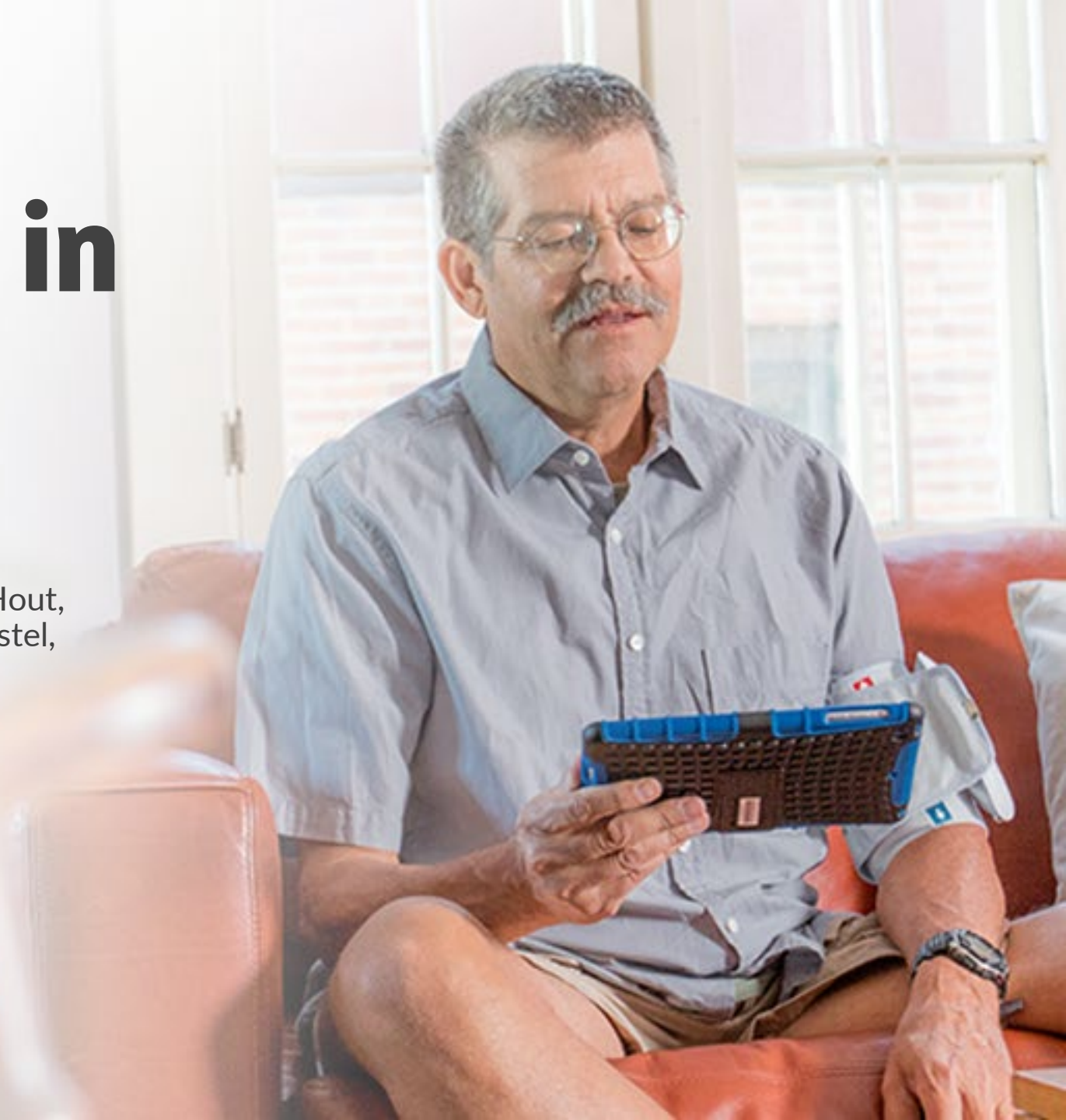# Blood Pressure Telemonitoring in a Large US PD Population

Martin Schreiber, MD; Mike Gonzales, MPH; Bram Van Hout, MSc; Brooke Bowlby, Michelle Cassin, RN; Jodi Holly-Kestel, RN, MSN Ed

Denver, CO, USA

October 16, 2020

Disclosures

Martin Schreiber, Mike Gonzales, Bram Van Hout, Brooke Bowlby, Michelle Cassin, and Jodi Holly-Kestel are all employees of DaVita Inc.

Background

Home Remote Monitoring (HRM)

- HRM is a telehealth strategy that utilizes cellular technology to transmit patients' biometric data collected at home to the electronic health record of their dialysis provider.

- In April 2017, an HRM program was launched nationwide for peritoneal dialysis (PD) patients at a US large dialysis organization (LDO).

Objective

This study evaluated longitudinal trends in blood pressure (BP) control among PD patients participating in the HRM program.
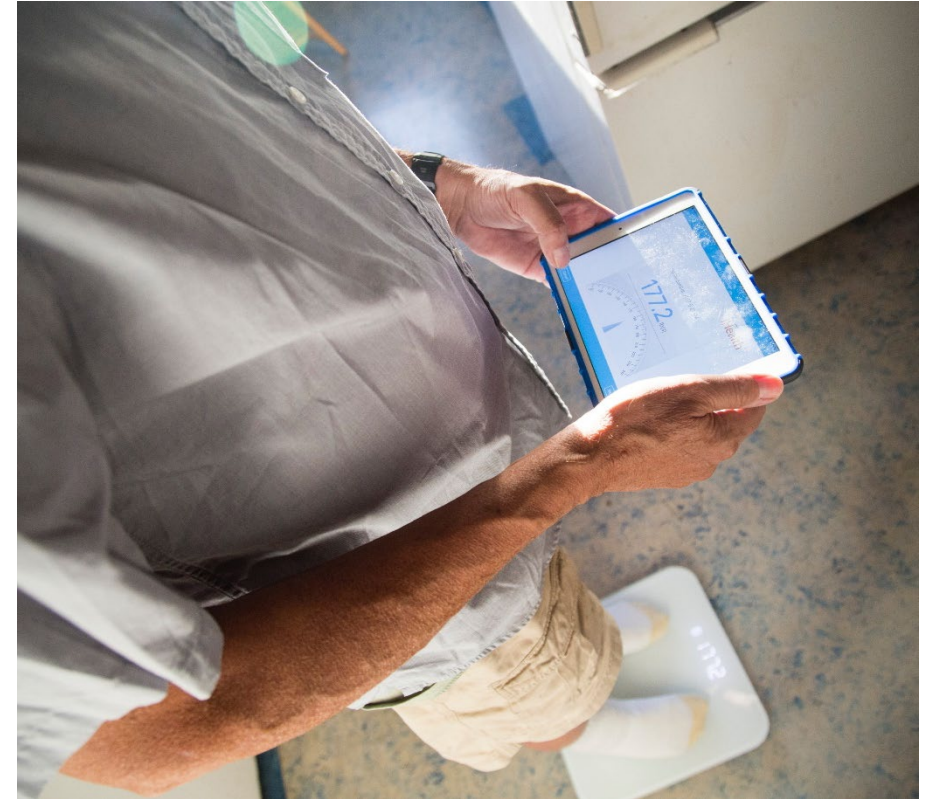
Methods

Patients

- Dialyzing with PD
- Participating in the HRM program from April 2017 - January 2020

Data for This Analysis

- Data were abstracted from LDO electronic medical records.
- Outcomes tracked monthly included for all patients:
  - Mean BP
  - Mean arterial BP (MABP)
  - Number of transmitted BP measurements
  - Number of BP alerts
  - Number of antihypertensive (anti-HTN) medications prescribed
- BP alert thresholds were determined on a patient-by-patient basis by the treating physician.

Results through January 2020

21,081 Eligible Patients
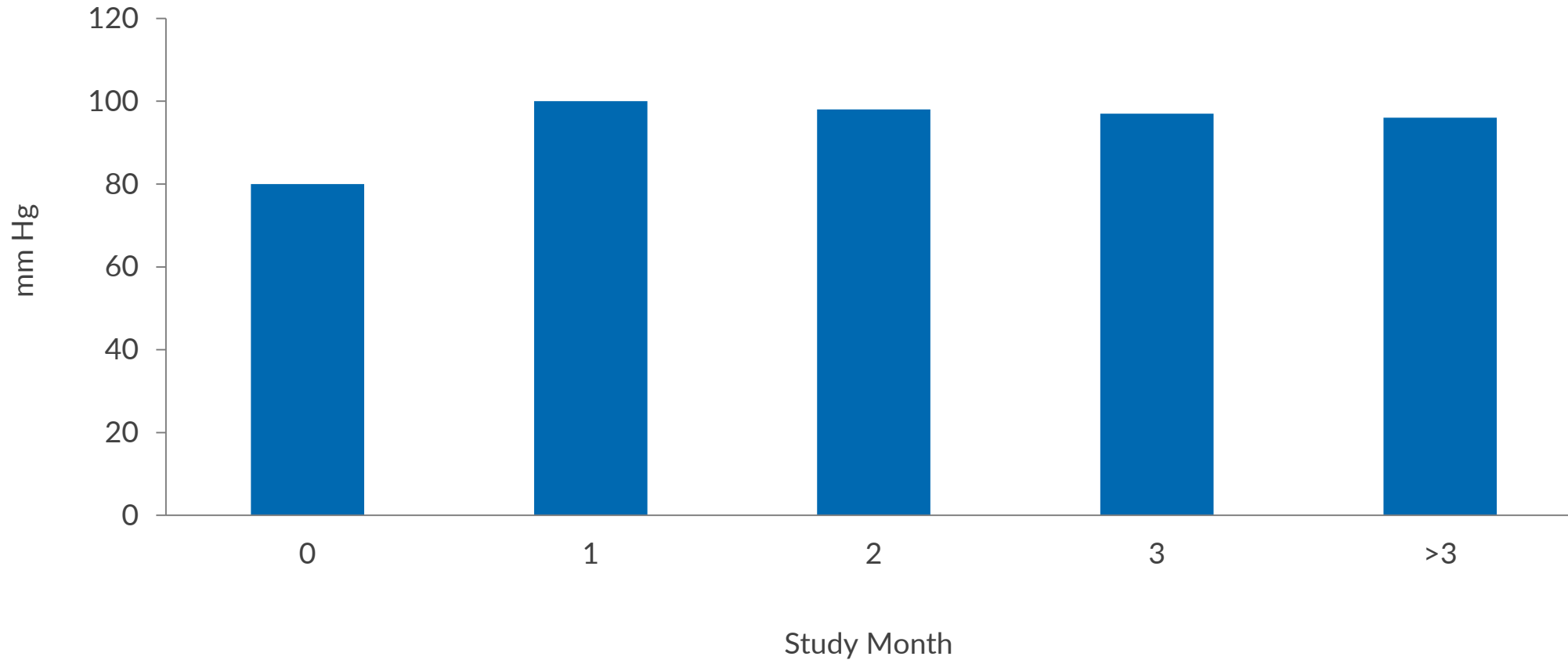- Average age = 59 years
- 57% male

BP Results
- Number of individual transmitted BP measurements: >3.5 million total
  - 170 readings/patient on average over the 43-month (total) study period

- Number of patients achieving target BP (<130/80 mmHg): 34%

- BP alerts: 764,658 total (36 BP alerts/patient)
  - Most common actions in response to alerts: changes in medications and prescribed ultrafiltration volume

- Number of anti-HTN medications prescribed
  - 0 in 30% of patients
  - 1-3 in 23% of patients
  - >3 in 47% of patients

MABP Results as of January 2020

MABP by Study Month

Calculation: MABP= SBP+2(DBP)/3

Updated Results through June 2020

Number of Patients between April 2017 and June 2020

- Active HRM patients = 21,731 since inception to current ;
- 19,795 included with 90 day BP transmission results as of June 2020

BP Results

- Number of individual transmitted BP measurements: 4.5 million total

  - 179 readings/patient on average over 41 months

- Target BP (<130/80 mmHg) values: 34% (n=145,025)

- BP values >130/80 mmHg: 66% (n=275,429)

- BP alerts: 915,000 total

  - 40 BP alerts/patient

Updated BP Results through June 2020 with 90 day BP results

BP Results

Systolic BP categories (mmHg)	Number of readings (N=4,128,412)
<110	561,811
110 -130	1,301,586
131-160	1,700,400
>160	566,028
Mean arterial pressure (MAP) (mmHg)	**Number of readings (N=4,128,412)**
<97	2,188,665
≥97	1,939,747

Conclusions

- HRM can be successfully employed to capture patient BP readings in the home environment.

- HRM identified a significant percentage of PD patients with uncontrolled BP.

- Ongoing studies are focused on antihypertensive medication selection/classes and prescription design components (i.e., UF rate/day, and current wt. vs target wt.)

- HRM could be a potentially useful component of clinical programs designed to improve BP control and cardiovascular outcomes.