

The transition of care from hospital to home for patients with hypertension

By Mary M. Franklin, PhD, RN, ACNP-BC and Mary Anne McCoy, PhD, RN, ACNS, ACNP-BC

Hyertension is a major public health problem affecting one in three adults in the United States.¹ More than 70% of routine hypertension care is provided by primary care clinicians in ambulatory care settings.² However, patients with hypertension are often admitted to the hospital. McNaughton and colleagues found that more than 6 million ED visits over a 7-year period were related to hypertension as a primary diagnosis.³

More than 70% of patients with hypertension return home following a hospitalization.³ The data indicate that a high number of individuals with hypertension experience a transition of care when they are discharged back to the community from the hospital.⁴ Public health and medical experts suggest that patients are at risk for adverse events during transitions of care due to delays in medical follow-up, changes in medication regimens, and pending test results.⁵

Patients with hypertension are often in highly vulnerable health states after discharge. They may have been admitted for treatment of a serious cardiovascular disease; Cordero and colleagues studied over 1,000 consecutive inpatients with hypertension admitted to an inpatient cardiology unit and found over 75% were admitted with non-ST segment elevation myocardial infarctions (MIs), chest pain, heart failure, ST-segment elevation MIs, and atrial fibrillation.⁶

In addition, Axon and colleagues found that approximately 33% to 75% of patients remained hypertensive on

discharge from the hospital.⁷ The presence of poorly controlled BP is associated with more than 70% of first-time MIs, strokes, and heart failure exacerbations.⁸ Uncontrolled hypertension may result in complications for patients who have been treated for a life-threatening comorbid condition and potentially contribute to further exacerbations of the respective illness.

This article describes the challenges of the transition from the hospital to home for patients with hypertension and discusses implications for NPs. There are many possible transitions of care, but the focus of this article is on the hospital-to-home discharge, as 70% of patients with hypertension are discharged home and back to the care of their primary providers.³

Hypertension is a major diagnosis seen in at least 50% to 75% of hospitalized inpatients.^{6,7,9} Therefore, the literature related to optimal transitions for patients transitioning from hospital to home will likely be relevant for those with hypertension due to the lack of specific published research.

■ Factors associated with optimal transitions of care

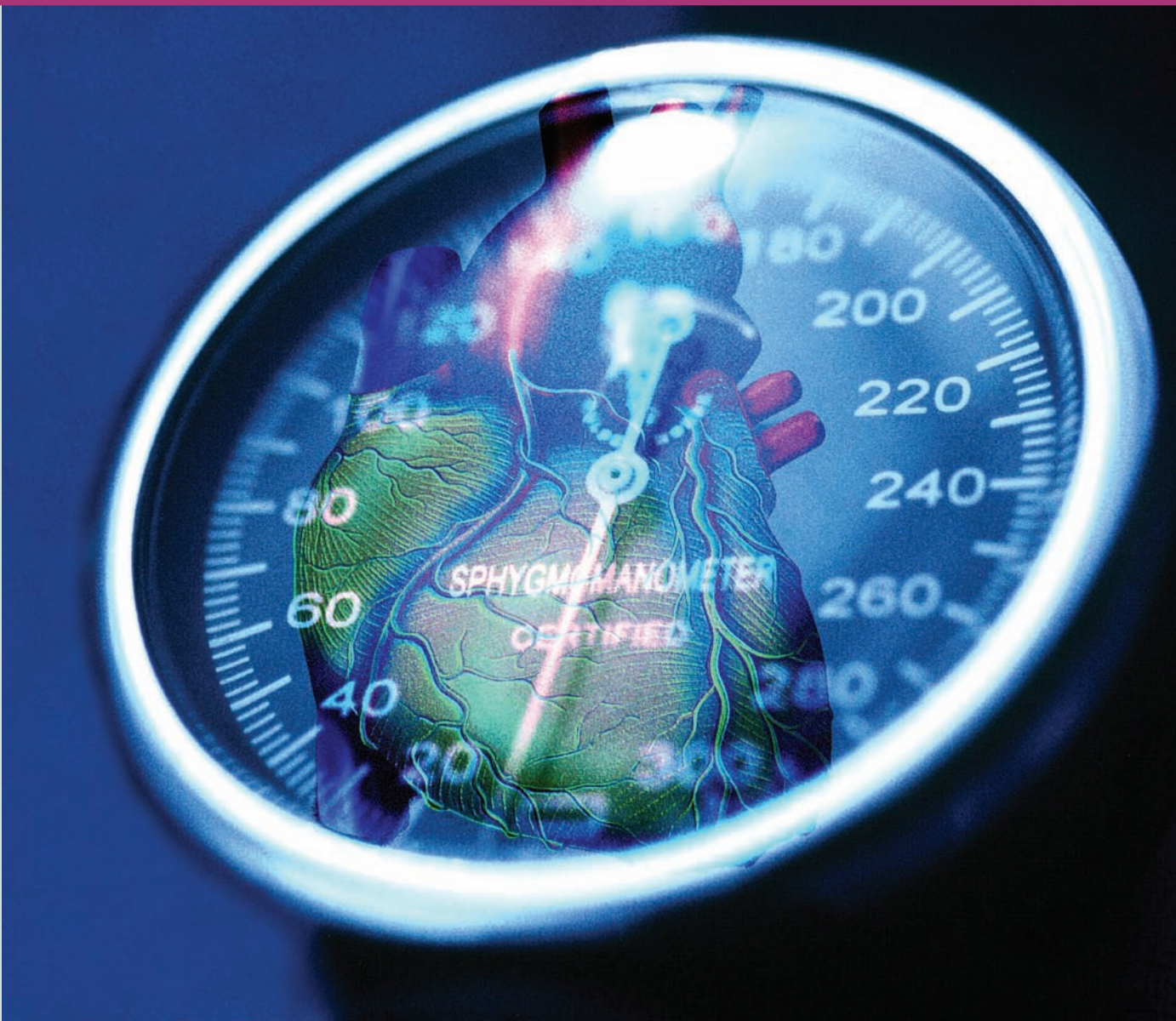
There are four factors identified by medical and public health experts as essential components of an optimal transition of care: the presence of knowledgeable hospital clinicians, antihypertensive medication reconciliation at discharge, patient information transfer between clinicians, and patient and family involvement.^{5,10}

Keywords: blood pressure management, hospital discharge, hypertension, primary care, transition of care

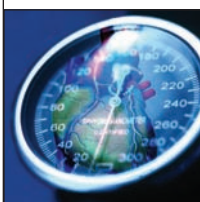


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Abstract: Approximately 50% to 75% of hospital patients have hypertension. At the time of discharge, patients experience a transition of care as they move from the hospital to home. This article describes the transition of care from the hospital to home for patients with hypertension and discusses practice implications for NPs.



Presence of knowledgeable hospital clinicians. Hospital-based clinicians may know about evidence-based hypertension management guidelines but exercise personal clinical judgment, which contributes to uncontrolled BP at discharge. Bowman and colleagues suggest that well-trained clinicians constitute “the central backbone” of the care transition.¹⁰ Patients who are admitted to the hospital may receive care from hospital-based clinicians and/or resident physicians-in-training.



Only 44% of the 196 patients who had medication changes at discharge were notified about the differences.

Over 50% of physicians in inpatient settings have knowledge of and use evidence-based guidelines for hypertension management.^{11,12} In a 2010 study of over 181 family medicine, internal medicine, and surgical residents, approximately 65% believed they base their decisions regarding hypertension treatment on the *Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure* guideline.¹¹

Hospital-based clinicians may use their beliefs and/or clinical judgment to guide BP management in three ways. First, some physicians do not believe that BP should be controlled in the hospital.¹² Clinicians may hold this belief because patients with hypertension are often hospitalized with comorbid problems that elevate BP (for example, volume overload or pain).¹³ There may be some belief that the elevated BP in hospitalized patients is not actually related to hypertension.¹⁴

Second, physicians may wait until BP levels are elevated (systolic BP over 160, diastolic BP over 100) to initiate and/or intensify antihypertensive treatment.^{11,14} Finally, clinicians may be concerned about adverse reactions of many medications used to reduce acutely elevated BP without evidence that demonstrates risk-to-benefit ratios.¹⁴

Clinicians may know evidence-based therapies for hypertension but do not apply them when exercising personal clinical judgment. The end result may be patients who are discharged from the hospital with poorly controlled BP. Clinicians often rely on their own judgment to manage hypertension in hospitalized patients, as widely used evidence-based guidelines do not address inpatient management.¹⁴

Antihypertensive medication reconciliation at discharge. Individuals with hypertension may experience adverse medication-related events, such as changed or missing medica-

tions in medication reconciliation of their antihypertensive medications during hospital discharge. Medication discrepancies can affect patient outcomes. Medication reconciliation is an important process to identify and prevent discrepancies; during the process, the clinician compares the medications that a patient should and actually be using to any new medications.¹⁵

Unroe and colleagues found that patients discharged from medical and cardiac units had at least 50% of their medications changed from admission.¹⁶

Cardiovascular medications were the most frequently changed medications for discharged patients. Only 44% of the 196 patients who had medication changes at discharge were notified about the differences. These findings have important implications for pa-

tients with hypertension at the time of discharge.¹⁶

According to a study conducted by Axon and colleagues, over 90% of physicians reported that patients with hypertension should be discharged on the antihypertensive medication regimen established during their hospitalization.¹¹ However, less than half of patients with hypertension may be aware that their antihypertensive medications have changed from their admission regimen. Patients could be at risk for adverse events if they are not aware of changes in their antihypertensive medications.

This premise is supported by Tsilimingras and colleagues, who found that 28% of 684 hospitalized patients experienced adverse events ranging from medication errors to hospital readmissions.¹⁷ The investigators noted that 60% to 80% of patients in their study who had an adverse event after discharge had a diagnosis of hypertension.¹⁷

Patient information transfer between clinicians. A trend exists in published research demonstrating incomplete and/or delayed communication between the sending inpatient clinician to the receiving primary care provider at the time of discharge that in turn may yield negative health outcomes for patients with hypertension. Timely and accurate communication between clinicians is an important factor to ensure a smooth transition between the hospital to home.¹⁰

The content of the communication should include the principal diagnoses and problem list, clinical status, treatment plan and goals, medications, test results, pending tests or studies, and recommended time frames for follow-up at discharge.⁵ Direct communication between clinicians often occurs in the form of a discharge summary and/or a verbal exchange between the inpatient and outpatient clinicians.^{9,18} Yet, there are disturbing trends of low com-

munication from primary care providers who receive a verbal exchange up to 30% of the time or see a completed discharge summary in less than 50% of their patients 2 weeks after discharge.^{9,18-20}

Many reasons have been described in the literature for the lack of communication, including a lack of time, presumed adequacy and completeness of the discharge summary, difficulty reaching clinicians, lack of information feedback, and reliance on patients and families to provide updates.^{18,21} Primary care providers do not always consider the discharge summary to be adequate or complete because they do not receive consistent information regarding pending tests and/or changes in patients' medications.²¹ In turn, the lack of timely and complete communication between providers may have a negative impact, as only 50% of patients with hypertension have controlled BP at the time of their first follow-up visit.⁷

Patient and family involvement. Patients and families may not be optimally involved and/or satisfied with their transition home. Patient and/or caregiver involvement is identified as a key factor in a successful transition because they are constantly present before, during, and after a patient's hospital stay.¹⁰ Bowman and colleagues note that how information is communicated to patients and families is important due to issues of cognitive impairment and health literacy.¹⁰

The assertions of Bowman and colleagues have relevance for those with hypertension because it is a risk factor for cognitive impairment and dementia.²² Elevated BP is associated with lower health literacy.^{23,24} Therefore, individuals with hypertension may not receive or understand key discharge instructions from their clinicians in the presence of cognitive impairment and/or low health literacy.

Furthermore, the information may be poorly communicated to patients and families from clinicians. Maniaci and colleagues found that patients were less likely than physicians to perceive that enough time was spent reviewing discharge instructions, speaking slowly enough to be understood, using understandable language, and taking enough time to answer questions.²⁵

The poor comprehension of post-hospital discharge instructions was illustrated by Albrecht and colleagues, who interviewed 450 patients discharged from medical-surgical units.²⁶ Participants demonstrated poor understanding related to follow-up appointments, medications, exercise, and diet recommendations.²⁶ The results are relevant for patients with hypertension because taking antihypertensive medication and lifestyle modifications (such as diet and exercise) are essential components of ongoing BP management.²⁷

Patients who do not speak English as their first language may not understand their discharge instructions. Karliner and colleagues studied over 200 hospital patients with low English language proficiency who had less understanding of their discharge instructions and medications compared with patients who were proficient in English.²⁸ The investigators found that using professional interpreters to convey discharge information yielded similar levels of understanding between patients with differing English language proficiency.²⁸

■ Implications for practice

There are three significant issues for practice with the transition from the hospital to home for patients with hypertension. First, patients and families may assume a disproportionate amount of the responsibility for their own safe transition home. They receive discharge instructions from hospital clinicians that communicate important information regarding follow-up visits, exercise, diet, obtaining and taking new medications, and other recommendations.

There is a presumption that patients and families can and will follow through all the discharge instructions within the prescribed time frames. Yet, patients with hypertension and their families may not be the optimal messengers of the continuing plan of care in the presence of low health literacy, cognitive impairment, or comorbid illness.²²⁻²⁴ The reality of patients bearing a major responsibility for their own safe transition home is not consistent with recommendations from primary care, hospital, and emergency physicians as stated in the Transitions of Care Consensus Conference (TOCC).⁵

The members of the TOCC contend that the inpatient sending clinician bears accountability for a patient's care until the receiving primary care clinician assures that the transfer of care and information is complete.⁵ Both hospitalists and primary care providers suggest that direct provider phone access and shared electronic medical records

The TOCC advocates use of a transition record that is developed once and revised as patients transition between providers and settings.



are two strategies that can enhance communication.²² Further research and evaluation is needed to identify feasible and effective strategies to facilitate the communication and transfer of care between inpatient and outpatient clinicians.

Second, clinicians should consider creating and using a transition record rather than a traditional discharge sum-

mary as the electronic communication method of choice to complete the transfer of care. A traditional “discharge summary” is completed by inpatient clinicians at the time of patient discharge. The discharge summary consists of six items specified by The Joint Commission (TJC) and includes:

- reason for hospitalization
- significant findings
- procedures and treatment provided
- patient’s discharge condition

Guide to care for patients

Going home from the hospital: When you have high blood pressure

There are four things that you and your family can do to keep yourself healthy until you see your primary care provider:

1. Your blood pressure medicine might be different when you go home

- Bring a list of all your home medicines to the hospital
- Ask your hospital clinician about your blood pressure medicine
 - Was any medicine stopped?
 - Was any medicine changed?
 - Is any medicine new?
 - Are there medicine side effects?

2. Contact information for your hospital clinician

- Ask the hospital clinician in charge for his/her contact information
- You, your family, or clinician might have questions

3. See your primary care clinician in 7 days after discharge

- Take your hospital discharge instructions to your office visit
- There may be new blood pressure medicines
- There might be missing blood pressure medicine

4. Check your blood pressure daily

- Your blood pressure might be high when you go home
- If you have a home blood pressure monitor or machine
 - Sit quietly for at least 5 minutes
 - Take your blood pressure in the morning at the same time
 - Record the result, time, and date
- Bring the blood pressure record to your primary care providers’ office
- You can also check your blood pressure at stores with free blood pressure machines
- Call your primary care provider if your blood pressure is over 140/90 mm Hg

For further information about high blood pressure, please visit the American Heart Association’s website: (www.heart.org/HEARTORG/Conditions/HighBloodPressure/High-Blood-Pressure_UCM_002020_SubHomePage.jsp).

- patient and family instructions
- attending physician signature.²⁹

Primary care clinicians report that discharge summaries in this format are long and difficult to navigate with pages of data.²² The TOCC panel advocates use of a transition record that is developed once and revised as patients transition between providers and settings.⁵ The transition record is more comprehensive in scope and content than a traditional discharge summary with the six TJC elements.⁵

The transition record contains:

- principal diagnosis and problem list
- medication list
- names and contact information of coordinating clinicians
- patient’s cognitive status
- test results/pending tests
- emergency names and contact information
- treatment and diagnostic plan
- prognosis and goals of care
- assessment of caregiver status
- planned interventions
- advance directives.⁵

Transition records using TOCC elements have been studied to a limited extent and appear to improve discharge communication quality. For example, The TOCC elements appeared to perform better than TJC criteria in 1,246 discharge summaries of patients hospitalized for heart failure.³⁰ The investigators determined that discharge summaries using more TOCC elements were associated with lower odds of patient readmission when compared with TJC discharge summaries after adjustment for patient and hospital characteristics.³⁰ The TOCC transition record criteria merits and needs further study to determine the effectiveness in improving discharge communication quality for patients with hypertension.

Finally, patients with hypertension need comprehensive support across care settings in managing their BP after they go home until they see their primary care providers. (See *Guide to care for patients*.) Only 50% of patients with hypertension had controlled BP less than 140/90 mm Hg at the time of follow-up.⁷ Patients with hypertension may benefit from transitional programs that bridge the hospital-to-home environment. For example, the Care Transition Intervention (CTI) employed geriatric NPs as “transition coaches” who bridged the hospital and home environments.³¹

Transition coaches functioned as facilitators to foster self-management and communication between patients, families, and primary care providers rather than direct care providers.³¹ A transition coach initially connects with the patient in the hospital, reviews discharge medications, explains the electronic patient record access, encourages


follow-up appointment scheduling, and keys in on red flags of symptoms and drug reactions.³² One home visit by the transition coach includes patient assessment, medication reconciliation, electronic portal update in the home, assuring the primary care appointment is made, and reviewing when to call the primary care provider.³²

The goal of the transition coach via the CTI is to empower individuals to better manage their health in four key areas: medication self-management, patient-centered record, follow-up, and red flags.³² Two groups of investigators who used the CTI found lower readmission rates in the intervention groups compared with the control groups.^{32,33} The CTI appears to be effective but has not been specifically tested in patients with hypertension. The assessment of key patient resources (such as health insurance) as an important function of transition managers was not directly described in the CTI.

Only 28% of patients who are uninsured have controlled BP compared with more than 50% of patients with public or private insurance.³⁴ Patients with hypertension need sufficient resources to obtain and afford antihypertensive medications and consistent access to primary care providers. There are two assumptions that can be drawn from the results that support further study. If at least 50% of hospital patients have a diagnosis of hypertension, many of the CTI study participants likely had hypertension and gained some benefit from the intervention. More research is needed to test the feasibility and effectiveness of a transition manager-led intervention for patients with hypertension.

Transitioning successfully

Patients with hypertension may experience a transition of care after discharge home from the hospital and back to their communities. The period of transition may not always be safe and/or smooth for these patients. Both inpatient and outpatient clinicians may have to think and act comprehensively as they share accountability and responsibility for the transition from hospital to home. One strategy may be to adopt more TOCC transition record criteria to improve the quality of discharge communications with other providers.⁵

Patients with hypertension and other comorbid diseases may benefit from transitional care models that support them between their care settings and clinicians. There is an urgent need for more research to identify, describe, and understand the full scope of the transition of care from hospital to home with patients and their families. 

REFERENCES

1. Mozaffarian D, Benjamin EJ, Go AS, et al. Heart disease and stroke statistics—2016 update: a report from the American Heart Association. *Circulation*. 2016;133(4):e38–e360.
2. Fang J, Keenan NL, Ayala C. Health care services provided during physician office visits for hypertension: differences by specialty. *J Clin Hypertens*. 2010;12(2):89–95.
3. McNaughton CD, Self WH, Zhu Y, Janke AT, Storrow AB, Levy P. Incidence of hypertension-related emergency department visits in the United States, 2006 to 2012. *Am J Cardiol*. 2015;116(11):1717–1723.
4. The Joint Commission. Transitions of care: the need for collaboration across entire care continuum. 2013. www.jointcommission.org/hot_topic_toc.
5. Snow V, Beck D, Budnitz T, et al. Transitions of care consensus policy statement: American College of Physicians, Society of General Internal Medicine, Society of Hospital Medicine, American Geriatrics Society, American College of Emergency Physicians, Society of Academic Emergency Medicine. *J Gen Intern Med*. 2009;24(8):971–976.
6. Cordero A, Bertomeu-González V, Moreno-Arribas J, et al. Burden of systemic hypertension in patients admitted to cardiology hospitalization units. *Am J Cardiol*. 2011;108(11):1570–1575.
7. Axon RN, Cousineau L, Egan BM. Prevalence and management of hypertension in the inpatient setting: a systematic review. *J Hosp Med*. 2011;6(7):416–416.
8. Go AS, Mozaffarian D, Roger VL, et al. Heart disease and stroke statistics—2014 update: a report from the American Heart Association. *Circulation*. 2014;129(3):e28–e292.
9. Lin CY, Barnato AE, Degenholtz HB. Physician follow-up visits after acute care hospitalization for elderly Medicare beneficiaries discharged to non-institutional settings. *J Am Geriatr Soc*. 2011;59(10):1947–1954.
10. Bowman EH, Flood KL, Arabie AI. Models of care to transition from hospital to home. In: Malone ML, Capezuti E, Palmer RM, eds. *Acute Care for Elders: A Model for Interdisciplinary Care*. New York, NY: Springer; 2014.
11. Axon RN, Garrell R, Pfahl K, et al. Attitudes and practices of resident physicians regarding hypertension in the inpatient setting. *J Clin Hypertens*. 2010;12(9):698–705.
12. Murinson M, Roth B, Grosman E, Dicker D, Elis A. Blood pressure control during hospitalization at the department of medicine. *Arch Clin Hypertension*. 2015;1(1):1–4.
13. Aung WM, Menon SV, Materson BJ. Management of hypertension in hospitalized patients. *Hosp Pract*. 2015;43(2):101–106.
14. Axon RN, Turner M, Buckley R. An update on inpatient hypertension management. *Curr Cardiol Rep*. 2015;17(11):94–101.
15. The Joint Commission. Hospital national patient safety goals. 2015. www.jointcommission.org/assets/1/6/2015_NPSG_HAP.pdf.
16. Unroe KT, Pfeifferberger T, Riegelhaupt S, Jastrzembski J, Lokhnygina Y, Colón-Emeric C. Inpatient medication reconciliation at admission and discharge: a retrospective cohort study of age and other risk factors for medication discrepancies. *Am J Geriatr Pharmacother*. 2010;8(2):115–126.
17. Tsilimingras D, Schnipper J, Duke A, et al. Post-discharge adverse events among urban and rural patients of an urban community hospital: a prospective cohort study. *J Gen Intern Med*. 2015;30(8):1164–1171.
18. Oduyebo I, Lehmann CU, Pollack CE, et al. Association of self-reported hospital discharge handoffs with 30-day readmissions. *JAMA Intern Med*. 2013;173(8):624–629.
19. Sheu L, Fung K, Mourad M, Ranji S, Wu E. We need to talk: primary care provider communication at discharge in the era of a shared electronic medical record. *J Hosp Med*. 2015;10(5):307–310.
20. Bell CM, Schnipper JL, Auerbach AD, et al. Association of communication between hospital-based physicians and primary care providers with patient outcomes. *J Gen Intern Med*. 2009;24(3):381–386.
21. Jones CD, Vu MB, O'Donnell CM, et al. A failure to communicate: a qualitative exploration of care coordination between hospitalists and primary care providers around patient hospitalizations. *J Gen Intern Med*. 2015;30(4):417–424.
22. Novak V, Hajjar I. The relationship between blood pressure and cognitive function. *Nat Rev Cardiol*. 2010;7(12):686–698.
23. McNaughton CD, Kripalani S, Cawthon C, Mion LC, Wallston KA, Roumie CL. Association of health literacy with elevated blood pressure: a cohort study of hospitalized patients. *Med Care*. 2014;52(4):346–353.
24. Centers for Disease Control and Prevention. Learn about health literacy. 2015. www.cdc.gov/healthliteracy/learn/index.html.

25. Maniaci MJ, Heckman MG, Dawson NL. Physician versus patient perception of physician hospital discharge communication: a preliminary study. *Open J Intern Med*. 2014;4:101-107.
26. Albrecht JS, Gruber-Baldini AL, Hirshon JM, et al. Hospital discharge instructions: comprehension and compliance among older adults. *J Gen Intern Med*. 2014;29(11):1491-1498.
27. James PA, Oparil S, Carter BL, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). *JAMA*. 2014;311(5):507-520.
28. Karliner LS, Auerbach A, Nápoles A, Schillinger D, Nickleach D, Pérez-Stable EJ. Language barriers and understanding of hospital discharge instructions. *Med Care*. 2012;50(4):283-289.
29. Kind AJH, Smith MA. Documentation of mandated discharge summary components in transitions from acute to subacute care. In: Henriksen K, Battles JB, Keyes MA, Grady ML, eds. *Advances in Patient Safety: New Directions and Alternative Approaches (Vol. 2: Culture and Redesign)*. Rockville, MD: Agency for Healthcare Research and Quality; 2008.
30. Salim Al-Damluji M, Dzara K, Hodshon B, et al. Association of discharge summary quality with readmission risk for patients hospitalized with heart failure exacerbation. *Circ Cardiovasc Qual Outcomes*. 2015;8(1):109-111.
31. Coleman EA, Smith JD, Frank JC, Min SJ, Parry C, Kramer AM. Preparing patients and caregivers to participate in care delivered across settings: the care transitions intervention. *J Am Geriatr Soc*. 2004;52(11): 1817-1825.
32. Coleman EA, Parry C, Chalmers S, Min SJ. The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med*. 2006;166(17):1822-1828.
33. Voss R, Gardner R, Baier R, Butterfield K, Lehrman S, Gravenstein S. The care transitions intervention: translating from efficacy to effectiveness. *Arch Intern Med*. 2011;171(14):1232-1237.
34. Gillespie CD, Hurvitz KA. Prevalence of hypertension and controlled hypertension—United States, 2007–2010. *MMWR Suppl*. 2013;62(3):144-148.
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