Sinai Hospital of Baltimore – Ambio Health – Connected Heart Health Heart Failure Pilot Project

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American Heart Association | American Stroke Association
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Introduction

Patient engagement and the use of remote monitoring systems are currently a focus of interventions for chronic disease management.

The feasibility and value of combining interventions aimed toward promoting patient engagement with remote monitoring systems has not been fully evaluated.

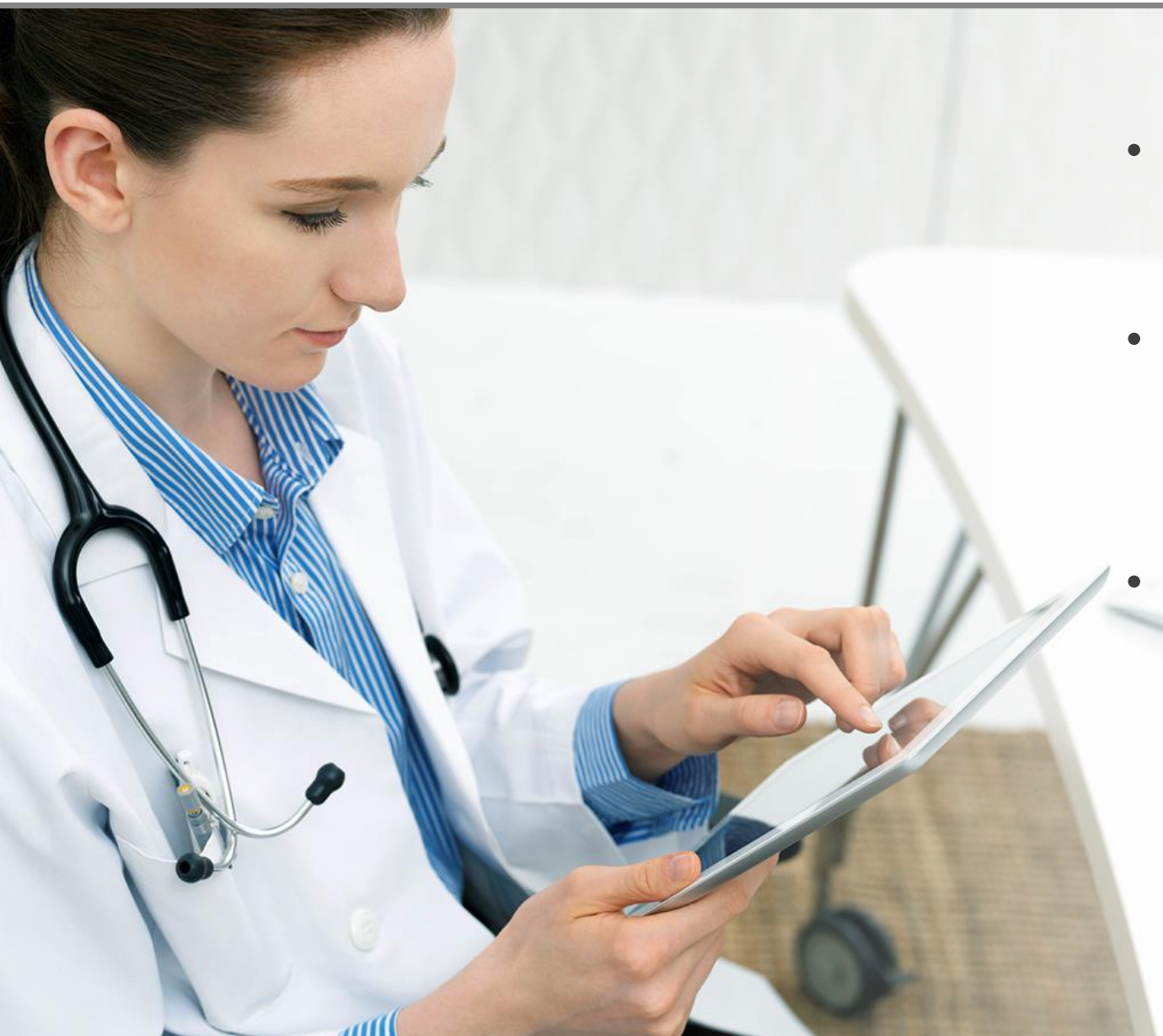
Objective

The objective of our study was to evaluate the combined value of the Ambio Health telemonitoring system, the American Heart Association Connected Heart Health Care Plans and a hospital based heart failure chronic disease management program on preventing 30-days readmission and promoting patient engagement in an inner-city heart failure patient population.

ConnectedHeartHealth™

From American Heart Association®

American Heart Association | American Stroke Association



- Translate AHA guidelines and statements that impact Heart and Stroke patients into **evidence-based CarePlans**
- Provide a directory of proven AHA guidelines and content designed to **significantly increase compliance and patient engagement**
- Empower health care providers, patients and caregivers with trusted CarePlan solutions that are **scalable in addressing the needs of complex care patient populations**

Ambio Remote Patient Monitoring System

Meters

Wireless Scale

Wireless BP Meter

Wireless Glucose Meter

Other non- wireless meters

Gateways

Ethernet Gateway (now)
Cellular Gateway (1Q17)

Cellular-Ethernet Router (now)

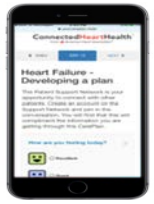
Care Management / Clinician Portal

- Any number of locations, clinicians, patients
- AHA CarePlans with patient education, assessments, decision support and messaging
- Patent specific alert and target thresholds
- Alerts for biometrics, symptoms, non compliance
- Biometric logs and graphs with analytics
- Reading and medication reminders if missed
- Encounter records / history
- Report print or email
- Patient incentives program
- Glucose test strip replenishment
- Population analytics
- EHR integration
- Co-branding available

Patient / Caregiver Portal

- Any number of family caregivers
- CarePlan delivery to computer, tablet or smartphone
- Reading and medication reminders
- Reminders by IVR, text, and/or email
- Shared appointment calendar
- Reading history report print or email
- Exercise and diet planning and tracking
- Patient incentives

User Interface



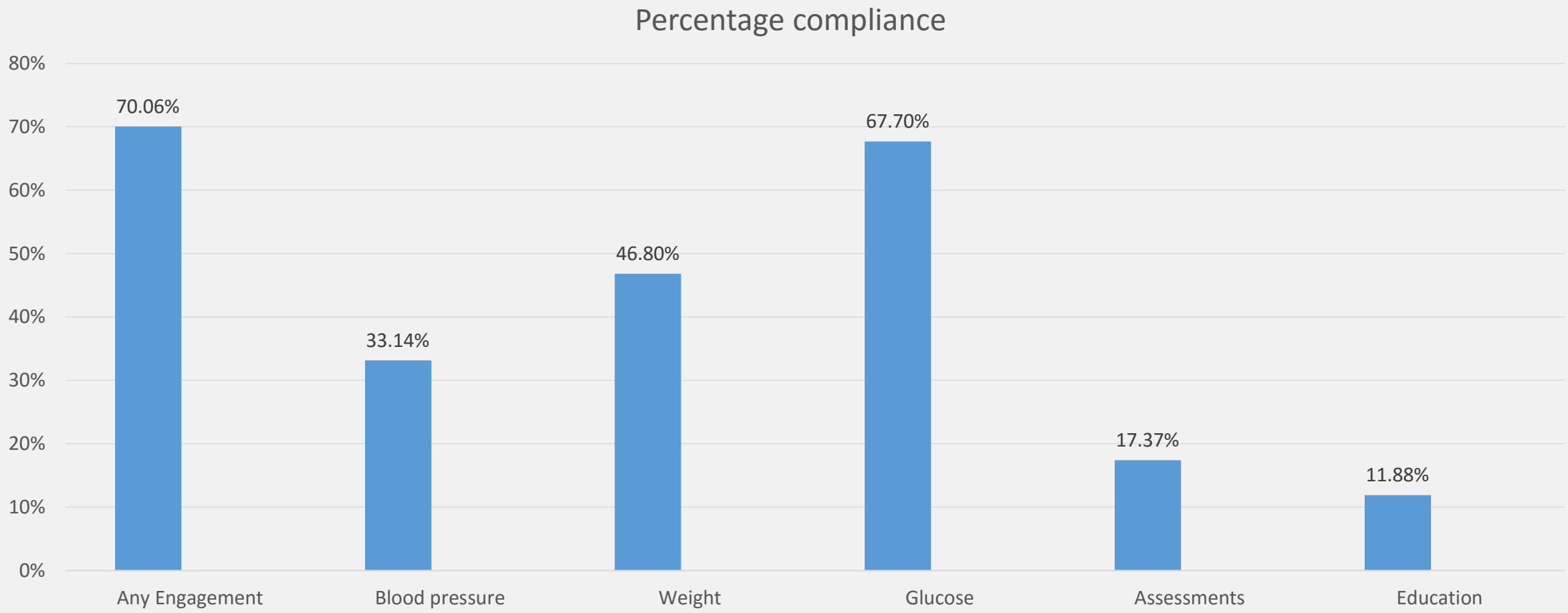
FDA 510(k) Class II Cleared and HIPAA Compliant

Baseline Demographics and Clinical Characteristics (n=23)

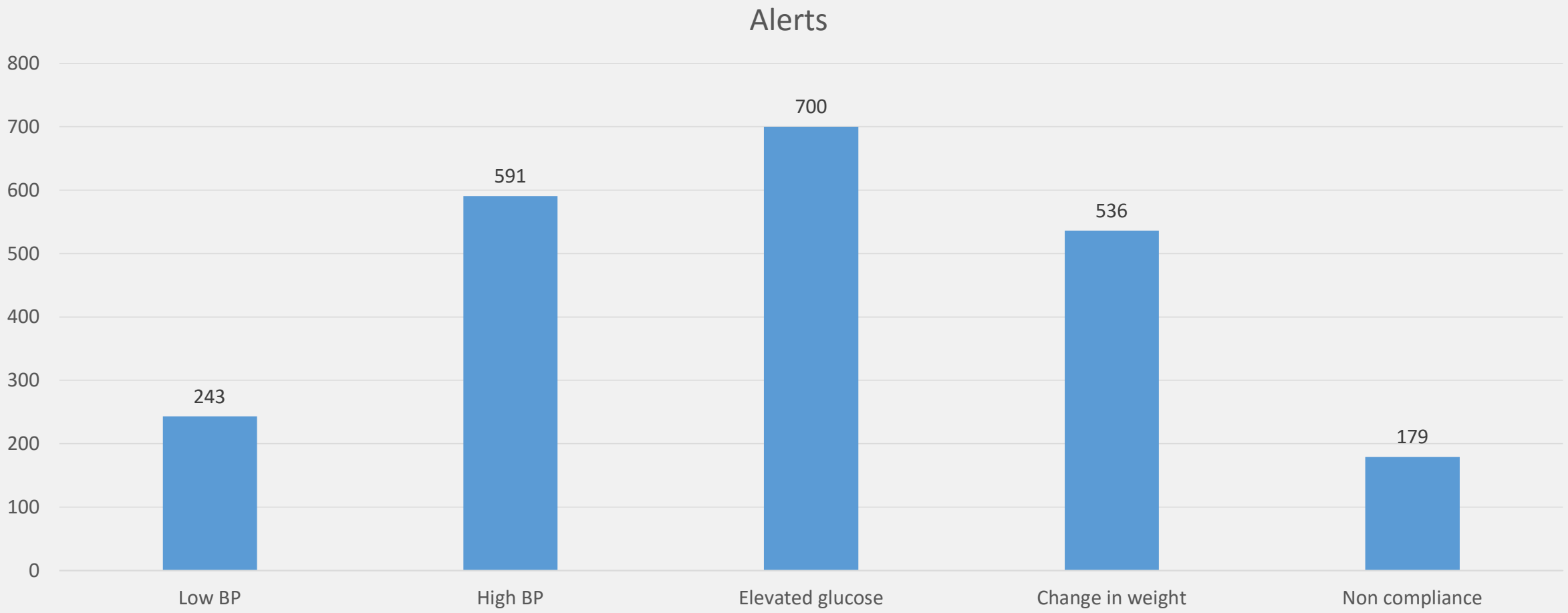
- Age 65.65±12.2
- Sex
  - Female 13
  - Male 10
- Race
  - Black 22
  - White 1
- Insurance status
  - Medicare 15
  - Medicaid 1
  - Commercial 7

- HFrEF 12
- HFpEF 11
- Diabetes Mellitus 14
- HTN 22
- Atrial Fibrillation 10
- Serum Creatinine (mg/dl) 1.38±0.6

Engagement with program



Alerts and warnings



Interventions

- Medication changes – 42
- Symptoms reported/managed – 30
- Calls and follow ups – 117
- Patients referred to diabetes resource center - 5
- AmbioHealth blood pressure trends and weight trends reviewed with patients at the time of the clinic visit and additional recommendations and medications changes made accordingly

Readmissions

- For the 23 pts who have been in the program for at least 30 days, there were a total of 2,980 patients follow up days
- The initial 30 days HF readmission rate was 13% (1 patient at Day 1 , 1 patient at day 3 and 1 patient at day 16 from enrollment), and the all cause initial 30 days readmission rate was 17% (4/23).
- During a total of 2,980 patients follow up days, there were a total of 5 HF readmissions (2 in the same patient) and 11 all cause readmissions (4 in the same patient)
- Projections based on US average would have been 21 all cause readmissions for 2,980 patients follow up days

Conclusions

- Good overall engagement with the program, especially biometric monitoring, in an inner city heart failure patient population
- Trends toward low long term HF and all cause readmission rates when compared to national averages
- High level of nurse involvement, monitoring and managing symptoms, and adjusting medications.
- Limitations including small sample size and no comparison group