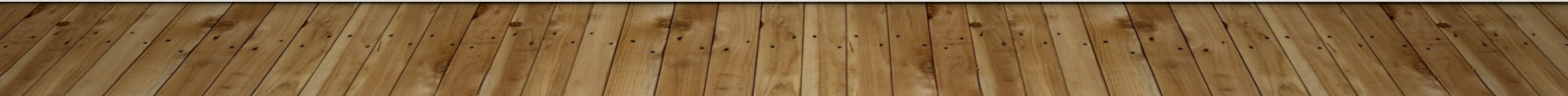


CHECK IT AT HOME

ADVENTURES IN HOME BLOOD PRESSURE MEASUREMENTS

QUINN CANNON MD PGY3

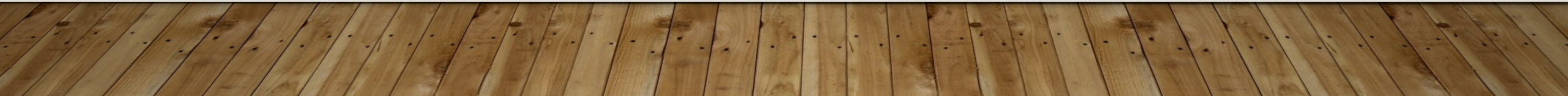
MCKAY-DEE FAMILY MEDICINE RESIDENCY



FINANCIAL DISCLAIMER

I have no relevant relationships to disclose financial or otherwise.

My presentation does not include discussion of off label or investigational use. I do not intend to reference unapproved use of products in my presentation.

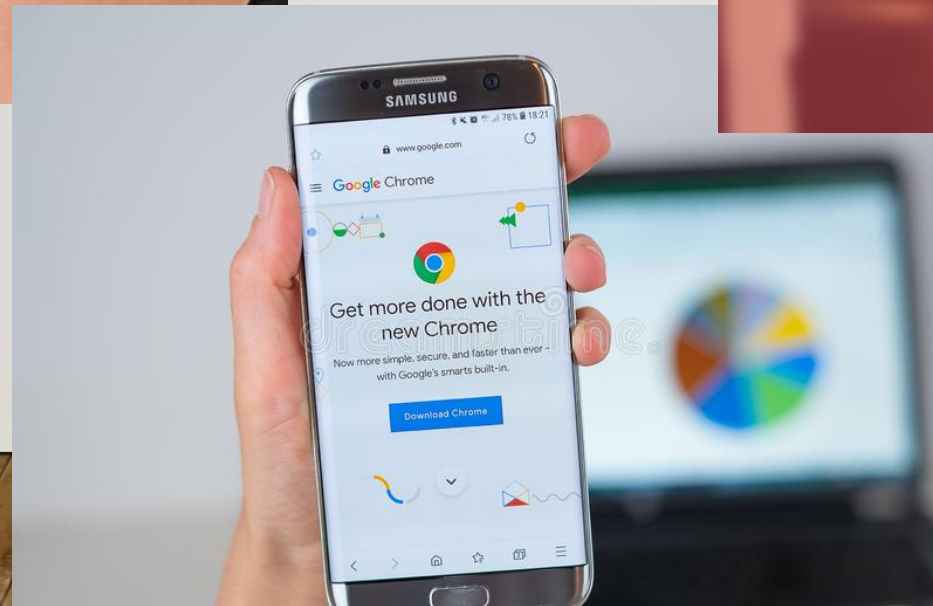









EXAMPLES OF FAR SHORES



CASE PRESENTATION – PUT YOURSELF IN MY POSITION

52 year old female with difficult to control hypertension presents for follow-up. Her blood pressure is 148/102 even though she says she takes her medication religiously. She says her blood pressures are normal at the local pharmacy when she checks them for free. She does not have a home blood pressure cuff. Physical exam is unremarkable other than a mildly anxious mood consistent with white coat hypertension. Workup for secondary causes of hypertension has been negative so far. You decide you are going to increase her antihypertensive doses and have her buy a blood pressure cuff and check her blood pressures at home.

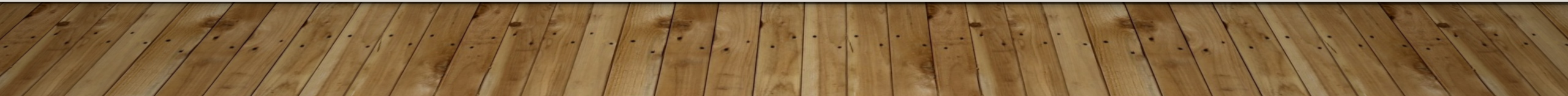
What will likely happen with this patient?



52 YEAR OLD FEMALE WITH BLOOD PRESSURE 148/102

- A. She will go home, take her new medications, and will probably make an appointment for in 3-6 months.
- B. She will buy a blood pressure cuff and use it religiously
- C. Your clinical acumen will find and fix a cause of secondary hypertension
- D. Because she suffers from white coat hypertension, she will develop syncope secondary to your suprathreshold medication changes.

Whatever happens, she is still currently labeled as a patient with “uncontrolled hypertension”.



THEN COVID HITS...

Leaders: Coronavirus risk 'remains low' here



Staten Island plunge to honor local teen. A2

STATEN ISLAND
Local hospitals preparing for coronavirus

Trump declares virus a national emergency



COVID-19 case. A2

Public libraries closed until the end of March. A9

NEW YORK
City keeping public schools open, defying virus trend

THE COVID-19 OUTBREAK

It's 'inevitable' here, CDC says

THE COVID-19 OUTBREAK

NYC public schools closed

'A very painful decision': Mayor says city's 1.1 million students are out until April 20 — and maybe even longer

Preparing for the 'new normal': Parents scramble to find child care, get ready to help their children learn online



THE COVID-19 OUTBREAK

N.Y. cases of new virus double overnight to 22

White House. A7

Schumer chided for 'dangerous' remarks. A9



STATEN ISLAND
CDC advises worshipers not to touch



China locking down cities to stop virus

Quality Improvement Project



Quality Improvement Project

Systematic, data-guided initiatives designed to improve patient care, safety or health care operations, services and programs.




CHECK IT AT HOME

Improving Hypertensive Care with Home Blood Pressure Checks

Quinn Cannon MD

Introduction

- During the Covid-19 Pandemic, care of hypertensive patients became more complicated
- Midtown Community Health Center in Ogden has 4300+ patients with hypertension.
- 78% are categorized as uncontrolled
- Midtown Providers recommend and distribute blood pressure cuffs and paper logs for patients to check their blood pressures at home
- Ambulatory Blood Pressure Monitoring where a device is worn continuously for 24 hours + is considered the gold but not practical for monitoring



Aim Statement

- Decrease the number of patients with uncontrolled hypertension by 10% by April, 2021

Planning

- Uncontrolled hypertension is currently defined as the most recent recorded blood pressure at a clinic visit or self-reported measurement during a telephone visit
- Manual blood pressure cuffs are being distributed and distributed to patients without known efficacy or follow up. Eye level reports suggest follow up is poor with logs rarely being completed and returned

Measurement

Factors affecting measurement: Clinic BP Measurements

- White Coat Effect
- Cuff Calibration Problems
- Provider Measurements
- Randomness

Materials

What is used to obtain measurements?

- Cuff Size
- Cuff Brand
- Wrist vs Arm
- Cuff Style

Method

How are BP Measurements Obtained?

- Not Followed
- Calibration
- Feet on Floor
- Not Talking
- Suboptimal Adherence to Antihypertensive Therapies
- Problem Statement
- Standardization
- Desire to Teach
- Time to Teach
- Ability to Teach
- Hypertensive Questions
- Rooming Protocols
- Rooming time

House Environment: Barriers in Life and Home
Management: Clinic Staff Performance affecting roles
Clinic: Clinic Processes Affecting

Intervention


- 39 patients were surveyed by phone and non-compliant patients were identified
- Survey Respondents were sorted into Controlled/Uncontrolled, Frequency of Checks, Log Keeping and Clinic Follow-up
- Patients with and without home blood pressure monitoring equipment were surveyed to identify patients
- Non-compliant patients were encouraged to start using their machines and keep logs and then called ~2 months later

Results

- 74% of patients who had been given a blood pressure cuff never brought in a home blood pressure reading to a provider
- 12.8% triggered a visit based on home blood pressure readings
- Two months later, of 24 non-compliant patients 25% had made appointments or started keeping a log

Conclusions

- Identifying non-compliant patients is time intensive but with minimal encouragement they can become compliant.
- Home blood pressure monitoring is useful but paper logs, manual machines, and identifying non-compliant patients are significant challenges
- Simplification/automatization would be beneficial




Future Work

- Applied for HRSA Hypertension Grant
- Will purchase Bluetooth enabled Blood Pressure Cuffs to distribute to patients
- Integrated health record app automatically uploads cuff data to patient's readings
- Train staff to enroll patients and troubleshoot machines and follow up as needed
- Easily discover which patients are using home BP machines, follow up with noncompliant ones
- Easily categorize controlled and uncontrolled hypertensive patients, based on an average

Team

- Kurt Rifleman MD
- Carissa Monroy MD
- Tiffanie Haun
- Quinn Cannon MD



MIDTOWN COMMUNITY HEALTH CENTER

- General Clinic and Urgent Care
- Serves Ogden's immigrant and Uninsured/Underinsured community
- Federally Subsidized Pharmacy
- Online Patient Portal/ Healow App



MIDTOWN COMMUNITY HEALTH CENTER HYPERTENSIVE PATIENTS

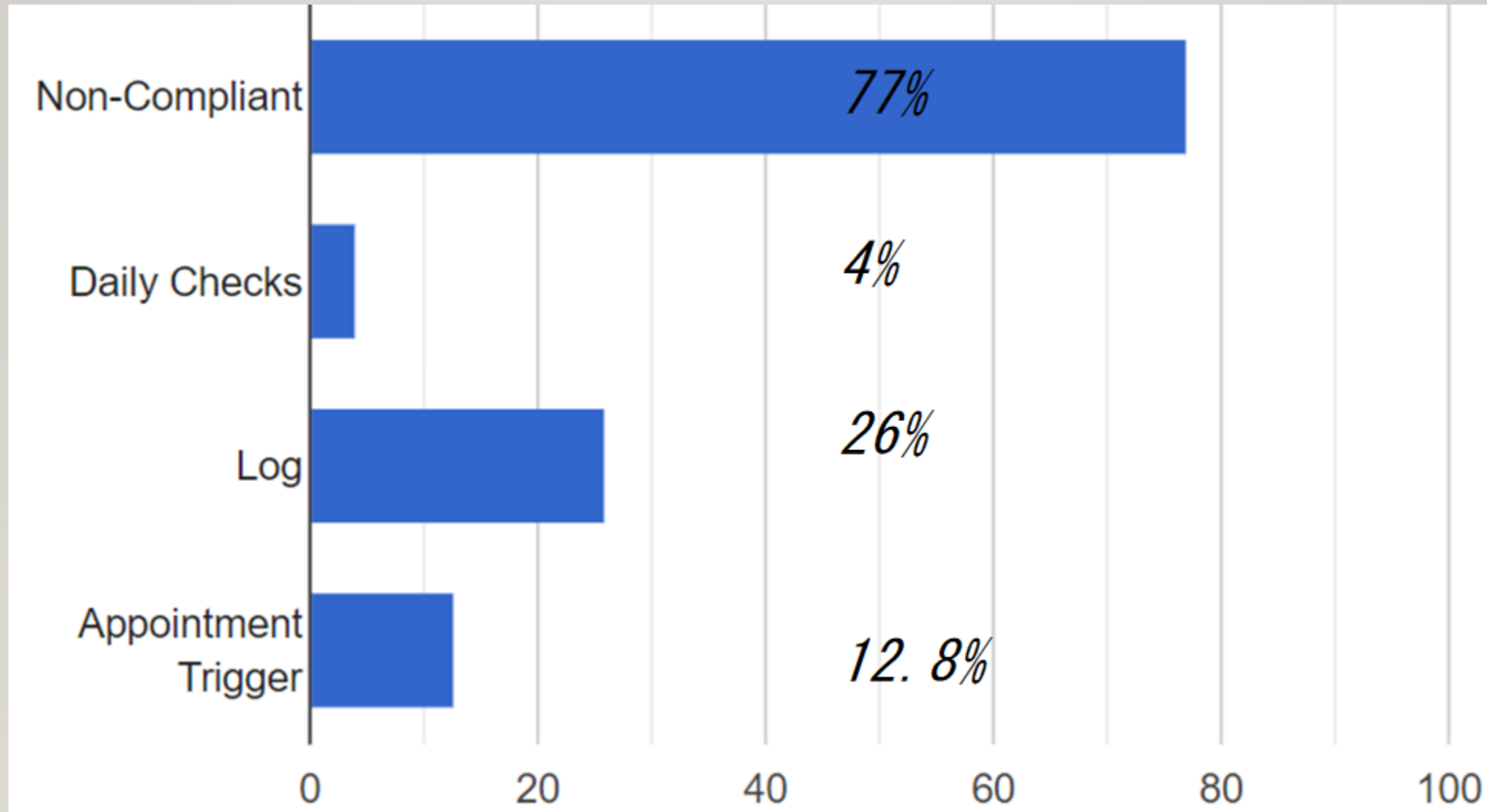
- ~4300 patients with Hypertension
- 78% are categorized as uncontrolled based on most recent BP measurement.
- Blood pressure logs and manual blood pressure cuffs are distributed to patients
- Eye level observations suggest compliance is poor



SURVEY TIME!

- 39 patients were surveyed by phone
- Patients who had been given free BP cuffs were heavily included
- Questionnaire included questions about equipment, frequency, log keeping, visit triggering
- Non-compliant patients were identified and followed up with 2 months later

Survey Results



SURVEY TIME!

- Non-compliant patients were identified and followed up with 2 months later
- ~50% response rate
- 25% had made a follow-up appointment or started keeping a log
- 82% Expressed intentions of improving their home bp checks
- What's next?





Welcome to the Patient Portal

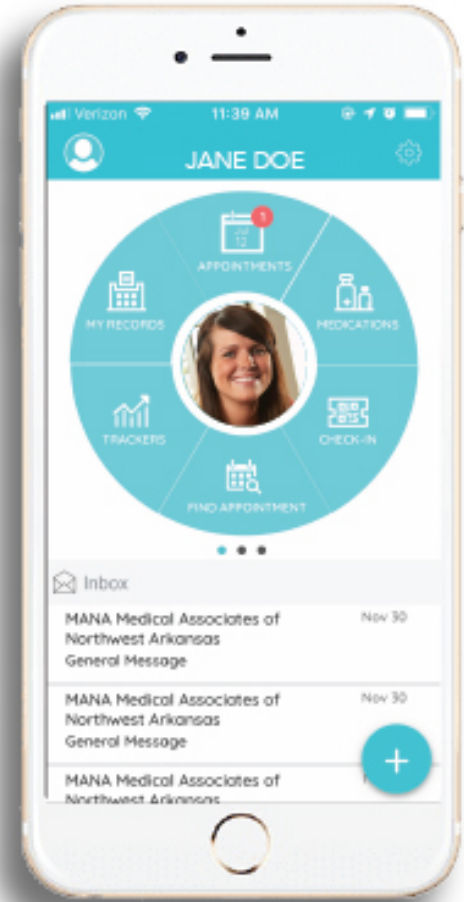
Where You Have Ready Access to Your Health Information

- + What can I do on the Midtown Patient Portal?
- + How do I sign up for the Midtown Patient Portal?
- + How do I access health information using the Healow app?



healow

Health And Online Wellness



We Need a Bluetooth
Blood pressure cuff that
works with HEALOW which
interfaces with our EMR



healow
Health And Online Wellness



THE POSSIBILITIES ARE ENDLESS

iHealth

 **Withings**
Inspire health

 **QARDIO**
Heart health made easy

WelchAllyn[®]
 Home[™]

OMRON

THE POSSIBILITIES ARE ENDLESS



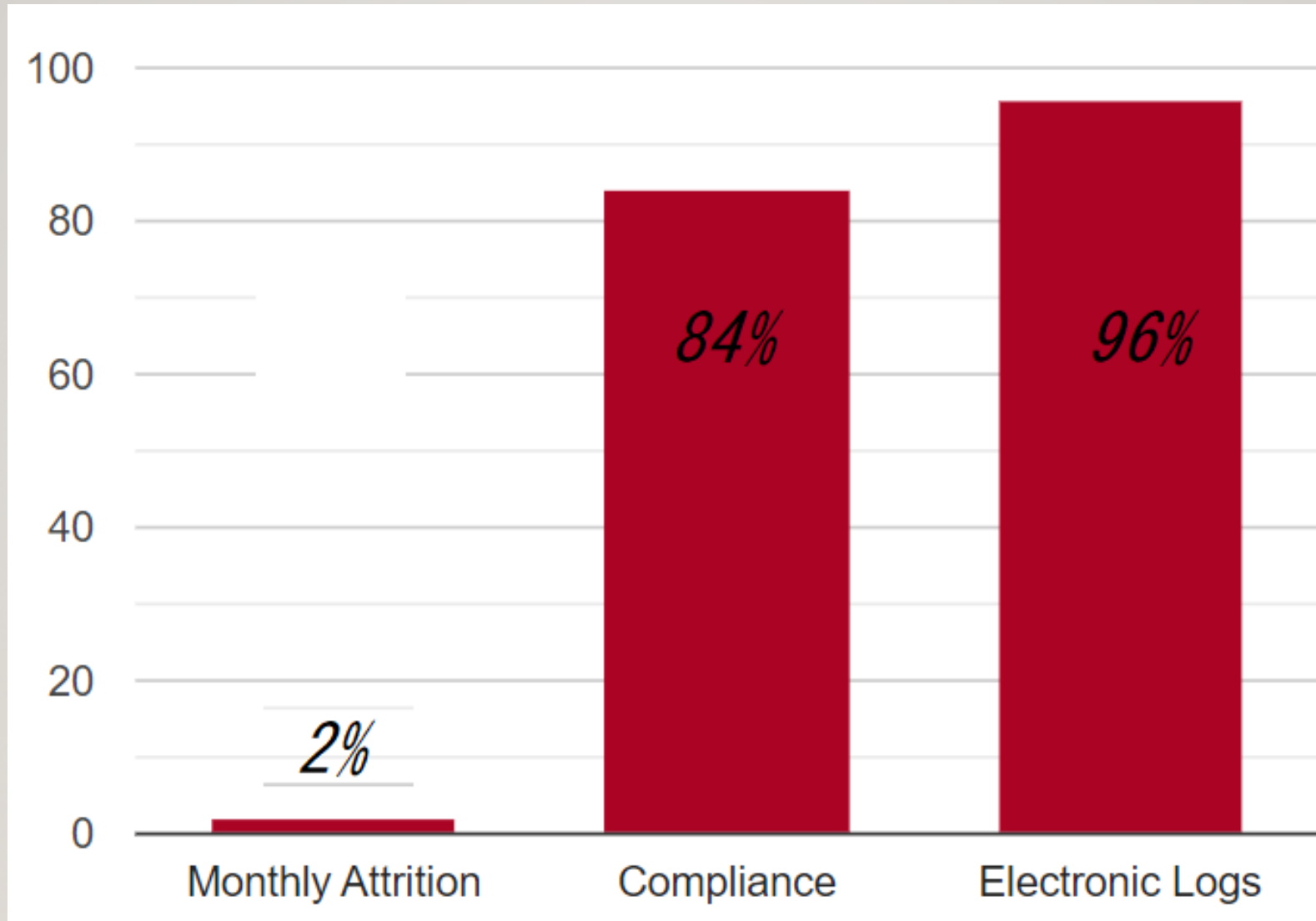
HOMOGENEITY VS. DIVERSITY



PHASE II

- Applied and received HRSA grant funding
- Co-purchase Bluetooth enabled machines with patients
- Hired Case Manager
- Currently have 56 patients active in the program
- Hoping for many more!
- Results are being communicated by e-mailed reports
- App and EMR interface has not been seamless

Current Results



CONS

- HIPAA Concerns
- Not feasible without grant money, need insurance buy in.
- Information Overload
- Potential Liability for Extreme Results
- EMR/Application Woes
- Don't have long term data

PROS

- Patients unable to change results or “cherry-pick”
- Teaching patients how to fish, dividends will likely be lifelong
- Easily identify uncontrolled/noncompliant patients
- Focus effort/resources where needed
- The way of the future
- We tried to cross the river

LESSONS LEARNED

- Of Mice and Men
- We did not cross the river
- Identifying who needs attention makes intervention more manageable
- Homogeneity vs. Diversity
- Automation/Remove “Patient Initiated Steps” as much as possible
- Hopefully Small Failures Can Lead to Bigger Successes

ACKNOWLEDGEMENT

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