Report on a QI Project Eligible for MOC – ABMS Part IV and AAPA PI-CME

Improving Blood Pressure Management in the Domino’s Farms Metabolism, Endocrinology, and Diabetes (DF MEND) Clinic Population

Instructions

Determine eligibility. Before starting to complete this report, go to the Michigan Medicine MOC website [http://www.med.umich.edu/moc-qi/index.html], click on “Part IV Credit Designation,” and review sections 1 and 2. Complete and submit a “QI Project Preliminary Worksheet for Part IV Eligibility.” Staff from the Michigan Medicine Part IV MOC Program will review the worksheet with you to explain any adjustments needed to be eligible. (The approved Worksheet provides an outline to complete this report.)

Completing the report. The report documents completion of each phase of the QI project. (See section 3 of the website.) Final confirmation of Part IV MOC for a project occurs when the full report is submitted and approved.

An option for preliminary review (strongly recommended) is to complete a description of activities through the intervention phase and submit the partially completed report. (Complete at least items 1-20.) Staff from the Michigan Medicine Part IV MOC Program will provide a preliminary review, checking that the information is sufficiently clear, but not overly detailed. This simplifies completion and review of descriptions of remaining activities.

Questions are in bold font. Answers should be in regular font (generally immediately below or beside the questions). To check boxes, hover pointer over the box and click (usual “left” click).

For further information and to submit completed applications, contact either:
R. Van Harrison, PhD, Michigan Medicine Part IV Program Co-Lead, 734-763-1425, rvh@umich.edu
J. Kin, MHA, JD, Michigan Medicine Part IV Program Co-Lead, 734-764-2103, jkin@umich.edu
Ellen Patrick, Michigan Medicine Part IV Program Administrator, 734-936-9771, partivmoc@umich.edu

Report Outline

<table>
<thead>
<tr>
<th>Section</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Introduction</td>
<td>1-6. Current date, title, time frame, key individuals, participants, funding</td>
</tr>
<tr>
<td>B. Plan</td>
<td>7-10. Patient population, general goal, IOM quality dimensions, ACGME/ABMS competencies</td>
</tr>
<tr>
<td></td>
<td>11-13. Measures, baseline performance, specific aims</td>
</tr>
<tr>
<td></td>
<td>14-17. Baseline data review, underlying (root) causes, interventions, who will implement</td>
</tr>
<tr>
<td>C. Do</td>
<td>18. Intervention implementation date</td>
</tr>
<tr>
<td>D. Check</td>
<td>19-20. Post-intervention performance</td>
</tr>
<tr>
<td>E. Adjust – Replan</td>
<td>21-24. Post-intervention data review, underlying causes, adjustments, who will implement</td>
</tr>
<tr>
<td>F. Redo</td>
<td>25. Adjustment implementation date</td>
</tr>
<tr>
<td>H. Readjust plan</td>
<td>29-32. Post-adjustment data review, underlying causes, further adjustments, who will implement</td>
</tr>
<tr>
<td>I. Reflections &amp; plans</td>
<td>33-37. Barriers, lessons, best practices, spread, sustain</td>
</tr>
<tr>
<td>J. Participation for MOC</td>
<td>38-40. Participation in key activities, other options, other requirements</td>
</tr>
<tr>
<td>K. Sharing results</td>
<td>41. Plans for report, presentation, publication</td>
</tr>
<tr>
<td>L. Organization affiliation</td>
<td>42. Part of UMHS, AAVA, other affiliation with UMHS</td>
</tr>
</tbody>
</table>
QI Project Report for Part IV MOC Eligibility

A. Introduction

1. Date: 10/30/2018

2. Title of QI effort/project (also insert at top of front page): Improving Blood Pressure Management in the Domino’s Farms Metabolism, Endocrinology, and Diabetes (DF MEND) Clinic Population

3. Time frame
   a. MOC participation beginning date – date that health care providers seeking MOC began participating in the documented QI project (e.g. date of general review of baseline data, item #14c): 3/17/2017
   b. MOC participation end date – date that health care providers seeking MOC completed participating in the documented QI project (e.g., date of general review of post-adjustment data, item #29c): 7/13/2018

4. Key individuals
   a. QI project leader [also responsible for confirming individual’s participation in the project]
      Name: Matthew Johnson
      Title: Sr. Continuous Improvement Specialist
      Organizational unit: Department of Internal Medicine
      Phone number: 517-930-0751
      Email address: johmatth@med.umich.edu
      Mailing address: UH South Unit 4, Room F4323, SPC 5220, 1500 East Medical Center Dr., Ann Arbor, MI, 48109
   b. Clinical leader who oversees project leader regarding the project [responsible for overseeing/“sponsoring” the project within the specific clinical setting]
      Name: Jennifer Iyengar, M.D.
      Title: Clinical Assistant Professor
      Organizational unit: MEND, Dept of Internal Medicine
      Phone number: 734-647-5871
      Email address: jmacd@umich.edu
      Mailing address: 24 Frank Lloyd Wright Dr. SPC 0451 Ann Arbor, MI 48106

      Name: Jennifer Wyckoff, M.D.
      Title: Clinical Assistant Professor
      Organizational unit: MEND, Dept of Internal Medicine
      Phone number: 734-647-5871
      Email address: jwyckoff@umich.edu
      Mailing address: 24 Frank Lloyd Wright Dr. SPC 0451 Ann Arbor, MI 48106

5. Participants
   a. Approximately how many health care providers (by training level for physicians) participated in this QI effort (whether or not for MOC):
b. Approximately how many physicians (by specialty/subspecialty and by training level) and physicians’ assistants participated for MOC?

<table>
<thead>
<tr>
<th>Profession</th>
<th>Specialty/Subspecialty</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practicing Physicians</td>
<td>Endocrinology</td>
<td>35</td>
</tr>
<tr>
<td>Residents/Fellows</td>
<td>Endocrinology</td>
<td>0</td>
</tr>
<tr>
<td>Physicians’ Assistants</td>
<td>Internal Medicine</td>
<td>0</td>
</tr>
<tr>
<td>Nurses (APNP, NP, RN, LPN)</td>
<td>(Not applicable)</td>
<td>1</td>
</tr>
<tr>
<td>Other Licensed Allied Health (e.g., PT/OT, pharmacists, dieticians, social workers)</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

6. How was the QI effort funded? (Check all that apply.)

☒ Internal institutional funds (e.g., regular pay/work, specially allocated)
☐ Grant/gift from pharmaceutical or medical device manufacturer
☐ Grant/gift from other source (e.g., government, insurance company)
☐ Subscription payments by participants
☐ Other source (describe):

The Multi-Specialty Part IV MOC Program requires that QI efforts include at least two linked cycles of data-guided improvement. Some projects may have only two cycles while others may have additional cycles – particularly those involving rapid cycle improvement. The items below provide some flexibility in describing project methods and activities. If the items do not allow you to reasonably describe the steps of your specific project, please contact the UMHS Part IV MOC Program Office.

B. Plan

7. Patient population. What patient population does this project address (e.g., age, medical condition, where seen/treated): This quality improvement project addresses the Domino’s Farm’s Metabolism, Endocrinology, and Diabetes (DF MEND) ambulatory care site. All patients who are seeing an endocrinology provider and have either Type 1 or Type 2 diabetes mellitus were included in this quality improvement project.

8. General purpose.

a. Problem with patient care (“gap” between desired state and current state)

(1) What should be occurring and why should it occur (benefits of doing this)?

It is important that patients receive an accurate blood pressure reading during their endocrinology clinic visit. High blood pressure can lead to cardiovascular disease, kidney disease, and/or stroke. An accurate blood pressure reading is necessary in order to diagnose hypertension and to make the proper decision on medical interventions to lower patients’ blood pressure when they have been diagnosed. In
the clinic setting, **Blood pressure measurement should follow standardized measurement techniques to assure accuracy.**

Further, once a patient has been diagnosed with high blood pressure, it is important to be able to follow up on their blood pressure management and to make necessary adjustments.

(2) **What is occurring now and why is this a concern (costs/harms)?**

**Blood pressure measurements are not sufficiently accurate.** We believe there is a gap in accuracy of blood pressure measurements in our clinic due to the location/timing of the blood pressure checks and the lack of rechecks when an initial blood pressure reading is abnormal.

Initial blood pressure measurements may be artificially high because they are conducted at the ambulatory clinic intake bays. The intake bays are also the location of blood draws for A1c and glucose checks, in addition to a temperature check and insulin pump downloads. This care setting is less than ideal for measuring blood pressure because patients are moving around and potentially stressed by the blood draw which could translate to skewed, high blood pressure readings. It is recommended that patients sit quietly for 5 min before the blood pressure is taken, however, this does not happen in our current blood pressure check workflow.

When an initial blood pressure measure is high, the measure should be repeated later in the visit to confirm that the high measure is accurate. However, the blood pressures in our clinic were not routinely being rechecked to verify accuracy.

Inaccurately high initial blood pressure readings result in two problems for patient care:
- High blood pressure readings that are not rechecked and verified could potentially result in more patients being classified as hypertensive than is appropriate, causing inappropriate blood pressure medication prescribing and adjustments.
- Some physicians may believe the readings are inaccurate and ignore high blood pressure measurements, resulting inadequate care for patients who actually have high blood pressure.

**Follow-up to manage high blood pressure is not optimal.** For high blood pressure in patients whose readings have been verified through rechecks, we don’t currently have an effective, efficient system for follow-up care. Typically, in our clinic patients are seen by their physician for diabetes management once every 3 months. If an adjustment is made to a blood pressure medication, usually a full 3 months pass before the patient is back in clinic to see if blood pressure has improved and if any further titration is required.

**Project goal. What general outcome regarding the problem should result from this project?**

The primary project goals are to:
1) Improve the accuracy of initial blood pressure measurement in the MEND clinic;
2) Increase the recheck rate for blood pressures initially found to be high in clinic to verify accuracy; and
3) Close the gap in our system of blood pressure follow up for clinic patients with verified high blood pressures.

We believe improvement in these three areas will result in better blood pressure control for our patient population, as reflected by a statistically significant drop in blood pressure values and an overall increase in the percentage of the diabetes population in the DF MEND clinic meeting our institutional goal of < 140/90.

9. **Which Institute of Medicine Quality Dimensions are addressed?**  [Check all that apply.]  

☒ Effectiveness  ☐ Equity  ☒ Safety
10. Which ACGME/ABMS core competencies are addressed? (Check all that apply.)

☒ Patient Care and Procedural Skills ☒ Medical Knowledge
☒ Practice-Based Learning and Improvement ☐ Interpersonal and Communication Skills
☐ Professionalism ☒ Systems-Based Practice

11. Describe the measure(s) of performance: (QI efforts must have at least one measure that is tracked across the two cycles for the three measurement periods: baseline, post-intervention, and post-adjustment. If more than two measures are tracked, copy and paste the section for a measure and describe additional measures.)

Measure 1

Name of measure: Percent of patients with initial blood pressure measurement at goal (<140/90) for their most recent encounter in the DF MEND clinic during the specified time interval

• Measure components – describe the:

  Denominator: Number of unique patients with diabetes seen in MEND clinic during the time interval. Each patient was only counted once. If patient was seen multiple times during the specified time interval only the most recent encounter was included.

  Numerator: Number of these patients whose initial blood pressure measurement during the visit encounter was at goal. To be considered at goal the patient had to have a systolic blood pressure (SBP) <140 AND a diastolic blood pressure (DBP) <90.

• The source of the measure is:

  ☒ An external organization/agency, which is (name the source): HEDIS
  ☐ Internal to our organization and it was chosen because (describe rationale):

• This is a measure of:

  ☐ Process – activities of delivering health care to patients
  ☒ Outcome – health state of a patient resulting from health care

Measure 2

• Name of measure: High blood pressure recheck rate. This is the percent of patients whose blood pressure during the visit encounter was initially elevated who had their blood pressure repeated.

• Measure components – describe the:

  Denominator: Number of unique patients with diabetes seen in MEND clinic during the time interval who had high blood pressure (SBP ≥140 OR DBP ≥90) on initial check during the most recent visit encounter. Each patient was only counted once. If the patient was seen multiple times during the specified time interval only the most recent encounter was included.
Numerator: Number of these patients with a 2nd BP measurement performed during the encounter

- **The source of the measure is:**
  - ☒ Internal to our organization and it was chosen because *(describe rationale):* It is an appropriate process metric to determine if we are acting to verify BP accuracy.

- **This is a measure of:**
  - ☒ Process – activities of delivering health care to patients
  - ☐ Outcome – health state of a patient resulting from health care

**Measure 3**

- **Name of measure:** Percent of patients with either a first OR second BP reading at goal (<140/90)

- **Measure components – describe the:**
  - Denominator: Number of unique patients with diabetes seen in MEND clinic during the time interval. Each patient was only counted once. If patient was seen multiple times during the specified time interval only the most recent encounter was included.

  Numerator: Number of these patients whose blood pressure was at goal on either the first OR second measurement in that visit encounter. To be considered at goal the patient had to have a systolic blood pressure (SBP) <140 AND a diastolic blood pressure (DBP) <90.

- **The source of the measure is:**
  - ☒ An external organization/agency, which is *(name the source):* HEDIS

- **This is a measure of:**
  - ☒ Outcome – health state of a patient resulting from health care

12. **Baseline performance**

   a. **What were the beginning and end dates for the time period for baseline data on the measure(s)?**

      Baseline data were collected from 1/1/2016 to 12/31/2016

   b. **What was (were) the performance level(s) at baseline?** *Display in a data table, bar graph, or run chart (line graph). Can show baseline data only here or refer to a display of data for all time periods attached at end of report. Show baseline time period, measure names, number of observations for each measure, and performance level for each measure.*
<table>
<thead>
<tr>
<th>Measures</th>
<th>Baseline (1/1/2016-12/31/2016)</th>
<th>Post-Intervention (6/7/2017-10/31/2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of unique patients evaluated in MEND clinic during specified time frame</td>
<td>N = 4,814</td>
<td>N = 3,271</td>
</tr>
<tr>
<td>Number and % of patients with initial BP at goal &lt;140/90</td>
<td>NA</td>
<td>N = 2,352</td>
</tr>
<tr>
<td></td>
<td></td>
<td>71.9%</td>
</tr>
<tr>
<td>Number and % of patients with initial BP above goal (SBP ≥140 OR DBP ≥90)</td>
<td>NA</td>
<td>N = 918</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28.1%</td>
</tr>
<tr>
<td>Number and % of patients with initial BP &gt;140/90 who had a second BP measurement</td>
<td>NA</td>
<td>N = 118</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.9%</td>
</tr>
<tr>
<td>Of those with a second BP measurement, number and % where the second reading was at goal (BP &lt; 140/90)</td>
<td>NA</td>
<td>N = 40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>33.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(40/118)</td>
</tr>
<tr>
<td>Number and % of patients with BP at goal on the first OR second reading</td>
<td>N = 3,493</td>
<td>N = 2,392</td>
</tr>
<tr>
<td></td>
<td>72.6%</td>
<td>73.1%</td>
</tr>
<tr>
<td></td>
<td>(3493/4814)</td>
<td>(2392/3271)</td>
</tr>
</tbody>
</table>

13. Specific performance aim(s)/objective(s)

a. **What is the specific aim of the QI effort?** The specific aim of the QI effort is to increase the percentage of patients seen in the DF MEND clinic who have their blood pressure <140/90 to 75%.

b. **How were the performance targets determined, e.g., regional or national benchmarks?**
   - Ambulatory care benchmarks have outlined blood pressure performance across the institution. Our performance target aligns with UMMG (University of Michigan Medical Group) 90th percentile goal.
   - Our performance target is also in line with HEDIS recommendations:
     - Patients 18–59 years of age BP goal <140/90 mm Hg.
     - Patients 60–85 years of age with a diagnosis of diabetes BP goal is <140/90 mm Hg.

14. Baseline data review and planning. Who was involved in reviewing the baseline data, identifying underlying (root) causes of problem(s) resulting in these data, and considering possible interventions (“countermeasures”) to address the causes? *(Briefly describe the following.)*

a. **Who was involved?** All MEND faculty

b. **How?** MEND faculty meeting

c. **When?** 3/17/2017
15. What were the primary underlying/root causes for the problem(s) at baseline that the project can address?

Inaccurate Measurement: Current location of blood pressure measurements is believed to not be conducive to receiving an accurate blood pressure reading.

16. What intervention(s) addressed this cause?

Purchased additional blood pressure machines and moved measurement from the clinic intake bays to each individual exam room. Created standard work process, incorporating recommended guidelines for measurement, to perform consistent blood pressure measurements across the practice.

17. Who was involved in carrying out each intervention? (List the professions/roles involved.)

All physicians and MAs in MEND clinic were responsible for learning the new workflow and for ensuring that the blood pressures performed on their patients were performed in a manner consistent with the new workflow process. Procurement of additional blood pressure machines was performed by physician leads, performance improvement consultant, and clinic manager.

Reproducibility: Lack of repeat measurement to verify reproducibility of initial high blood pressure measurement

18. By what date was (were) the intervention(s) initiated? (If multiple interventions, date by when all were initiated.)


19. Post-intervention performance measurement. Are the population and measures the same as those for the collection of baseline data (see items 10 and 11)?

☐ Yes  ☒ No – If no, describe how the population or measures differ:
Measure 1 is the same. We added 2 additional measures during this time frame (see question 11 for measures 2 and 3).

20. Post-intervention performance

a. What were the beginning and end dates for the time period for post-intervention data on the measure(s)?

6/7/2017 – 10/31/2017

Note: If additional causes were identified that are to be addressed, insert additional rows.

C. Do

D. Check
b. What was (were) the overall performance level(s) post-intervention?

<table>
<thead>
<tr>
<th>Measures</th>
<th>Baseline (1/1/2016-12/31/2016)</th>
<th>Post-Intervention (6/7/2017-10/31/2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of unique patients evaluated in MEND clinic during specified time frame</td>
<td>N = 4,814</td>
<td>N = 3,271</td>
</tr>
<tr>
<td>Number and % of patients with initial BP at goal &lt;140/90</td>
<td>NA</td>
<td>N = 2,352</td>
</tr>
<tr>
<td></td>
<td></td>
<td>71.9%</td>
</tr>
<tr>
<td>Number and % of patients with initial BP above goal (SBP ≥140 OR DBP ≥90)</td>
<td>NA</td>
<td>N = 918</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28.1%</td>
</tr>
<tr>
<td>Number and % of patients with initial BP &gt;140/90 who had a second BP measurement</td>
<td>NA</td>
<td>N = 118</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.9%</td>
</tr>
<tr>
<td>Of those with a second BP measurement, number and % where the second reading was at goal (BP &lt; 140/90)</td>
<td>NA</td>
<td>N = 40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>33.9% (40/118)</td>
</tr>
<tr>
<td>Number and % of patients with BP at goal on the first OR second reading</td>
<td>N = 3,493 72.6% (3493/4814)</td>
<td>N = 2,392 73.1% (2392/3271)</td>
</tr>
</tbody>
</table>

c. Did the intervention(s) produce the expected improvement toward meeting the project’s specific aim (item 13.a)?

No, there was not a difference between the 2 timepoints with respect to percentage of patients with BP at goal <140/90. However, we noticed that during the post-intervention time frame the rate of repeat BP measurements was low. Among those who did get a second BP measurement a substantial portion were at goal on the second reading. So although we did not get the desired outcome, the post-intervention data was very important in guiding the second cycle of this project.

E. Adjust – Replan

21. Post-intervention data review and further planning. Who was involved in reviewing the post-intervention data, identifying underlying (root) causes of problem(s) resulting in these new data, and considering possible interventions (“countermeasures”) to address the causes? (Briefly describe the following.)

a. Who was involved? (e.g., by profession or role)
   - ☒ Same as #14? ☐ Different than #14 (describe):

b. How? (e.g., in a meeting of clinic staff)
   - ☒ Same as #14? ☐ Different than #14 (describe):

c. When? (e.g., date(s) when post-intervention data were reviewed and discussed)
   MEND faculty meeting 8/18/2017, 10/20/2017
Use the following table to outline the next plan that was developed: #22 the primary causes, #23 the adjustments(s)/second intervention(s) that addressed each cause, and #24 who carried out each intervention. This is a simplified presentation of the logic diagram for structured problem solving explained at http://ocpd.med.umich.edu/moc/process-having-part-iv-credit-designation in section 2a.

Note: Initial intervention(s) occasionally result in performance achieving the targeted specific aims and the review of post-intervention data identifies no further causes that are feasible or cost/effective to address. If so, the plan for the second cycle should be to continue the interventions initiated in the first cycle and check that performance level(s) are stable and sustained through the next observation period.

<table>
<thead>
<tr>
<th>22. What were the primary underlying/root causes for the problem(s) following the intervention(s) that the project can address?</th>
<th>23. What adjustments/second intervention(s) addressed this cause?</th>
<th>24. Who was involved in carrying out each adjustment/second intervention? (List the professions/roles involved.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rechecks are not consistently occurring. This was thought to be for 2 reasons</td>
<td>Introduced a “Best Practice Advisory” alert (BPA) to identify high blood pressure patients and provide an active reminder upon entry of the 1st blood pressure to recheck the patient. When the blood pressure recheck was due, the MAs were allowed to perform the recheck even if the physician had started seeing the patient.</td>
<td>All MEND Physicians were responsible for ensuring that blood pressure measurements were repeated in their patients when the first measurement was high. MAs were responsible for measuring the blood pressure and entering one or more blood pressure readings into the electronic medical record.</td>
</tr>
<tr>
<td>1) Individuals working in the clinic are busy and do not remember to do the recheck. 2) By the time the recheck should occur the physician was already in the room seeing the patient and the MAs did not want to interrupt.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of follow-up for medication adjustment: Many patients with high blood pressure readings in the presence of repeated checks at clinic visit do not get appropriate follow-up. Either their medication was not titrated during the clinic visit or there was no follow-up planned after a medication adjustment was made.</td>
<td>Created a follow-up clinic, staffed by pharmacists, for patients to get follow-up medication adjustment and to assess for improvement in blood pressure. The new BPA included an option to refer patients to the blood pressure follow-up clinic if the suggested referral order was signed by the physician.</td>
<td>MEND Physicians are responsible for referring patients to the clinic as suggested by the BPA when deemed clinically appropriate. Pharmacists in the Blood Pressure Follow-up Clinic serve as extenders in providing follow up care, including education and titration of medication.</td>
</tr>
</tbody>
</table>

Note: If additional causes were identified that are to be addressed, insert additional rows.

F. Redo

25. By what date was (were) the adjustment(s)/second intervention(s) initiated?  (If multiple interventions, date by when all were initiated.)

G. Recheck

26. Post-adjustment performance measurement. Are the population and measures the same as indicated for the collection of post-intervention data (item #21)?
   ☒ Yes  ☐ No – If no, describe how the population or measures differ:

27. Post-adjustment performance

a. What were the beginning and end dates for the time period for post-adjustment data on the measure(s)?

b. What was (were) the overall performance level(s) post-adjustment?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of unique patients evaluated in MEND clinic during specified time frame</td>
<td>N = 4,814</td>
<td>N = 3,271</td>
<td>N = 3,802</td>
</tr>
<tr>
<td>Number and % of patients with initial BP at goal &lt;140/90</td>
<td>NA</td>
<td>N = 2,352</td>
<td>N = 2,729</td>
</tr>
<tr>
<td></td>
<td></td>
<td>71.9%</td>
<td>71.8%</td>
</tr>
<tr>
<td>Number and % of patients with initial BP above goal (SBP ≥140 OR DBP ≥90)</td>
<td>NA</td>
<td>N = 918</td>
<td>N = 1073</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28.1%</td>
<td>28.2%</td>
</tr>
<tr>
<td>Number and % of patients with initial BP &gt;140/90 who had a second BP measurement</td>
<td>NA</td>
<td>N=118</td>
<td>N =383</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.9%</td>
<td>35.7%</td>
</tr>
<tr>
<td>Of those with a second BP measurement, number and % where the second reading was at goal (BP &lt;140/90)</td>
<td>NA</td>
<td>N=40</td>
<td>N=186</td>
</tr>
<tr>
<td></td>
<td></td>
<td>33.9%</td>
<td>48.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(40/118)</td>
<td>(186/383)</td>
</tr>
<tr>
<td>Number and % of patients with BP at goal on the first OR second reading</td>
<td>N = 3,493</td>
<td>N=2392</td>
<td>N=2915</td>
</tr>
<tr>
<td></td>
<td>72.6%</td>
<td>73.1%*</td>
<td>76.7%*</td>
</tr>
<tr>
<td></td>
<td>(3493/4814)</td>
<td>(2392/3271)</td>
<td>(2915/3802)</td>
</tr>
</tbody>
</table>

*Statistically significant p<0.01 using Chi-squared test

c. Did the adjustment(s) produce the expected improvement toward meeting the project’s specific aim (item 13.a)?

   Yes. Our institutional benchmark (University of Michigan Medical Group 90th percentile goal) for blood pressure is based on the most recent clinic reading (i.e. if multiple blood pressures are taken during a clinic visit the most recent reading is used to determine if the patient is at goal). If we look at patients who had their BP at goal on either the first OR second blood pressure reading taken during their most recent MEND clinic visit we achieved our target of 75%.

28. Summary of individual performance
   a. Were data collected at the level of individual providers so that an individual’s performance on target measures could be calculated and reported?
H. Readjust

29. Post-adjustment data review and further planning. Who was involved in reviewing the post-adjustment data, identifying underlying (root) causes of problem(s) resulting in these new data, and considering possible interventions (“countermeasures”) to address the causes? (Briefly describe the following.)

a. Who was involved? (e.g., by profession or role)
   ☒ Same as #21?
   ☐ Different than #21 (describe):

b. How? (e.g., in a meeting of clinic staff)
   ☒ Same as #21?
   ☐ Different than #21 (describe):

c. When? (e.g., date(s) when post-adjustment data were reviewed and discussed)
   MEND faculty meeting 7/13/2018

Use the following table to outline the next plan that was developed: #30 the primary causes, #31 the adjustments(s)/second intervention(s) that addressed each cause, and #32 who would carry out each intervention. This is a simplified presentation of the logic diagram for structured problem solving explained at [http://ocpd.med.umich.edu/moc/process-having-part-iv-credit-designation](http://ocpd.med.umich.edu/moc/process-having-part-iv-credit-designation) in section 2a.

Note: Adjustments(s) may result in performance achieving the targeted specific aims and the review of post-adjustment data identifies no further causes that are feasible or cost/effective to address. If so, the plan for a next cycle could be to continue the interventions/adjustments currently implemented and check that performance level(s) are stable and sustained through the next observation period.

<table>
<thead>
<tr>
<th>30. What were the primary underlying/root causes for the problem(s) following the adjustment(s) that the project can address?</th>
<th>31. What further adjustments/intervention(s) might address this cause?</th>
<th>32. Who would be involved in carrying out each further adjustment/intervention? (List the professions/roles involved.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure rechecks are still only occurring in a third of patients with high blood pressures</td>
<td>Breaking down information at the level of the individual medical assistants may identify MAs who are following workflow and MAs who are not adhering to workflow.</td>
<td>All MEND physicians, QI project lead, Clinic Manager</td>
</tr>
</tbody>
</table>

Note: If additional causes were identified that are to be addressed, insert additional rows.

33. Are additional PDCA cycles to occur for this specific performance effort?
   ☒ No further cycles will occur.
   ☐ Further cycles will occur, but will not be documented for MOC. If checked, summarize plans:

   ☐ Further cycles will occur and are to be documented for MOC. If checked, contact the UM Part IV MOC Program to determine how the project’s additional cycles can be documented most practically.
I. Reflections and Future Actions

34. Describe any barriers to change (i.e. problems in implementing interventions listed in #16 and #23) that were encountered during this QI effort and how they were addressed.

- We initially did not have enough blood pressure cuffs in order to move blood pressure checks from the bays to the exam rooms. The QI project lead observed the existing workflow and identified the number of patients who are roomed in any given hallway at one time. Based off this we were able to estimate and procure the number of blood pressure cuffs we needed.
- Physicians were often in the room seeing the patient by the time the second blood pressure was due. This made some MAs hesitant to interrupt and check the blood pressure. We thus discussed a policy in faculty meeting where we agreed MAs should knock on the door for blood pressure rechecks even if the physician is in the room seeing the patient.

35. Describe any key lessons that were learned as a result of the QI effort.

- Timing of blood pressure measurement within the patient rooming workflow did not affect the percentage of patients with blood pressure at goal. Repeat blood pressure measurements had a much larger effect on the percentage of patients achieving the target blood pressure.
- We were surprised to see that so few patients with high blood pressures had their blood pressure repeated during the clinic visit even though this was part of the blood pressure workflow. A lesson learned was that adherence to workflow needs to be monitored.

36. Describe any best practices that came out of the QI effort.

The project required careful analysis of equipment needs (BP cuffs) which are very expensive. A simulation analysis was conducted to determine the amount of cuffs required to not slowdown clinic flow while not over purchasing expensive equipment. This model will likely be used in the future for similar analyses to reduce wasteful spending.

37. Describe any plans for spreading improvements, best practices, and key lessons.

- We plan to write a manuscript to disseminate what we have learned

38. Describe any plans for sustaining the changes that were made.

The BPA monitors compliance overtime and results are reviewed monthly to ensure sustainment. This effort is done by the practice clinic manager on monthly basis and the reports are provided by ambulatory care. Additionally, overall health system wide metrics are used to monitor MEND blood pressures on a monthly basis which also monitors the clinical outcome, not just the process level metrics of the BPA.

J. Minimum Participation for MOC

39. Participating directly in providing patient care.

a. Did any individuals seeking MOC participate directly in providing care to the patient population?

☒ Yes ☐ No If “No,” go to item #39.

b. Did these individuals participate in the following five key activities over the two cycles of data-guided improvement?

- Reviewing and interpreting baseline data, considering underlying causes, and planning intervention as described in item #14.
- Implementing interventions described in item #16.
– Reviewing and interpreting post-intervention data, considering underlying causes, and planning intervention as described in item #21.
– Implementing adjustments/second interventions described in item #23.
– Reviewing and interpreting post-adjustment data, considering underlying causes, and planning intervention as described in item #29.

☒ Yes ☐ No If “Yes,” individuals are eligible for MOC unless other requirements also apply and must be met – see item # 40.

40. Not participating directly in providing patient care.

a. Did any individuals seeking MOC not participate directly in providing care to the patient population?

☐ Yes ☒ No If “No,” go to item 40.

b. Were the individual(s) involved in the conceptualization, design, implementation, and assessment/evaluation of the cycles of improvement? (E.g., a supervisor or consultant who is involved in all phases, but does not provide direct care to the patient population.)

☐ Yes ☐ No If “Yes,” individuals are eligible for MOC unless other requirements also apply and must be met – see item # 40. If “No,” continue to #39c.

c. Did the individual(s) supervising residents or fellows throughout their performing the entire QI effort?

☐ Yes ☐ No If “Yes,” individuals are eligible for MOC unless other requirements also apply and must be met – see item # 40.

41. Did this specific QI effort have any additional participation requirement for MOC? (E.g., participants required to collect data regarding their patients.)

☐ Yes ☒ No If “Yes,” describe:

Individuals who want their participation documented for MOC must additionally complete an attestation form, confirming that they met/worked with others as described in this report and reflecting on the impact of the QI initiative on their practice or organizational role. Following approval of this report, the UMHS QI MOC Program will send to participants an email message with a link to the online attestation form.

K. Sharing Results

42. Are you planning to present this QI project and its results in a:

☐ Yes ☒ No Formal report to clinical leaders?

☐ Yes ☒ No Presentation (verbal or poster) at a regional or national meeting?

☒ Yes ☐ No Manuscript for publication?

L. Project Organizational Role and Structure

43. UMHS QI/Part IV MOC oversight – indicate whether this project occurs within UMHS, AAVA, or an affiliated organization and provide the requested information.

☒ University of Michigan Health System

• Overseen by what UMHS Unit/Group? (name): Department of Internal Medicine, Quality and Innovation Program
• Is the activity part of a larger UMHS institutional or departmental initiative?
  ☒ No  ☐ Yes – the initiative is *(name or describe)*:

☐ Veterans Administration Ann Arbor Healthcare System
  • Overseen by what AAVA Unit/Group? *(name)*:
  • Is the activity part of a larger AAVA institutional or departmental initiative?
    ☐ No  ☐ Yes – the initiative is:

☐ An organization affiliated with UMHS to improve clinical care
  • The organization is *(name)*:
  • The type of affiliation with UMHS is:
    ☐ Accountable Care Organization *(specify which member institution)*:
    ☐ BCBSM funded, UMHS lead state-wide Collaborative Quality Initiative *(specify which)*:
    ☐ Other *(specify)*: