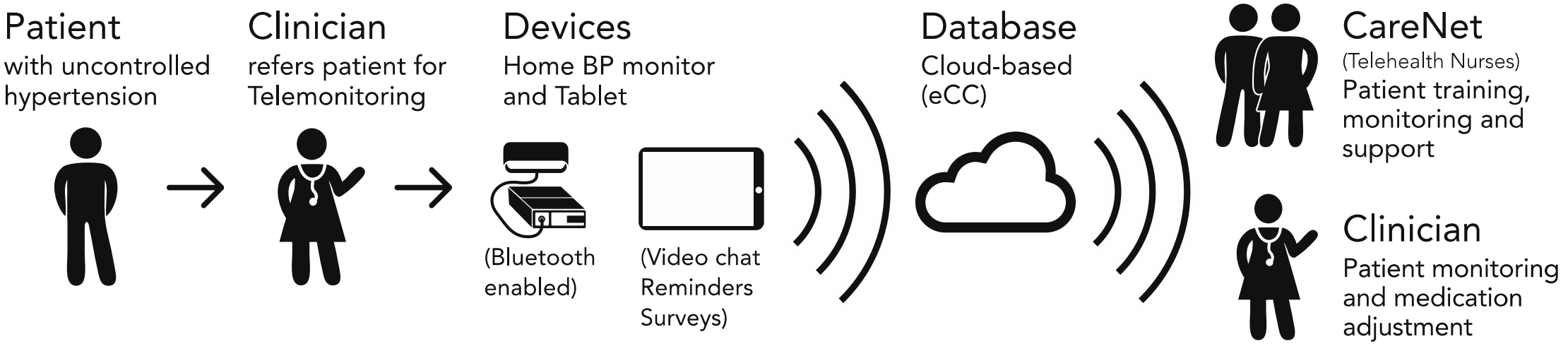


Tucker et al. *PLOS Med*. 2017

Reason #4: Potentially reimbursable

- **CPT 99473**: for visits that include training in HBPM, device set-up, and accuracy check for home BP devices (Jan 1, 2020)
- **CPT 99474**: can be charged monthly, when patient reports home BP readings, electronically or using BP log (Jan 1, 2020)
- Home BP data can be used in some **hypertension quality metrics** if data wirelessly entered into electronic health record
- Can incorporate into **billable telemedicine visits**

RPM for Hypertension Example
(Philips Healthcare/Columbia/NYP collaboration)

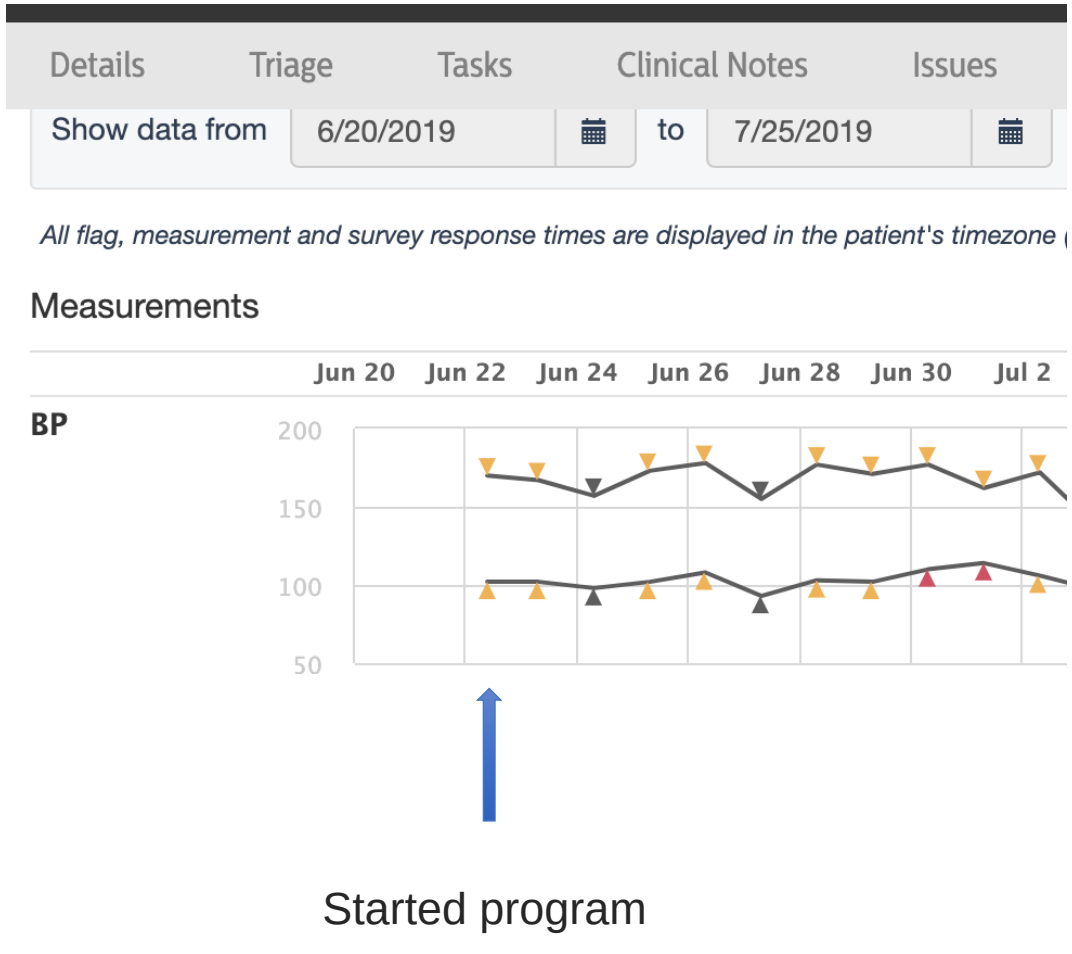


NYP

Columbia University

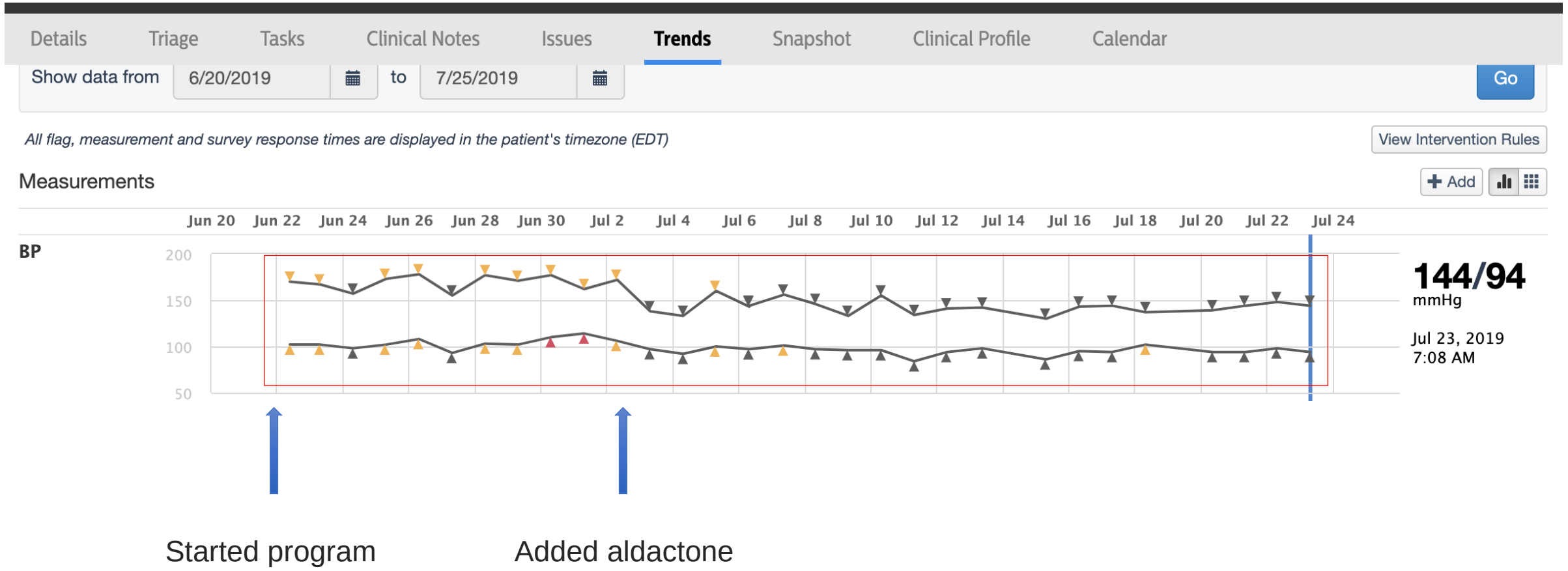
PHILIPS Healthcare

Case Study



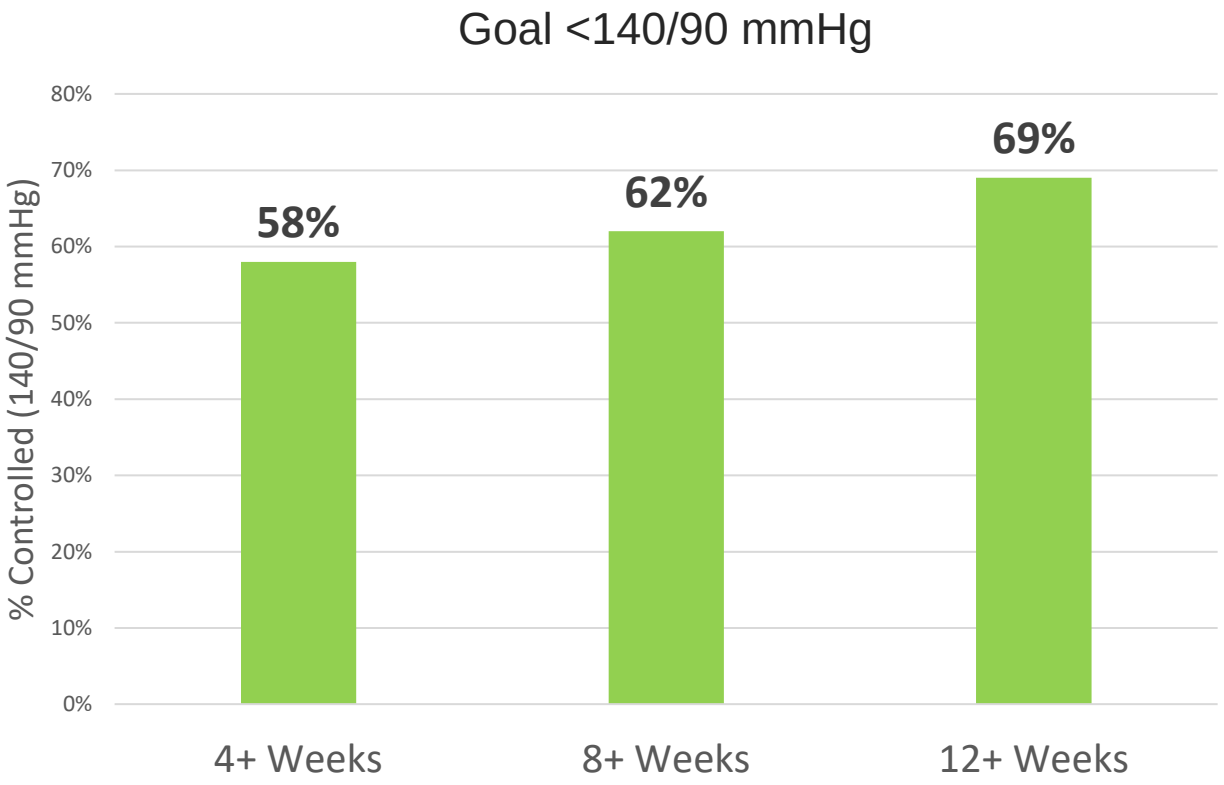
- 76 year old man with HTN, BPH, mild OA, still working as a superintendent
- BP meds:
  - lisinopril 40mg, chlorthalidone 25mg, amlodipine 10mg
- Today's BP: 163/106 mmHg
- Last visit BP: 148/87 mmHg

Case Study


Details
Triage
Tasks
Clinical Notes
Issues
Trends
Snapshot
Clinical Profile
Calendar
Show data from
6/20/2019
to
7/25/2019
Go
All flag, measurement and survey response times are displayed in the patient's timezone (EDT)
View Intervention Rules
Measurements
Add
Jun 20
Jun 22
Jun 24
Jun 26
Jun 28
Jun 30
Jul 2
Jul 4
Jul 6
Jul 8
Jul 10
Jul 12
Jul 14
Jul 16
Jul 18
Jul 20
Jul 22
Jul 24
BP
200
150
100
50
144/94
mmHg
Jul 23, 2019
7:08 AM
Started program
Added aldactone

Preliminary results (Fall 2019)

4 providers, 32 patients with uncontrolled BP after 1 week



Change in SBP: -10±15mmHg, p=.01

Change in DBP: -5 ± 9 mmHg, p=.03

- Average number of BP readings/week = **10!**

Patient satisfaction (N=12)

- 12 of 12 “very likely” (67%) or “likely” (33%) to recommend program to others
- 4.7 out of 5 = average overall rating (1-worst to 5-best)
- 10 of 11 “always” found devices easy to use
- Telehealth nurses were rated highly

Provider Satisfaction

- Success stories
- But also increased workload
  - Time to review weekly BP data report (even when no upcoming visit)
  - Phone calls to patients to titrate medication between visits
  - Phone calls from nurses for “escalations”

Health system satisfaction

- ? Impact on quality metrics/patient satisfaction
- ? Cost-effectiveness from health system perspective
- ? Impact on uptake of telemedicine

Key steps to designing a hypertension RPM program

- Understand incentives for providers, patients, and health system
- Identify partners to support patients and clinicians (e.g., nurses, pharmacists)
- Select vendors/devices
- Identify platform for storing and visualizing BP data
- Create/refine protocol

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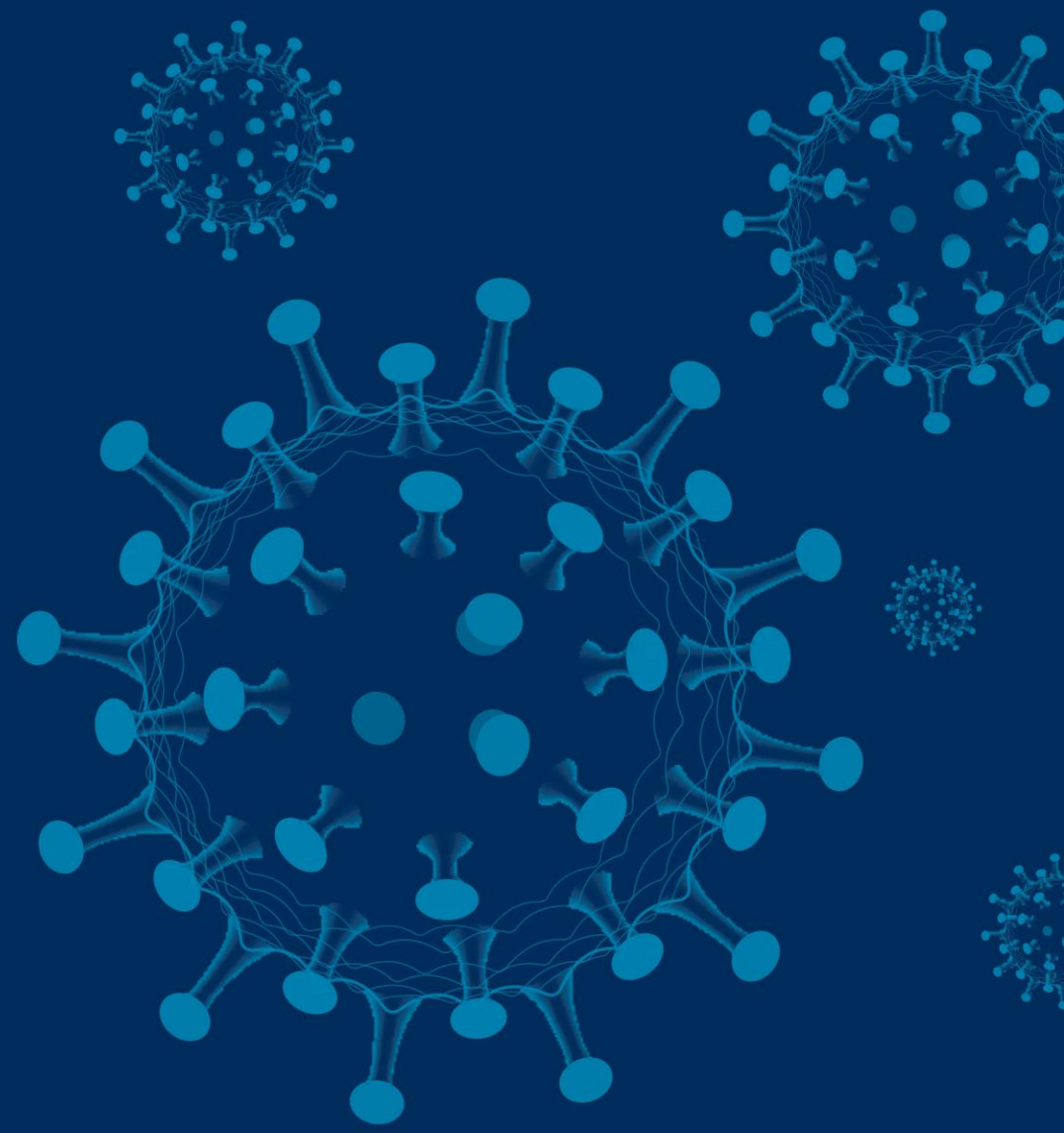
Heart Failure Management Systems in Virtual Care

Nicole Cyrille-Superville, MD

June 18th 2020



Disclosures

- Speaker for Tafamidis on behalf of Pfizer

HEART FAILURE B.C

- Healthcare Burden
  - An estimated 5.8 million Americans over the age of 20 carried a diagnosis of HF in 2012, with a projected increase to >8 million by 2030.
  - $30.7 billion was spent on direct and indirect costs of HF in 2012

- Tools utilized in Telemedicine
  - Structured phone visits especially post hospital discharge
  - Electronic transfer of physiological data – ECG, blood pressure, heart rate, weight, and medicine administration
  - Remote monitoring devices such as CardioMEMS

Virtual care B.C

- The US Department of Veterans Affairs (VA)
  - > 99,000 veterans used the VA Video Connect app at home in 2019, resulting in 294,000 virtual appointments predominantly for mental health

- Virtual Visits in Heart Failure Care Transitions; NCT03675828; Late Breaking Clinical Trial presentation at the Heart Failure of Society of America's Annual Scientific Meeting 2019 in Philadelphia, PA)
  - Randomized clinical trial inclusive of 108 HF patients assigned to virtual visits vs in-person ambulatory visits in the post discharge care of patients with HF
  - The no-show rate in the virtual arm trended lower than the observed rate in the in-person arm (VV 34.6% vs in-person arm 50%; RR 0.69; 95% CI 0.44–1.09; $P = 0.12$) without any signal of harm.
  - No significant differences in hospital readmissions, emergency department visits or death

Challenges to Virtual B.C

- Lack of familiarity with the technologies
- Concern regarding potential harm substituting in-person visits with virtual
- Integration into established workflows
- Legal barriers
- Limited Reimbursement

Telehealth-related Policy Changes in the Era of COVID-19

Topic	Key policy changes: COVID-19 pandemic	Implications for virtual visits
Licensing	HHS waived requirement for health care professionals to hold license in state in which they provide services if they have an equivalent license from another state. HHS asked states to waive local licensing requirements, with final decision made at state level.	Potentially allows practice of medicine via virtual visits across state lines.
Privacy	HHS suspended HIPAA rules.	Allows use of virtual visit platforms previously deemed not HIPAA-compliant.
Location of patient	CMS waived rural and site limitations for telehealth interactions.	Allows clinicians to be reimbursed for telehealth services regardless of patients' locations.
Prior existing relationship	CMS waived requirement that telehealth services can be provided only to a clinician's established patients.	Clinicians can see new patients by telehealth.
Prescription	DEA relaxed rules related to prescription of controlled substances by telehealth.	Clinicians can prescribe controlled-substances in setting of a virtual visit.

CMS, Centers for Medicare & Medicaid Services; DEA, Drug Enforcement Administration; HHS, US Department of Health & Human Services; HIPAA, Health Insurance Portability and Accountability Act.

Gorodeski et al, J Card Fail. 2020

Reimbursement

Billing Codes for Virtual Visits (Also Called "Telehealth visits" by the Centers for Medicare & Medicaid Services)

Description	Code and Modifier
Office or other outpatient visit for the evaluation and management of a new patient	CPT Code 99201-99205* Place of service 02 for Telehealth (Medicare), or, Modifier GT (Medicare/Medicaid) Modifier 95 (Commercial payers)
Office or other outpatient visit for the evaluation and management of an established patient	CPT Code 99211–99215* Place of service 02 for Telehealth (Medicare) or Modifier GT (Medicare/Medicaid) Modifier 95 (Commercial payers)
Telehealth consultations, emergency department or initial inpatient	G0425–G0427
Follow-up inpatient telehealth consultations furnished to beneficiaries in hospitals or skilled nursing facilities	G0406–G0408

*Choice of Current Procedural Terminology (CPT) code depends on whether the provider elects to use time-based coding vs component-based coding. For example, a provider using time-based coding for a Medicare beneficiary seen by VV for 15 minutes would document the time spent in the note and then may choose CPT code 99213 with modifier GT, if otherwise appropriate for that encounter.

Gorodeski et al, J Card Fail. 2020

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- Patients across the spectrum are triaged.
- Variety of care providers including physicians, advanced practice providers and licensed social workers are included in care.
- Components of the Virtual Visit
  - medication reconciliation
  - routine history
  - patient-reported vital signs
  - Abbreviated physical exam
  - Medical assessment

Virtual Visit Platforms Used During COVID-19 Public Health Emergency

	Name	Notes
Consumer apps	Apple FaceTime Facebook Messenger video chat Google Hangouts video Zoom Skype	• Popular applications that allow video chats • Allowed during COVID-19 crisis, but less secure • Providers are encouraged to notify patients that these third-party applications may introduce privacy risks. • Providers should enable all available encryption and privacy modes when using. • Use may expose provider's personal information (E-mail account, telephone number, etc.)
Specialized technology platforms	Skype for Business/Microsoft Teams Updox VSee Zoom for Healthcare Doxy.me Google G Suite Hangouts Meet Cisco Webex Meetings / Webex Teams Amazon Chime GoToMeeting Spruce Health Care Messenger American Well MDLive BlueJeans for Healthcare Doximity	• Partial list of HIPAA compliant technology platforms • Under normal conditions HIPAA business associate agreements for provision of telehealth services are required, but this was waived as part of COVID-19 crisis. • Variability in cost and functionality

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Pros

- Patient is able to have continued access to care and medical advice
- Provider is able to maintain connection
- Reduce exposure to infection
- Health systems are able to reallocate resources
- Health systems are able to generate revenue

Challenges

- Patient comfort level may vary
- Variable patient geographic and financial challenges
- Technical Difficulties
- Limitations in physical exam

Future of Virtual Visits

- Patients and caregivers may continue to have concerns about in-person office visits/travel and may show preference for virtual visits
- Clinicians may also be more amenable to virtual visits
- Policy and reimbursement changes may remain in place and further evolve to facilitate continued use of virtual visits

Key Take-a-ways

- Virtual Platforms allow for continued Patient – Physician Connectivity while limiting the possibility of exposure to both parties

- Incorporation of virtual visits may allow health systems to reallocate resources

- COVID-19 has allowed us to deliver care in our heart failure patients in a different way however the full impact of virtual visits on improving adherence, reducing no-show rates, improving inpatient to outpatient transition, or preventing ER visits/hospital admissions and readmissions for patients with HF is unknown.

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Panel Discussion

Moderator: Nasrien Ibrahim, MD, FACC

- **Ariane M. Fraiche, MD**
- **Ian Kronish, MD, MPH**
- **Nicole Cyrille-Superville, MD**

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