Optimization of Blood Pressure in the Outpatient Setting

Mark Colantonio M.D.[1], Carrie Clutter PharmD[1] and Kelly Gannon M.D.[1]

West Virginia University School of Medicine, Department of Medicine[1]

BACKGROUND

- Blood pressure control is sub-optimal in the outpatient setting[1]
- Affects 1/3 of individuals (70 million total) and is a major contributor to cardiovascular events[1,2]
- Up-titration of anti-hypertensives can be better optimized[3]
- 1 in 3 adults in WV have hypertension.[4]
- Poor follow up rates and high cost of home blood pressure cuffs are major contributor to poor outcomes (National Health Service Survey)[5]
- *Morgado et al* found introduction of pharmaceutical care program and quarterly follow-up significantly reduced systolic and diastolic blood pressure[6]
- *Deshpande et al* noted improvement in outpatient blood pressure hypertension after with free blood pressure cuffs and self-monitoring [7]

SMARTER OBJECTIVE:

1.S - Specific: Achieve normotension in 50% of hypertensive patients in MGP clinical currently not at goal

2.M - Measurable: Goal systolic and diastolic blood pressure (AHA/ACC goal <130) with both statically and clinically significant reduction from baseline

3.A - Achievable: We have over 100 blood pressure cuffs to utilize through a grant and no limitation to the number of individuals we can enrolled in our pharmacy program

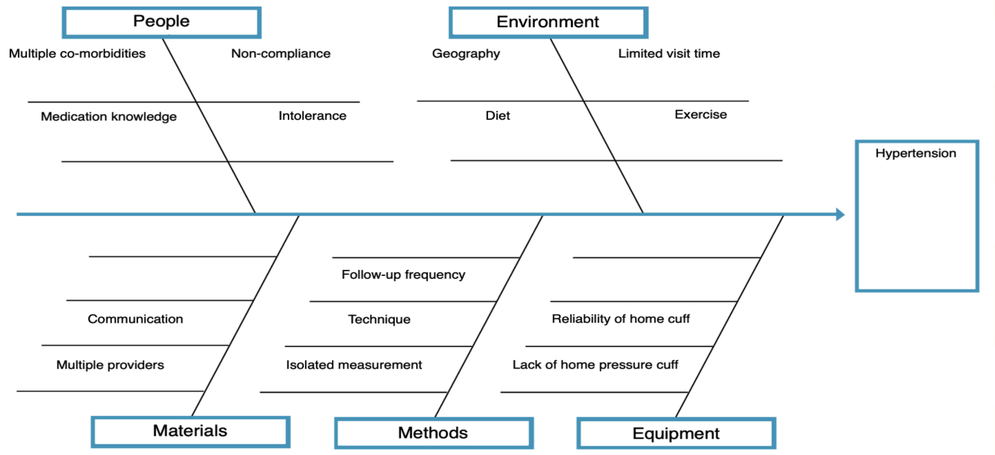
4.R - Relevant: 1/3 adults in WV have hypertension. Unique geography and healthcare disparities affect clinical outcomes

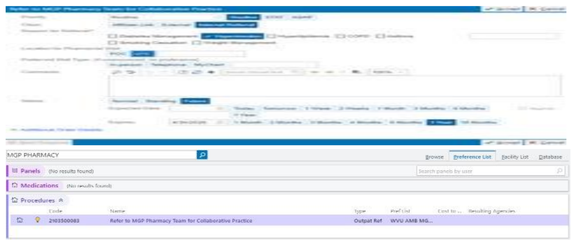
5.T - Time-bound: January 2026

6.E - Evaluated: We will assess the number of patients enrolled and cuffs utilized every 3 months

7.R - Revised: We will adjust the percentage of patients we aim to control in MGP clinic based on enrollment and the number of cuffs available

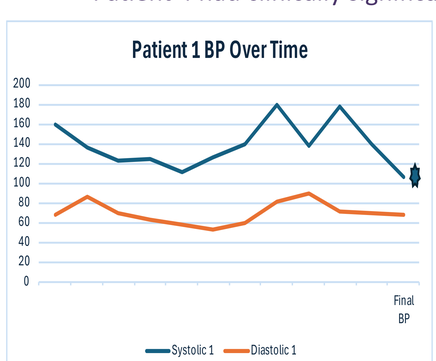
IMPROVEMENT ACTION PLAN WITH ACTIONS TAKEN

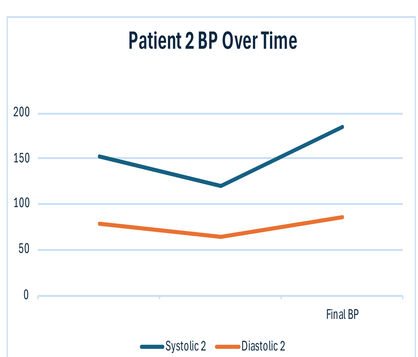


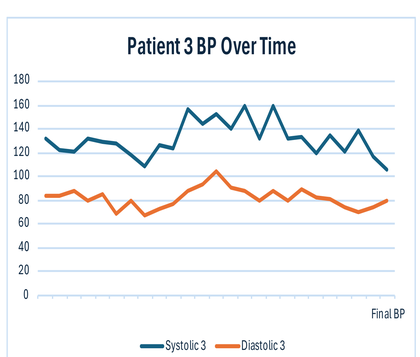


RESULTS

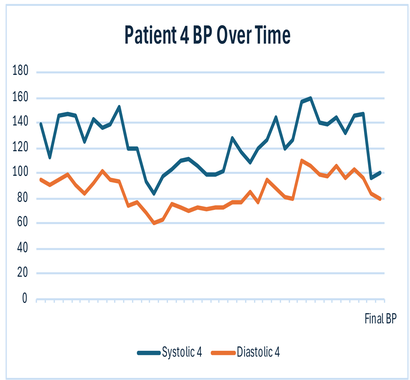
- Average patient age of 54.9 years old
- Average number of visit of 4.5
- Initial mean systolic BP = 147.1 mmHg; diastolic 83.3 mmHg
- Patient 1 had statically significant reduction in SBP (baseline 141.7 mmHg to 107 mmHg; p = 0.0004). Patient 4 had clinically significant reduction in SBP

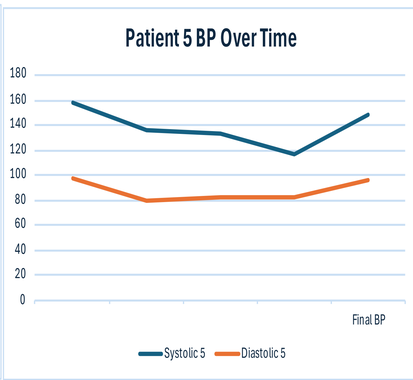






RESULTS





SCALE UP PLAN

- Post flyers
- Speak with nursing to remind provider about the intervention and inquire about enrollment
- Increase referral rate

SUSTAINABILITY PLAN

- Frequent follow up with providers and pharmacy staff regarding improvement
- Incentives for providers with good adherence rates

LESSONS LEARNT:

- Outpatient hypertension is difficulty to control, especially in WV
- Implementation and adherence is difficulty due to busy clinic schedules

References:

- Kessler, C. S. & Joudeh, Y. Evaluation and treatment of severe asymptomatic hypertension. *Am. Fam. Physician* 81, 470–476 (2010).
- Abdalla, M. *et al.* Implementation Strategies to Improve Blood Pressure Control in the United States: A Scientific Statement From the American Heart Association and American Medical Association. *Hypertens. Dallas Tex 1979* 80, e143–e157 (2023).
- Berlowitz, D. R. *et al.* Inadequate management of blood pressure in a hypertensive population. *N. Engl. J. Med.* 339, 1957–1963 (1998).
- Durr, A. J. *et al.* Evaluation of self-measured blood pressure monitoring in a southern rural West Virginia health system. *Rural Remote Health* 23, 8248 (2023).
- Peng, M., Shi, X., Zhu, L. & Wang, Z. Follow-up management service and health outcomes of hypertensive patients in China: A cross-sectional analysis from the national health service survey in Jiangsu province. *Front. Public Health* 10, 956711 (2022).
- Morgado, M., Rolo, S. & Castelo-Branco, M. Pharmacist intervention program to enhance hypertension control: a randomised controlled trial. *Int. J. Clin. Pharm.* 33, 132–140 (2011).
- Deshpande, I., Kanwar, A., Swyers, K., Garza, A. & Litten, K. Improving Access to Home Blood Pressure Monitors at a Federally Qualified Health Center. *J. Pharm. Technol. JPT Off. Publ. Assoc. Pharm. Tech.* 39, 75–81 (2023).