Partnerships to Improve Shared Decision Making for Patients with Hypertension – Health Equity Implications

Aisha T. Langford, PhD[1]; Stephen K. Williams, MD[1];
Melanie Applegate, DNP, FNP-BC[1]; Olugbenga Ogedegbe, MD[1];
Ronald S. Braithwaite, MD[1]

Shared decision making (SDM) has increasingly become appreciated as a method to enhance patient involvement in health care decisions, patient-provider communication, and patient-centered care. Compared with cancer, the literature on SDM for hypertension is more limited. This is notable because hypertension is the leading risk factor for cardiovascular disease and both conditions disproportionately affect certain subgroups of patients. However, SDM holds promise for improving health equity by better engaging patients in their health care. For example, many reasonable options exist for treating uncomplicated stage-1 hypertension. These options include medication and/or lifestyle changes such as healthy eating, physical activity, and weight management. Deciding on "the best" plan of action for hypertension management can be challenging because patients have different goals and preferences for treatment. As hypertension management may be considered a preference-sensitive decision, adherence to treatment plans may be greater if those plans are concordant with patient preferences. SDM can be implemented in a broad array of care contexts, from patient-provider dyads to interprofessional collaborations. In this article, we argue that SDM has the potential to advance health equity and improve clinical care. We also propose a process to evaluate whether SDM has occurred and suggest future directions for research. *Ethn Dis*. 2019;29(Suppl 1):97-102; doi:10.18865/ed.29.S1.97.

Keywords: Hypertension; Patient Participation; Health Equity; Decision Making; Primary Health Care

[1] NYU School of Medicine, Department of Population Health, New York, NY

Introduction

Hypertension is the leading modifiable cause of cardiovascular disease morbidity and mortality worldwide and disproportionately affects Blacks.[1,2] Shared decision making (SDM) has increasingly become appreciated as a method to enhance patient involvement in health care decisions, patient-provider communication, and patient-centered care.[3] While many definitions of SDM exist, it can broadly be described as a process by which patients and health care professionals work together to make health care decisions based on the best available clinical evidence and the patient's values and preferences.[4] The 2017 American College of Cardiology/American Heart Association Blood Pressure (BP) Clinical Practice Guideline notes that, "Adherence to recommendations can be enhanced by shared decision making between clinicians and patients, with patient engagement in selecting interventions on the basis of individual values, preferences, and associated conditions and comorbidities."[5] Moreover, the US Preventive Services Task Force (USPSTF) recommends that primary care practitioners screen for high BP in adults aged >18 years (grade A recommendation) and obtain measurements outside of the clinical setting for diagnostic confirmation before starting treatment.[6] Given that hypertension is one of the most common conditions managed in primary care, future opportunities for SDM in hypertension may include home and ambulatory BP monitoring, in-

Shared decision making (SDM) has increasingly become appreciated as a method to enhance patient involvement in health care decisions, patient-provider communication, and patient-centered care.[3]

Address correspondence to Aisha T. Langford, PhD; NYU School of Medicine, Department of Population Health; 227 East 30th Street, Room 645; New York, NY 10016; 646.501.2914; Aisha.Langford@nyulangone.org

dividualized BP targets, antihypertensive medication selection, and integration of lifestyle interventions.[7–9]

Shared Decision Making as a Potential Way to Improve Health Equity

Between 2015-2016, only 48.3% of US adults with hypertension had their BP controlled.[10] Moreover, the prevalence of BP control was lower in Hispanic (45%), non-Hispanic Black (44.6%), and non-Hispanic Asian adults (37.4%), compared with non-Hispanic White adults (50.8%).[10] Newer models of SDM recognize that patient preferences should play a key role in decision making and that final health care decisions should reflect patient preferences.[11] Racial/ethnic differences in treatment preferences have been established across various health conditions; however, the association between patient preferences and health disparities is less clear.[12,13] Moreover, little is known about the impact of preference concordance on adherence to treatment plans for hypertension. It is possible that preference concordance is less common in the groups most affected by health inequities (eg, racial/ethnic minorities) and thus, may partially explain suboptimal BP control.

Although not typically conceptualized as a preference-sensitive decision, we argue that hypertension management is well-suited for SDM because many reasonable pharmacological and non-pharmacological treatment options exist,[5,14] and each option has different trade-offs, risks, and quality of life implications that may be valued differently by patients (Table 1). For example, some hypertension-related decisions may have physical (medication side effects), psychological (health anxiety from constant tracking of BP and/or behaviors), emotional (fear of falling due to polypharmacy) and/or financial (cost of medications and/or lifestyle interventions) consequences. Moreover, these consequences may differentially affect certain patient subgroups and thereby affect adherence to treatment plans.[15–17]

Examples of Hypertension-Related SDM Interventions

Compared with cancer, the literature on SDM in hypertension is more limited.[18–20] This may be due, in part, to the fact that hypertension management is dynamic and often involves a series of decisions made over months or years, whereas some cancer-related decisions are discrete and made within weeks or months (eg, mastectomy vs a lumpectomy with radiation for women with early stage breast cancer).

Nevertheless, there is evidence

Table 1. Shared decision making scenarios for patients with stage-1 hypertension

Patient Vignette	Health Care Team Member(s)	Possible Options	Preference-Concordant Decision
Brandy is a 45-year-old woman. She generally prefers nonpharmacological therapies; however, she shares that she will not have time or the discipline to make major lifestyle changes during the holiday season (ie, overhauling her diet and adding an exercise routine). For now, she wants the quickest option for lowering her blood pressure. She wants to avoid "water pills" because of what she read online about their side effects.	Physician	Antihypertensive medication; sodium reduction	Sodium reduction and 1 antihypertensive (ie, calcium channel blocker; not a diuretic)
Diego is a 34-year-old man. He reports high levels of stress because of his job, long commute, and commitment to mentoring students. Diego routinely orders takeout food and is overweight. In addition to hypertension, he has prediabetes. His favorite uncle died last year of a heart attack, so Diego is ready to focus on his health. Diego is worried about taking hypertension medications because "they cause erectile dysfunction."	Nurse practitioner; registered dietitian	Diet change; structured weight loss or physical activity program; antihypertensive medication	DASH diet and smartphone app with exercises that can be done at home
Deborah is a 62-year-old woman. She shares that she takes care of her mother who has Alzheimer's. Deborah is stressed emotionally and financially. She admits to drinking alcohol to help her cope. She is not overly concerned about her blood pressure because she "doesn't feel sick." Deborah asks about HTN management programs in her community. She is worried about the risk of falling if her blood pressure is treated too aggressively.	Physician; pharmacist; social worker	Diet change; physical activity; antihypertensive medication	Reduce alcohol intake and participate in HTN management program offered at a church near her home; referral to behavioral health services

that SDM can have a positive impact on hypertension control,[21–23] patient preferences for treatment choices,[24] and medication adherence.[25] For example, Olomu et al evaluated the impact of a SDM intervention on BP control in 243 patients recruited from two federally qualified health centers in Michigan.[21] The intervention included a physician training, patient activation session, and 1-page checklist used during primary care visits. They found that BP control was greater at six months for patients in the intervention site compared with the control site (OR=2.92, CI: 1.11-7.79). Hanlin et al evaluated hypertension control for 714 underserved patients (49.9% Medicaid and 50.2% Black) at a family medicine clinic in South Carolina using the "Measure Accurately, Act Rapidly, and Partner With Patients (MAP)" protocol.[22] The 'Partner with Patients' aspect involved SDM, discussions about affordable medications, BP self-monitoring, and reducing pill burden. They found that BP control increased from 61.2% to 89.9% *(P*<.0001) between baseline and the last study visit. The MAP protocol was further evaluated in 16 family medicine clinics. In hypertensive adults with complete baseline and 6-month visit data (N=16,787), BP control improved from 64.4% at baseline to 74.3% (P<.001) at 6 months and 73.6% (P<.001) at 12 months.[23] More broadly, Margolis et al explored the impact of a home BP telemonitoring with pharmacist case management intervention to improve BP control compared with usual care. The sample included 450 patients from 16 primary care clinics in Minnesota.[8] Overall, intervention group patients had better BP control over time. For example, at 18 months, BP control was observed in 71.8% of patients in the telemonitoring intervention group compared with 57.1% of patients in the usual care group (P=.003)

Implementing Shared Decision Making in Different Contexts

Given the dynamic nature of hypertension management and growing trend toward team-based care,[26] there are emerging models for how hypertension-related SDM could be realized in the future. For example, Project ACTIVE tested the effectiveness of a clinical intervention to personalize and prioritize USPSTF grade A or B preventive care recommendations for non-pregnant women.[27] Patients were recruited from a busy inner-city ambulatory care clinic in New York (N=140); the study involved six study visits over nine months. The two main outcomes were estimated gains in life expectancy (based on a validated mathematical model) and changes in unfulfilled clinical goals. Personalized graphical displays of estimated health gains from adherence to preventive care guidelines were generated for patients in the intervention group. A nurse practitioner communicated results to intervention patients and engaged them in an SDM process to identify and prioritize the preventive health goals they wanted to achieve. Subsequently, a health coach met with patients to set personalized action steps aligned with their goals and to be completed by the next study visit. Overall, intervention patients had an average of 21.04 months estimated gain in life expectancy compared with 4.52 months estimated gain in life expectancy for control patients. Project ACTIVE appears to be providing its benefit by improving control of hypertension and other key outcomes (eg, hyperlipidemia).

Other established SDM strategies may also be informative for hypertension management.[11,28,29] For example, Elwyn's *Three Talk Model* may be helpful for dyads (eg, physician-patient, nurse-patient, pharmacist-patient).[11] "Team talk" refers to the importance of making patients aware of their choices and eliciting their goals to guide the decision making process. "Option talk" compares the various alternatives (eg, antihypertensive medication, lifestyle, or do nothing) by using risk communication principles. "Decision talk" is the task of coming to a decision that reflects the patient's informed preferences. Question prompt lists such as those developed by Irwig may also be useful for guiding conversations.[30] These questions include: 1) What will happen if I wait and watch? 2) What are my test or treatment options? 3) What are the benefits and harms of these options? 4) How do the benefits and harms weigh up for me? and 5) Do I have enough information to make a choice?

Evaluating Shared Decision Making

While content expertise in the decision sciences is recommended to formally evaluate SDM interventions, measures and instruments

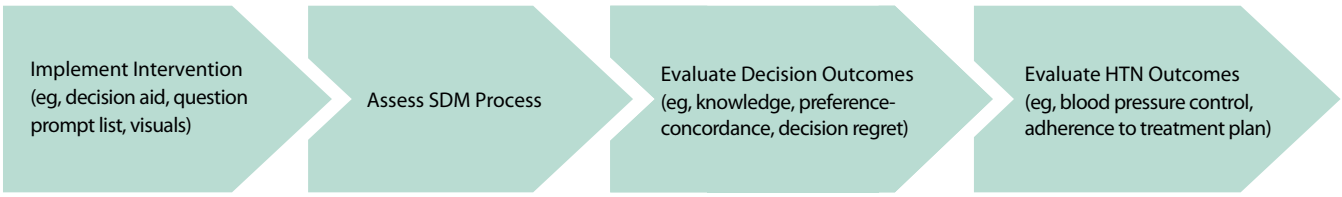

Figure 1. Potential approaches for evaluating shared decision making

already exist to help guide practitioners.[31,32] In Figure 1, we provide a thumbnail sketch for one of many potential approaches for evaluating SDM. Admittedly, there are challenges to implementing SDM in clinical care.[33,34] One challenge is that some believe that SDM takes too much time and cannot be done during a typical clinical visit. While several studies have shown that SDM visits are not significantly longer than standard clinical care visits,[35] evaluations of brief SDM interventions for hypertension management that can be implemented in real world settings are needed to confirm efficacy and maximize clinician uptake. Another challenge is that SDM for chronic care management is not reimbursed (as opposed to other contexts like lung cancer screening).[36,37] Consequently, scheduling longer follow up visits for the subset of hypertensive patients who may need more time for SDM will be challenging in the typical 15-minutes per patient context.

Future Directions

Despite challenges with implementation, research opportunities remain for SDM in hypertension. First, it will be important to determine whether patients vary in their preferences regarding optimal BP management strategies. Second, evaluating whether patient preferences for SDM strategies differ by sociodemographic factors is needed to tailor future interventions. Third, a better understanding of clinician preferences for BP management and SDM strategies may have implications for adoption of SDM interventions. Fourth, while the potential for SDM interventions to reduce health inequalities has been explored broadly,[38] more research is needed on the efficacy of hypertension-specific interventions designed for the groups most affected by hypertension. Fifth, the potential role of telemedicine for enhancing SDM warrants more attention. Finally, more research is needed regarding novel uses of the electronic medical record for facilitating and documenting the SDM process with hypertensive patients.

Shared decision making has the potential to advance health equity by better engaging patients in health care decisions and integrating patient preferences into treatment plans.

Conclusions

Optimal hypertension management should be recognized as involving preference-sensitive decision making. Adherence to hypertension treatment plans are typically poor and it would be expected that more optimal adherence would be realized in plans that are concordant with patient preferences. SDM has the potential to advance health equity by better engaging patients in health care decisions and integrating patient preferences into treatment plans. SDM in hypertension may also improve patient-provider communication and in turn, strengthen partnerships between patients and various members of the health care team.

Acknowledgments

The authors thank the National Heart, Lung, and Blood Institute for career development support of the first author (1 K01 HL135467-01), which helped facilitate the development of this manuscript.

Conflict of Interest

No conflicts of interest to report.

Author Contributions

Research concept and design: Langford, Applegate, Ogedegbe, Braithwaite; Acquisition of data: Langford; Data analysis and interpretation: Langford, Williams, Ogedegbe; Manuscript draft: Langford, Williams, Applegate, Braithwaite; Administrative: Langford; Supervision: Williams, Applegate, Ogedegbe, Braithwaite

References

1. Forouzanfar MH, Liu P, Roth GA, et al. Global burden of hypertension and systolic blood pressure of at least 110 to 115 mm Hg, 1990-2015. *JAMA*. 2017;317(2):165-182. https://doi.org/10.1001/jama.2016.19043 PMID:28097354
2. Bromfield S, Muntner P. High blood pressure: the leading global burden of disease risk factor and the need for worldwide prevention programs. *Curr Hypertens Rep*. 2013;15(3):134-136. https://doi.org/10.1007/s11906-013-0340-9 PMID:23536128
3. Stiggelbout AM, Van der Weijden T, De Wit MPT, et al. Shared decision making: really putting patients at the centre of healthcare. *BMJ*. 2012;344(jan27 1):e256. https://doi.org/10.1136/bmj.e256 PMID:22286508
4. Elwyn G, Frosch D, Thomson R, et al. Shared decision making: a model for clinical practice. *J Gen Intern Med*. 2012;27(10):1361-1367. https://doi.org/10.1007/s11606-012-2077-6 PMID:22618581
5. Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol*. 2018;71(19):e127-e248. https://doi.org/10.1016/j.jacc.2017.11.006 PMID:29146535
6. Siu AL; U.S. Preventive Services Task Force. Screening for high blood pressure in adults: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2015;163(10):778-786. https://doi.org/10.7326/M15-2223 PMID:26458123
7. Uhlig K, Balk EM, Patel K, et al. *Self-Measured Blood Pressure Monitoring: Comparative Effectiveness.* Rockville, MD: Agency for Healthcare Research and Quality (US); 2012.
8. Margolis KL, Asche SE, Bergdall AR, et al. Effect of home blood pressure telemonitoring and pharmacist management on blood pressure control: a cluster randomized clinical trial. *JAMA*. 2013;310(1):46-56. https://doi.org/10.1001/jama.2013.6549 PMID:23821088
9. Kambhampati S, Ashvetiya T, Stone NJ, Blumenthal RS, Martin SS. Shared decision-making and patient empowerment in preventive cardiology. *Curr Cardiol Rep*. 2016;18(5):49. https://doi.org/10.1007/s11886-016-0729-6 PMID:27098670
10. Fryar CD, Ostchega Y, Hales CM, Zhang G, Kruszon-Moran D. Hypertension prevalence and control among adults: United States, 2015-2016. *NCHS Data Brief*. 2017;289:1-8. PMID:29155682
11. Elwyn G, Durand MA, Song J, et al. A three-talk model for shared decision making: multistage consultation process. *BMJ*. 2017;359:j4891. https://doi.org/10.1136/bmj.j4891 PMID:29109079
12. Katz JN. Patient preferences and health disparities. *JAMA*. 2001;286(12):1506-1509. https://doi.org/10.1001/jama.286.12.1506 PMID:11572745
13. Armstrong K, Hughes-Halbert C, Asch DA. Patient preferences can be misleading as explanations for racial disparities in health care. *Arch Intern Med*. 2006;166(9):950-954. https://doi.org/10.1001/archinte.166.9.950 PMID:16682567
14. Carey RM, Calhoun DA, Bakris GL, et al. Resistant Hypertension: Detection, Evaluation, and Management: A Scientific Statement From the American Heart Association. *Hypertension*. 2018;72e53-e90. https://www.ahajournals.org/doi/10.1161/HYP.0000000000000084.
15. Schoenthaler AM. Reexamining medication adherence in black patients with hypertension through the lens of the social determinants of health. *J Clin Hypertens (Greenwich)*. 2017;19(10):1025-1027. https://doi.org/10.1111/jch.13071 PMID:28942605
16. Puckrein GA, Egan BM, Howard G. Social and medical determinants of cardiometabolic health: the big picture. *Ethn Dis*. 2015;25(4):521-524. https://doi.org/10.18865/ed.25.4.521 PMID:26673674
17. Ferdinand KC, Yadav K, Nasser SA, et al. Disparities in hypertension and cardiovascular disease in blacks: the critical role of medication adherence. *J Clin Hypertens (Greenwich)*. 2017;19(10):1015-1024. https://doi.org/10.1111/jch.13089 PMID:28856834
18. Mead EL, Doorenbos AZ, Javid SH, et al. Shared decision-making for cancer care among racial and ethnic minorities: a systematic review. *Am J Public Health*. 2013;103(12):e15-e29. https://doi.org/10.2105/AJPH.2013.301631 PMID:24134353
19. Enard KR, Dolan Mullen P, Kamath GR, Dixon NM, Volk RJ. Are cancer-related decision aids appropriate for socially disadvantaged patients? A systematic review of US randomized controlled trials. *BMC Med Inform Decis Mak*. 2016;16(1):64. https://doi.org/10.1186/s12911-016-0303-6 PMID:27267490
20. Johnson RA, Huntley A, Hughes RA, et al. Interventions to support shared decision making for hypertension: A systematic review of controlled studies. *Health Expect*. 2018;21(6):1191-1207. https://doi.org/10.1111/hex.12826 PMID:30221454
21. Olomu A, Khan NNS, Todem D, et al. Blood pressure control in hypertensive patients in federally qualified health centers: impact of shared decision making in the office-GAP program. *MDM Policy Pract*. 2016. https://doi.org/10.1177/2381468316656010 PMID:30288401
22. Hanlin RB, Asif IM, Wozniak G, et al. Measure Accurately, Act Rapidly, and Partner With Patients (MAP) improves hypertension control in medically underserved patients: Care Coordination Institute and American Medical Association Hypertension Control Project Pilot Study results. *J Clin Hypertens (Greenwich)*. 2018;20(1):79-87. https://doi.org/10.1111/jch.13141 PMID:29316149
23. Egan BM, Sutherland SE, Rakotz M, et al. Improving hypertension control in primary care with the measure accurately, act rapidly, and partner with patients protocol. *Hypertension*. 2018;72(6):1320-1327. https://doi.org/10.1161/HYPERTENSIONAHA.118.11558 PMID:30571231
24. Montgomery AA, Harding J, Fahey T. Shared decision making in hypertension: the impact of patient preferences on treatment choice. *Fam Pract*. 2001;18(3):309-313. https://doi.org/10.1093/fampra/18.3.309 PMID:11356740
25. Schoenthaler A, Rosenthal DM, Butler M, Jacobowitz L. Medication adherence improvement similar for shared decision-making preference or longer patient-provider relationship. *J Am Board Fam Med*. 2018;31(5):752-760. https://doi.org/10.3122/jabfm.2018.05.180009 PMID:30201671
26. Proia KK, Thota AB, Njie GJ, et al; Community Preventive Services Task Force. Team-based care and improved blood pressure control: a community guide systematic review. *Am J Prev Med*. 2014;47(1):86-99. https://doi.org/10.1016/j.amepre.2014.03.004 PMID:24933494
27. Scott E, Applegate M, Sanchez M, Braithwaite RS. *Project ACTIVE: Preliminary Results of a Personalized Prevention Clinic.* Presented at the: Interdisciplinary Association for Population Health Science Conference; October 3, 2018; Washington DC. Last accessed January 3, 2019 from https://iaphs.org/wp-content/uploads/2018/09/Abstract-Book-2018-1.pdf.
28. Légaré F, Stacey D, Graham ID, et al. Advancing theories, models and measurement for an interprofessional approach to shared decision making in primary care: a study protocol. *BMC Health Serv Res*. 2008;8(1):2. https://doi.org/10.1186/1472-6963-8-2

PMID:18173848
29. Légaré F, Stacey D, Pouliot S, et al. Interprofessionalism and shared decision-making in primary care: a stepwise approach towards a new model. *J Interprof Care*. 2011;25(1):18-25. https://doi.org/10.3109/13561820.2010.490502 PMID:20795835
30. Irwig L, Irwig J, Trevena L, Sweet M. *Smart Health Choices: Making Sense of Health Advice*. London: Hammersmith Press; 2011.
31. Sepucha KR, Scholl I. Measuring shared decision making: a review of constructs, measures, and opportunities for cardiovascular care. *Circ Cardiovasc Qual Outcomes*. 2014;7(4):620-626. https://doi.org/10.1161/CIRCOUTCOMES.113.000350 PMID:24867916
32. Winn K, Ozanne E, Sepucha K. Measuring patient-centered care: an updated systematic review of how studies define and report concordance between patients' preferences and medical treatments. *Patient Educ Couns*. 2015;98(7):811-821. https://doi.org/10.1016/j.pec.2015.03.012 PMID:25846191
33. Elwyn G, Frosch DL, Kobrin S. Implementing shared decision-making: consider all the consequences. *Implement Sci*. 2016;11(1):114. https://doi.org/10.1186/s13012-016-0480-9 PMID:27502770
34. Bouma AB, Tiedje K, Poplau S, et al. Shared decision making in the safety net: where do we go from here? *J Am Board Fam Med*. 2014;27(2):292-294. https://doi.org/10.3122/jabfm.2014.02.130245 PMID:24610192
35. Légaré F, Thompson-Leduc P. Twelve myths about shared decision making. *Patient Educ Couns*. 2014;96(3):281-286. https://doi.org/10.1016/j.pec.2014.06.014 PMID:25034637
36. Shieh Y, Bohnenkamp M. Low-dose CT scan for lung cancer screening: clinical and coding considerations. *Chest*. 2017;152(1):204-209. https://doi.org/10.1016/j.chest.2017.03.019 PMID:28336485
37. Durand M-A, Barr PJ, Walsh T, Elwyn G. Incentivizing shared decision making in the USA—where are we now? *Healthc (Amst)*. 2015;3(2):97-101. https://doi.org/10.1016/j.hjdsi.2014.10.008 PMID:26179730
38. Durand M-A, Carpenter L, Dolan H, et al. Do interventions designed to support shared decision-making reduce health inequalities? A systematic review and meta-analysis. *PLoS One*. 2014;9(4):e94670. https://doi.org/10.1371/journal.pone.0094670 PMID:24736389