Share and Learn Webinar

Self-Measured Blood Pressure
December 15, 2020
WELCOME

• As you arrive, please enter the following into the chat box:
  ▪ Name
  ▪ Location
  ▪ Organization
Cardiovascular Disease Prevention

• Partnerships with Kaiser Permanente in Northern and Southern California to:
  ▪ Support community health organizations in reducing heart attacks and strokes in high-risk populations
  ▪ Improving clinical systems and processes
Today’s Agenda

- SMBP Survey Results
  - CCHE

- SMBP Peer Presentations
  - LA County DHS
  - Alameda Health Services

- Q&A
  - Please type your questions into the chat box

NOTE: Today’s webinar is being recorded and will be made available on the CCI website along with other materials presented today
Self-measured Blood Pressure Program Survey Results

12/15/2020

Center for Community Health and Evaluation
Survey methods

- As part of the PHASE and TC3 cardiovascular risk reduction programs funded by Kaiser Permanente Northern and Southern California, participating health centers and hospitals, and member health centers of participating consortia were asked to fill out a survey about virtual care strategies and SMBP implementation.
- The survey was fielded 11/2 through 11/20.

<table>
<thead>
<tr>
<th>Category</th>
<th>Responded</th>
<th>Potential respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital grantees</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Health center grantees</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Member health centers of consortia grantees</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total organizations</strong></td>
<td><strong>21</strong></td>
<td><strong>37</strong></td>
</tr>
</tbody>
</table>

57% response rate
**SMBP: Status of implementation**

**Takeaways:** 11 organizations (over half of respondents) are implementing a SMBP program, 7 are planning to implement a SMBP program in the next 6 months, and 3 do not have current plans.

**Status of SMBP implementation**

<table>
<thead>
<tr>
<th>Status</th>
<th>Yes</th>
<th>No, but we are planning to implement SMBP within the next 6 months</th>
<th>No, we do not have current plans to implement SMBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of total of respondents</td>
<td>n = 11</td>
<td>n = 7</td>
<td>n = 3</td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>40%</td>
<td></td>
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<tr>
<td>20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0%</td>
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<td></td>
</tr>
</tbody>
</table>
Takeaways: Organizations are at varying stages of developing and testing their SMBP workflows. Most respondents (n=8) indicated they have enrolled patients and are testing workflows; a few are in earlier stages of their program.

Other: Adapting workflows - “We are adapting workflows to post-Covid challenges of staffing changes and limitations. Nurses were doing patient education on home BP monitors, but many of our nurses have been deployed to support Covid work. Before Covid, we prioritized our B/AA patients to receive home BP cuffs; now, we need everyone to have one due to our shift to telehealth.”
SMBP program: Mode of receiving remote BP readings from patients

**Takeaways:** The most common method of reporting remote BP patient readings is by phone followed by video and in-person.

Reporting of remote BP patient readings
respondent can check all that apply

- Patient self-reports via phone: n = 10
- Patient self-reports via video: n = 6
- Patient self-reports in person: n = 6
- Patient self-reports via the patient portal: n = 2
- Wireless transmission (e.g., via Bluetooth technology): n = 1
- Other (please describe): n = 1

Other: no description
### SMBP program: Documenting remote patient readings

**Takeaways:** Almost half the programs (n = 5) are using or are training staff on a standardized process for recording remote patient BP readings. A few are working on standardizing their documentation process.

#### Documentation of remote patient BP readings

- **We have an established process for recording remote patient BP readings in our system that is consistently used**: n = 3
- **We are training staff on the standardized process for recording remote patient BP readings in our system**: n = 2
- **We are working to standardize the process of how patient BP readings are recorded in our system**: n = 2
- **We do not currently document data in a standardized way**: n = 2
- **Other (please describe)**: n = 2

Other: “Our EHR now can capture remote BP readings reported by patients; we lack a standard work and guidance for our providers to input this in our EHR system (We are working on developing this.)”; no description.
SMBP program: Organizations face a variety of challenges around implementing a SMBP program

The top challenges are related to patient education and staffing resources.

<table>
<thead>
<tr>
<th>Challenges (respondent chooses top 3)</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to confirm patient knowledge of BP measurement via teach-back demonstration</td>
<td>5</td>
</tr>
<tr>
<td>Staffing resources to support SMBP program</td>
<td>5</td>
</tr>
<tr>
<td>Documenting remote patient readings in our EHR</td>
<td>3</td>
</tr>
<tr>
<td>Identifying and enrolling patients in the SMBP program</td>
<td>2</td>
</tr>
<tr>
<td>Obtaining accurate remote patient readings</td>
<td>2</td>
</tr>
<tr>
<td>Securing funding for BP cuffs</td>
<td>2</td>
</tr>
<tr>
<td>Supplier challenges with acquiring BP cuffs</td>
<td>2</td>
</tr>
<tr>
<td>Prioritizing SMBP at the organizational/leadership level</td>
<td>1</td>
</tr>
<tr>
<td>Identifying appropriate disciplines (e.g., clinical pharmacist, RN, MA) needed to administer the SMBP workflow</td>
<td>0</td>
</tr>
<tr>
<td>Other (please describe)</td>
<td>5</td>
</tr>
</tbody>
</table>

Other:

“The telehealth component of doing virtual visits when showing how to use the monitor”
“Finding vendors to supply validated home BP cuffs in large amounts. Our last order of 500 cuffs are backordered more than three months.”
“Contacting patients and teaching them to take measurements at home correctly, getting patients to keep follow-up appointments and patients not being prepared for visits with BP readings”
“Ability to confirm teach back when doing virtual SMBP enrollment is challenging”
Early SMBP results show movement in three areas

SMBP programs show improved blood pressure control for those participating (n=3)

• “If patients consistently record BP values correctly and speak with someone about their results (4 visit model), their BP improves dramatically.”
• “Patients in our SMBP program have better blood pressure control than those who are not in the program.”

SMBP programs improve patient engagement and empowerment (n=3)

• “Empowers the patient to be a more active participant in monitoring and controlling their own Blood Pressure.”
• “Our patients are able to self-monitor, and we are able to adjust regimens in a more timely and patient centered way.”

An SMBP program that is combined with nurse titration protocols is a powerful tool for enhancing team-based care (n=1)

• "This program in the nurse directed clinic reduces the burden on the limited clinic slots available for providers."
• “Nurse development and pride are super high as a result of the program.”

Illustrative quotes are provided.
Thank you

Center for Community Health and Evaluation

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Taking Cardiovascular Care HOME:
Optimizing Care of Patients with Hypertension

Laura Myerchin Sklaroff, MA      Sandra Gross-Schulman, MD, MPH, RN      Jeffrey G. Guterman, MD, MS

December 15, 2020
Los Angeles County Department of Health Services

- More than 4,700 square miles
- Over 425,000 empaneled patients
  - Diverse (11% are African Americans and 64% are Latino/a/x)
  - High Burden of Illness (> 40% of patients have diabetes, heart failure, or asthma, and one or more other chronic conditions)
- 4 hospital campuses and 27 standalone ambulatory care facilities
- 1 Enterprise-wide EHR
Nurse-Executed, Standardized Procedure-Driven HTN Medication Titration

Aims
• Increase the patient percentage and speed to BP goal
• Empower RN Medication Titration independent of specific provider order
• Engage patients as a member of the care team

Approaches
• Home SMBP collection, reporting, and integration into EHR
• Remote and in-person visits
• Decision support built into EHR
• Add elbow support to traditional nurse education
Patient Collects SMBP and Pulse at Home

Patient enters data into ORCHID via MyWellness Portal

(Future State) BP Cuff directly transmits data to ORCHID

Nurse Reviews Data

Proxy collects data from mechanism and records it into ORCHID

Professionally measured BP and Pulse at clinic visit input into ORCHID

Communication of medication titration decision to patient and provider via secure mechanism (e.g., telephone, portal, and/or ORCHID message)

LAC DHS IDPC-approved HTN Standardized Procedures

SMBP captured as distinct elements in EHR

TCC HOME: SMBP Data Process Flow
Hypertension Medication Adjustment: Benazepril

Do not use this standardized procedure for medication titration and consult provider if patient is:
- Having their hypertension (HTN) managed by a cardiologist or nephrologist
- Has uncontrolled HTN and on at least 4 antihypertensive medications
- Has an eGFR less than 30 mL/min
- Has suspected or confirmed aortic stenosis
- Is pregnant (or becomes pregnant) or breastfeeding

If a patient is being actively titrated and is hospitalized for any reason, stop titration and message the provider to re-request nurse titration as appropriate.

If the patient has a rise from their baseline to a BP that is greater than systolic BP 180 mmHg or diastolic BP 120 mmHg, ask about symptoms of possible hypertensive emergency (e.g., headache, confusion, dizziness, blurred vision, facial drooping, slurred speech, numbness, weakness, chest pain, shortness of breath); if patient has symptoms of possible hypertensive emergency, notify provider immediately.

When was the last dose adjustment? 10/01/2020

What is the target BP?

- Provider specified
- Patient has diabetes, chronic kidney disease or cardiovascular disease: less than 130/80 mmHg
- All other patients: less than 140/90 mmHg

Systolic/Diastolic BP

140 / 70 mmHg

Go to Symptoms tab

By: AMBRNITTRA, Amb RN with

*Performed on: 11/30/2020

Lab View

Symptoms

Orthostatics

BP Used For Titration

Titration Decision

Medication Adjust

Orders and Action
Are there new Cr and K+ results since the last dose adjustment?

<table>
<thead>
<tr>
<th>Event Name</th>
<th>Event Result</th>
<th>DateTime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creatinine</td>
<td>0.8 mg/dL</td>
<td>11/12/20 07:41:00</td>
</tr>
<tr>
<td>Potassium</td>
<td>4 mmol/L</td>
<td>11/12/20 07:41:00</td>
</tr>
</tbody>
</table>

Baseline Cr: 0.75 mg/dL, 08/26/2019

Has the latest Cr increased by more than 30% from baseline?

<table>
<thead>
<tr>
<th>Baseline Cr</th>
<th>Latest Cr</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.75 mg/dL</td>
<td>0.8 mg/dL</td>
<td>7 %</td>
</tr>
</tbody>
</table>

Is the latest K+ more than the upper limit of normal (ULN)?

- Yes - do not titrate medication by SP; continue assessment and consult provider
- No

If patient in clinic, order Cr and K+ labs per local policy to obtain rapid results within 90 minutes or less; re-assess patient when results are available. If clinic unable to obtain results within 90 minutes or less or patient not in clinic, order routine Cr and K+ labs; reschedule assessment.

Save form till rapid results are available

Go to Education tab if routine Cr and K+ labs are ordered

Has the Cr increased by more than 30% from baseline?

- Baseline Cr: 
- Latest Cr: 
- Percent Change: 

- Yes - do not titrate medication by SP; continue assessment and consult provider
- No
BP Used For Titration Decision

Is the patient doing Self Measured Blood Pressure (SMBP)?

Yes ☐ No ☐

Does the patient have at least 2 SMBP values measured on 2 different days in the past week? (If there are only 2 SMBP in the past week, use a new SMBP or the lowest clinic-measured BP for 3rd value)

Yes ☐ No ☐

If No, go to Education tab

SMBP 1: 160 mmHg / 92 mmHg
SMBP 2: 164 mmHg / 88 mmHg

SMBP 3: [ ] mmHg / [ ] mmHg

Or

Clinic-measured BP: 158 mmHg / 84 mmHg

Comments:

Average SMBP: [ ] mmHg / [ ] mmHg
Average SMBP + Clinic BP: 157 mmHg / 81 mmHg

Clinic-measured BP: [ ] mmHg / [ ] mmHg
**Orders and Actions – Diagnosis: Hypertension**

**Reminder - do not titrate by SP if:**
1. The patient has symptoms of orthostasis and you are not able to obtain orthostatic vital signs now or orthostatic vital signs are consistent with orthostasis
2. The patient developed an intractable cough
3. There new Cr and K+ results since the last dose adjustment and the latest Cr increased by more than 30% from baseline or the latest K+ is more than the upper limit of normal (ULN)

**Adherence is Moderate or High. Select current dose for step up order recommendation**

**Daily dosing:**
- 5 mg PO Daily - step up to 10 mg PO Daily; re-assess in 12-28 days
- 10 mg PO Daily - step up to 20 mg PO Daily; re-assess in 12-28 days
- 20 mg PO Daily - step up to 40 mg PO Daily; re-assess in 12-28 days

**BID dosing:**
- 2.5 mg PO BID - step up to 5 mg PO BID; re-assess in 12-28 days
- 5 mg PO BID - step up to 10 mg PO BID; re-assess in 12-28 days
- 10 mg PO BID - step up to 20 mg PO BID; re-assess in 12-28 days

☐ Step-up dose replaces previous dose, previous dose discontinued, pharmacy and provider notified of both actions
☐ In the ‘Step Note to Pharmacy’ box, write the following message: Medication titrated to (close) mg on (date) and is replacing the (dose) mg dose; pharmacy informed
☐ If patient using outside pharmacy, pharmacy called and notified of change

**Labs - check labs 12-28 days after medication titration, prior to next assessment**

☐ Order Cr and K+ Labs

**Notes**

Insert notes here.
**Education Section**

**Medication Specific Education**

- Reinforce with pre-menopausal females who have not had a hysterectomy not to become pregnant while taking this medication.

**General HTN Patient Education - Educate patient on:**

- Importance of medication adherence and possible side effects of abrupt cessation of therapy (e.g., angina, myocardial infarction, worsening heart failure): confirm patient has enough medication to last until the next visit.
- Retting their prescriptions before they run out by using a calendar reminder tool.
- Refilling and using their pill box as specified.
- Setting up reminders such as a calendar, chart, alarm, color-coded medication reminders, using a smartphone app, asking friends or family, or trying to link taking their medication with something they do regularly at the same time each day.
- Symptoms of possible hypotensive emergency (e.g., headache, confusion, dizziness, blurred vision, facial drooping, slurred speech, numbness, weakness, chest pain, shakiness or breath).
- To contact staff for any perceived side effects, especially dizziness or lightheadedness.

**BP device and cuff given to patient on:**

- Patient trained on use of BP device and cuff.
- Patient has their own BP device and proper use reinforced.
- Hypertension patient packet (e.g., education materials) given and reviewed with patient.

- Confirm that patient has an upcoming appointment for titration.
- Inform Provider that patient is on maximum tolerated dose per standardized procedure.
- Inform Provider that patient's BP is at target.

**Additional Comments**

[Blank field for additional comments]
HTN Med Titration: Benzazepril Entered On: 12/05/2020 14:37 PST
Performed On: 12/05/2020 14:25 PST by AMBRNTITRA, Amb RN with Titration

Last Dose Adjustment and Target BP
When was the last dose adjustment?: 10/1/2020 PDT
What is the target BP?: Provider specified:
Systolic Blood Pressure: 140 mmHg
Diastolic Blood Pressure: 70 mmHg

Symptoms
Does the patient have symptoms of orthostasis?: Yes
Description: (e.g., feel the room is spinning, dizziness, lightheaded or feeling of fainting, fainting): dizziness
Symptom onset: Days ago
Pattern of symptoms: Episodic: how long does each episode last
Episode time: 10
Episode duration: Minutes
Provoking factors: head movement
Associated symptoms: none
Are you able to obtain orthostatic vital signs now?: Yes - perform orthostatic vital signs (if patient unable to stand safely, use sitting position)
Are the orthostatic vital signs results consistent with orthostasis?: No - continue assessment, inform provider of patient complaints
Is the patient pregnant or wants to become pregnant?: No
Has the patient developed an intractable cough?: No
Are there new Cr and K results since the last dose adjustment?: Yes
Baseline Creatinine: 0.75 mg/dL
Baseline Creatinine Date: 8/26/2019 PDT
Latest Cr: 0.8 mg/dL
Creatinine Percent change: 7%
Baseline Creatinine 2: 0.75 mg/dL
Has the latest Cr increased by more than 30% from baseline?: No
Potassium Level: 4.0 mmol/L
Is the latest K more than the upper limit of normal (ULN): No

Orthostatics
BP Position 1: Sitting
Systolic BP Position 1: 150 mmHg
Diastolic BP Position 1: 92 mmHg (Ht)
Pulse BP Position 1: 64 bpm
Time BP Position 1: 12:00 PST

AMBRNTITRA, Amb RN with Titration - 12/05/2020 14:25 PST
Key Drivers

Nurse Education and Elbow Support

HTN Standardized Procedures

HTN Medication Titration
EHR Integration
BP Cuff Distribution and SMBP Collection
Remote Visits
Patient Education and Self Management
Improved Clinic Workflow and Team Morale
Nurse Satisfaction

Outcomes

Key Outcome

Better Patient Outcomes
HTN (% and speed to control) and COVID-19 Safety

Processes
Implementation by the Numbers

- 4 Sites Live (4 on deck for TC3, becoming standard of care in LAC DHS)
- 13 RNs Trained (~13 on deck)
- 10 Hypertension Standardized Procedures (so far)

- October and November 2020 (from 3 sites and 6 SPs)
  - 67 Patients Referred and Enrolled
  - 60 (90%) Had a visit
  - 37 (62%) already at BP goal
Lessons Learned

• PDSA Cycles
  – Virtual and In-Person

• The Devil is in the Details
  – Taking paper-based SMBP Logbooks into our EHR

• Managed care assigned members vs engaged patients
“This has been a really positive experience both for me and the nurses. The level of autonomy and confidence in the RNs has been wonderful.”

“I am confident using HTN Protocols. Giving patients blood pressure machines for self monitoring is very effective. I think this is great so far for patient outcomes.”

“I am confident that with SPs we can do great with a diabetes titration clinic too.”

“It’s great that we are acknowledging that our RNs are capable of running these clinics.”

“What Frontline Staff Are Saying

“This clinic reduces the burden on the limited clinic slots available for providers.”

“Nurses are developing better relationships with the patients which only can improve overall outcomes.”
Questions?

Contact Info:
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Project Coordinator
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Alameda Health System - Highland Hospital SMBP Pilot

Natalie Curtis, MD
Eric Mahone, PharmD, BCACP
Pre-Pandemic SMBP in Primary Care at AHS

- Low usage (<10%) of SMBP
- No standardization:
  - Who? How? When?
- Provider dependent
- Inconsistent payer coverage of upper arm blood pressure monitoring devices
Alameda Health System’s 2020 Opportunity

• 90% In-person → 80-90% Telehealth
• Current climate: Financial, clinical, and ethical incentive for SMBP expansion

• Chronic Care Clinic
  • Multidisciplinary team embedded in Primary Care
    • Clinical Pharmacist
    • Registered Nurse
    • Medical Assistant

• Chronic Care provides DM and HTN medication management, education, and care coordination
• Well-positioned to impact vulnerable patients and test standardized process for SMBP
Epic workbench report identified patients active with Chronic Care (DM + Last BP >140/90) → Medical Assistant outreach (3 phone attempts) → Depending on payer – BP cuff ordering process initiated OR BP cuff provided → Telehealth or In-person visit scheduled (Visit #1) for BP cuff pick-up, teaching by LVN or RN
Visit #2 - BP review and Med Titration via telehealth in 1-2 weeks with RN or PharmD*

Visit #3 - BP review and Med Titration via telehealth in 1-2 weeks with RN or PharmD*

Visit #4 – Scheduled in-person with RN, PharmD, or PCP for BP validation and labs (as needed)

* If BP >180/100 mmHg then in-person visit scheduled
Patient and Staff Education

1) Patient materials
   • ‘Measure Your Blood Pressure’ – 1 page physical and electronic document
     • Link to AMA instructional video
     • SmartText created to embed content in visit notes

2) Standard Work Document for MA
   • Orientation/Tip sheet for Epic report
   • Scripting for outreach
   • Epic SmartPhrase for PCP notification
   • Instructions for scheduling

3) Standard Work Document for RN/PharmD
   • Overview of expected content for each visit
   • Reference Standardized Procedure for RN and Collaborative Practice Agreement for PharmD for HTN management
Highland Hospital SMBP Pilot Summary

• Pilot period: 5/1/20-10/31/20

• Report generated 91 patients:
  • Active Chronic Care Status + DM diagnosis + Last BP >140/90

• Highland Chronic Care team heavily involved with planning
  • Synergy with DM visits already occurring
  • Each part of the team owned a piece

• Reliance on in-person visits for initiating SMBP has the potential to widen disparities already present in HTN care at AHS
  • Race subgroup analysis for BP control and process metrics
Engagement Over Time - by race/ethnicity

Visit Guide
Visit #1 = Obtain cuff + education
Visit #2 = Telehealth BP readings + med titration
Visit #3 = Telehealth BP readings + med titration
Visit #4 = In-person BP recheck
Blood Pressure Control Over Time

Percent of Pts with BP at Goal

Visit 0: 0%
Visit 2: 60%
Visit 3: 55%
Visit 4: 75%
Patients with BP under Control

![Bar chart showing number of patients with blood pressure under control at different visits.](chart.png)

- **Visit 2**: 50 patients achieving goal blood pressure, 30 patients not.
- **Visit 3**: 44 patients achieving goal blood pressure, 24 patients not.
- **Visit 4**: 40 patients achieving goal blood pressure, 30 patients not.

Legend:
- Blue bar: Number of patients
- Orange bar: Number of patients with goal blood pressure
BP Control Over Time – Race/Ethnicity

Visit 0
Visit 2
Visit 3
Visit 4

Percent of Pts with BP at Goal
Black/AA
Latinx
Other
White
Asian
Bright Spots

• Achieved a higher rate of BP control than expected
• Patients were grateful for receipt of BP Cuffs
• All members of the care team (MA, RN, PharmD, LVN) were responsible and successful in engaging the patient
• Re-emphasized the importance of BP review along with DM data by our chronic care staff
• Reinforced RN autonomy with BP medication titration
Challenges/Areas for Improvement

• Long delays getting blood pressure cuffs via insurance plans
• Patients often didn’t want to come in for an in-person appointment
• Differential effect on engagement and BP control by race/ethnicity
• DM management during appointment sometimes took precedence over SMBP education
• Work with Health Plans to stock BP cuffs in clinic
• Distribute BP cuffs to all patients presenting for an in-person RN BP check
• Narrow race/ethnicity effect gap noted during pilot
• Will provide education to all providers that reinforces patient use of self monitoring BP at home and in-between visits.
Questions & Answers
Virtual Care Innovation Network
A Community Health Collaborative Founded by Kaiser Permanente

DEADLINE EXTENSION! APPLY BY JANUARY 13, 2021

To learn more, go to: https://www.careinnovations.org/virtual-care-2020/
Thank You

• The recording and materials from today’s webinar will be made available on CCI’s website