Better Blood Pressure
Improving Hypertension with the use of Technology & an Enhanced Care Team
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Background
High blood pressure (BP) or hypertension (HTN) affects approximately 30% of the United States adults population. Uncontrolled HTN with BP >140/90 mmHg is associated with increased cardiovascular morbidity and mortality, and costs the United States approximately $46 billion each year. In the US, about 49% of patients with HTN stopped taking their newly prescribed antihypertensive medication within 1 year after it was prescribed. Studies show home BP monitoring improves HTN medication adherence and outcomes. According to the California Office of the Patient Advocate, University of California at Davis (UCD) Health ranks lower than other Sacramento area medical groups for hypertension control.

Purpose
This project aims to formulate a cost-effective and expandable hybrid of a patient education and ambulatory care intervention model to improve patients’ BP from baseline. In addition, the program provides a team-based care approach involving the patient and their healthcare team. Our goals are to reduce cardiovascular complications, hospitalizations, and increase medication adherence and patient self-care.

Design & Methods
A team-based care model was used involving subject matter experts including the primary care physician, patient participation, and the use of smartphone technology for a 12-week intervention via 3 phases as identified below:

Phase 1: Patient outreach to engage adults with uncontrolled HTN who receive primary care at two UCD Health clinics; excluding pediatric, home health, or hospice populations.

Phase 2: Lifestyle modification follow-ups for self-management tools, medication intervention, and home BP (Patient Generated Health Data (PGHD)) integration into the Electronic Medical Record (EMR) weekly. Patients met in person and in webinar group education along with individual telephonic or electronic follow-ups.

Phase 3: At program completion, each patient was evaluated for controlled clinic BP (<140/90 mmHg) based on the Joint National Committee (JNC) 8 HTN guidelines. If goal BP was not achieved, care was elevated to a pharmacist or a registered nurse case manager at Ambulatory Care Management.

Implementation
Eligible patients were recruited and allocated to the following groups:

Group A - Usual care
This group did not meet inclusion criteria or declined and therefore received usual care from primary care physicians.

Group B - Enhanced usual care through Ambulatory Care Management (ACM)
Patients who declined group education and preferred one to one telephonic ACM HTN care by a pharmacist or nurse case manager. Tools used for these patients include telephone calls, MyChart emails, mailed literature, EMMI videos, and other HME classes.

Group C - “12 Weeks to Better Blood Pressure”
This group met inclusion criteria and agreed to receive full intervention of the BBP program. The 12 week program includes a hybrid of self-management education and clinical intervention. Patients received face to face, telephone follow up, and webinar classes. Home BP readings were transmitted and automatically pulled into a patient flowsheet, easily accessible to the patient healthcare team. If a patient had an internet access barrier, then home BP was viewable via a written log and trends documented in EMR. The educators and patients trained on the use of the iHealth BP equipment. Patients keep their BP monitor after graduation.

Performance Data
Group C - “12 Weeks to Better Blood Pressure” results
A total of 80 charts were reviewed for inclusion and exclusion criteria. Fifty patients were approached and 30 patients agreed to participate in the intervention group.

Patient profile:
- Ages 36 to 83 years
- BP monitors: 7 manual and 23 wireless
- Smoking status: Current = 8; Former = 9; Never = 13
- Comorbidities: Diabetes = 25/30; Hyperlipidemia = 14/30; Obesity (BMI>30) = 21/30
- Baseline BP range 143-218 mmHg/74-131 mmHg

Workflow summary:

1. ELIGIBLE PATIENT OUTREACH (Interviewed in BBP program)
2. ENROLL PATIENT: Provide BP check and initial medication assessment
3. DOCUMENTATION: FME and include PGHD data connection
4. FOLLOW UP: Weekly or bimonthly interval
5. Return to usual care (office) for intervention

Active participants 70% (n=21) Nine out of 30 enrolled participants missed class 1 due to the time of class, illness, or other competing priorities.

Medication changes(≥1)
76% (n=21)

Types of medication barriers
100% (n=21)
Consultation, access, cost, reclassification, adherence, zero refills, pill burden, education, side effects profile.

Achieved BP goal (<140/90 mmHg)
80% (n=21)

Did not achieve BP goal 20% (n=21) They were referred on to enhanced ACM follow-up

Conclusions & Further Study
The program demonstrated positive and clinically significant outcomes. The hybrid “12 Weeks to Better Blood Pressure” model proved to be a cost effective group education model vs. individual intervention. Four patients received enhanced care post program completion because they did not meet the goal BP at program completion. Patients who achieved the clinic BP goal were returned to usual care. All patients were offered additional education resources through the UCD Health Management and Education department.

Next Steps:
- Program expansion to other UC Davis Health primary care clinics
- Ongoing curriculum development and education applying lessons learned
- Post “12 weeks to Better Blood Pressure” graduation follow-up at 1, 3, 6, and 12 months
- Capture data for patients receiving usual care (Group A) and enhanced usual care (Group B)
- Update resources for HTN management including HME website and community outreach
- Develop alternative webinar based Better Blood Pressure program to accommodate patients who cannot attend an in person class
- Further research to develop a hypertension medication agreement protocol per national guidelines

References

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