Improving Hypertension Management at Moncure Community Health Center

Robert Corty, PhD[1], Angelia Flanagan, MD[2], Joan East, MD[2], Nicholas Alexander, RN[2], Jan Lee Santos, MD[2]
1: University of North Carolina, School of Medicine, Chapel Hill, NC, 2: Piedmont Health Services, Carrboro, NC

Background

- Hypertension causes an increased risk of coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral vascular disease, vision loss, chronic kidney disease, and dementia [1].
- Over 75 million American adults have hypertension [2].
- 54% of patients with hypertension are not well-controlled [3].
- The HRSA, an agency of the Department of Health and Human Services provides a meaningful source of income for the clinic and has defined quality metric `CMS165v6` for 2018 as:
- "The percentage of patients 18–85 years of age who had a diagnosis of hypertension and whose blood pressure (BP) was adequately controlled (less than 140/90 mmHg) during the measurement period."
- Further, more technical definition is available at `https://ecqi.healthit.gov/ecqm/measures/cms165v6`.
- Additionally, one of Moncure Community Health Center's 2018 quality goals is to improve hypertension management.

Aims

- I aim to improve hypertension management by improving the quality of clinical information that providers use to guide that management.
- Automated initial blood pressure measurements often overestimate the patient's resting blood pressure due to the exercise and stress involved in transportation and registration [4].
- Clinic policy states that any patient with systolic blood pressure >140 or diastolic blood pressure >90 on initial measurement should be roomed, allowed to relax for 10 minutes, and then the blood pressure should be rechecked. But this policy is not always followed.
- I aim to increase adherence to this policy to 50% by June 1, 2018.
- At the start of this project, the clinic did not have a reliable way to assess adherence to the policy, so I also aimed to develop a system to accurately measure adherence.

Methods

- I conducted two PDSA cycles.
- PDSA 1: I presented the clinical guidelines at the monthly all-hands meeting in March. I described to all providers and medical assistants (MA's) what the clinic policy is, why it is important, and how to code rechecks into the EMR.
- PDSA 2: For one week, when I had time between patients, I scanned the encounters that had started in the last hour and checked for cases where the policy was not followed. When I identified such a case, I asked the responsible MA why it was not followed. Frequently, the blood pressure *had* been rechecked but was not entered into the EMR correctly. In these cases, I walked through the correct way to enter the data with the MA.

References

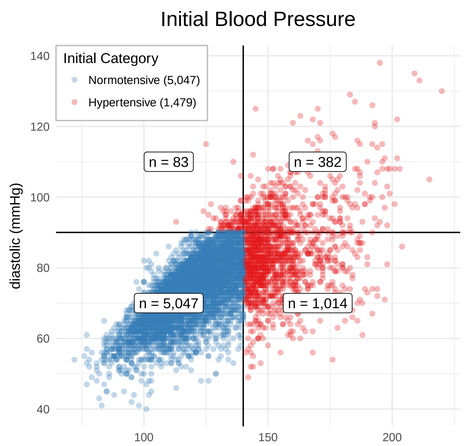
[1] CDC. NCHS. *Underlying Cause of Death 1999-2013 on CDC WONDER Online Database.* 2015.

[2] Tatiana Nwankwo et al. "Hypertension among adults in the United States: National Health and Nutrition Examination Survey, 2011-2012." In: *NCHS Data Brief* 133 (2013), pp. 1–8.

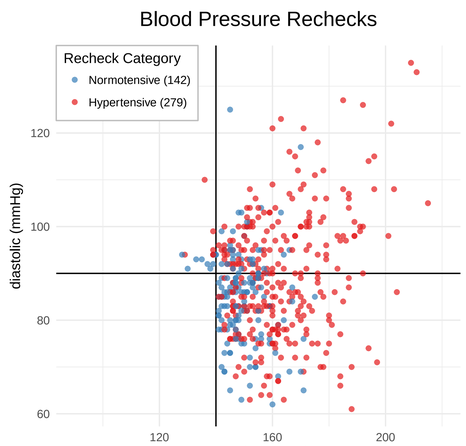
[3] Thomas A Farley et al. "Deaths Preventable in the U.S. by Improvements in Use of Clinical Preventive Services". In: *Am. J. Prev. Med.* 38.6 (2010), pp. 600–609.

[4] J J Cienki, L A DeLuca, and N Daniel. "The Validity of Emergency Department Triage Blood Pressure Measurements". In: *Acad Emerg Med* 11.3 (2004), pp. 237–243.

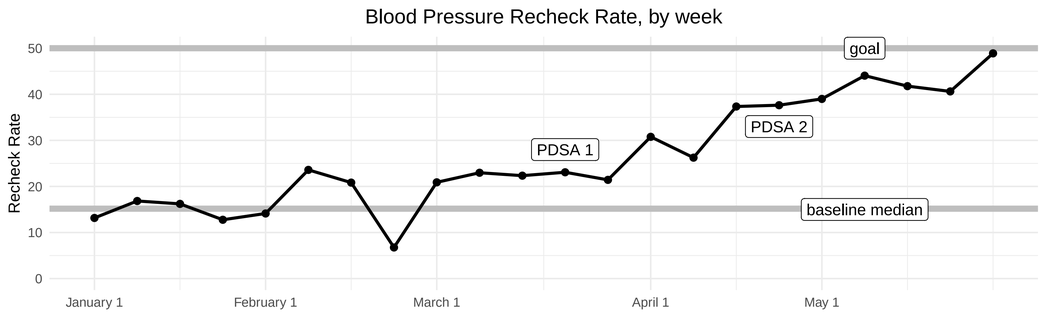
Results



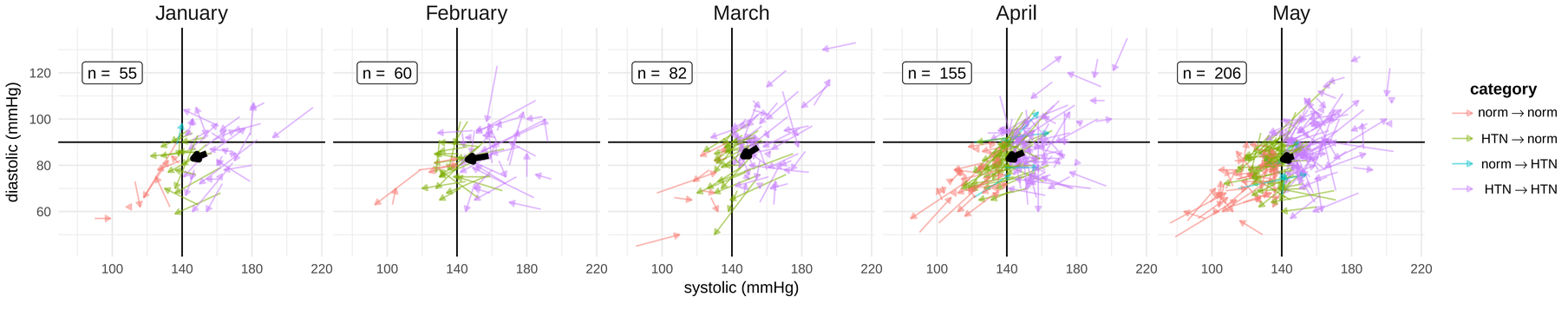
Of the 6,526 encounters during the project period, 1,479 (23%) had hypertensive initial blood pressure measurements (red dots). Of those encounters, 1,014 (68%) had isolated systolic dysfunction (bottom right quadrant).



Of the 421 times that a hypertensive patient had their initial blood pressure rechecked 142 of them (34%) were normotensive on recheck, indicating that the initial blood pressure was falsely elevated.



The percent of encounters where blood pressure recheck was indicated that had the recheck completed and documented correctly has increased substantially over the course of 2018. From an initial rate of 15% in January, the rate increased to 49% in the last week of May.



Each arrow represents one encounter where a blood pressure recheck was conducted. The arrow starts at the initial blood pressure and ends at the recheck blood pressure. It is evident that, month by month, more rechecks were conducted. Arrows are colored based on the classification of the original and recheck blood pressure. Of interest, green arrows indicate encounters where the initial blood pressure was hypertensive and the recheck was normotensive. The heavy, black arrow indicates the average of all arrows in a given subplot. Notably, in all months rechecks tended to decrease both systolic and diastolic blood pressure measurements.

Conclusions

- Though the clinic did not achieve the goal of 50% recheck rate, there was a positive trend in documented recheck rate over the course of the project.
- In the first five months of 2018, there were 142 encounters where the recheck procedure led to a change in classification from hypertensive to normotensive (per month: 15, 19, 22, 37, 56). In these encounters, the recheck procedure both improved patient care and improved the quality metric of the clinic.
- I believe a recheck rate of 95% is attainable through continued QI efforts.
- At a 95% recheck rate, approximately 100 encounters per month would be reclassified from hypertensive to normotensive, sparing patients from unnecessary treatment and improving an important quality metric.
- Thus far in 2018, a recheck on a patient with systolic blood pressure >180 has never yielded a normotensive measurement, so rechecks on those patients could potentially be de-prioritized compared to those with systolic blood pressure <180.
- This project cannot distinguish between an improvement in recheck rate and an improvement in documentation, but subjectively I believe both have improved during the project period.

Next Steps

- Only patients with a diagnosis of hypertension are relevant to the HRSA quality metric, so that information could be added to the report that states whether the patient has this diagnosis or not.
- Additional inclusion/exclusion criteria from the HRSA could be incorporated into the report.
- Encounters are coded with the responsible provider, but not with the relevant MA. Including the MA in the report could aid with targeted interventions in the future.
- A continuation of PDSA2 could be beneficial. I have not yet spoken with every MA and a continued dialogue would likely cement the clinic policy.
- A future PDSA might involve facilitating a conversation between providers and MA's on the importance of following the clinic policy with regard to blood pressure rechecks.
- A future PDSA might involve continued study about barriers to recheck. For example, in early 2018 some new automatic sphygmomanometers were purchased in response to concerns about the availability and reliability of existing devices. It would be valuable to assess whether the current number is sufficient, if they are allocated across the clinic efficiently, and if they are all in good working order.