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Independent Study Projects

Title

Hypertension education and intent to compl.

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Publication Date

2013

Introduction

Hypertension (HTN), defined by Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure as greater than 140 systolic or 90 diastolic between 2 averaged measurements on separate visits, is an important modifiable risk factor with many well-known morbid downstream effects¹. Control of HTN has improved dramatically over the last 10 years, likely from a combination of improving access to care and pharmaceutical interventions, despite disease prevalence increasing to 30% of the population over age 20 and, among that segment, approximately 30% are unaware of their diagnosis of HTN². A Cochrane review found that an organized systematic follow-up with periodic clinic-wide patient reviews and aggressive pharmacologic intervention were the most effective methods of achieving HTN control and that no notable improvement was seen with education on lifestyle changes alone³. This information is important to the field of emergency medicine since nearly 80% of respondents to the 2011 National Health Interview Survey cited a lack of access to other providers as their primary reason for the emergency visit when it did not result in an admission⁴. Thus a substantial segment of the emergency department (ED) patient population has potentially poor access to care and thus may not be benefitting from the primary care-driven model of HTN control.

The cost effectiveness of HTN control is well established and, specifically to the interests of the ED, lower acute care service utilization is seen by patients adherent to their HTN medication regimens⁵. If more individuals with uncontrolled HTN utilizing the ED were able to obtain appropriate follow-up and control, this could result in a notable reduction in ED visits and costs. As a result, several studies have sought to improve HTN control within the confines of the ED by using non-physician personnel or educational methods to improve patient awareness and control. One study utilized an educational program for ED staff and was able to demonstrate an increase in staff awareness of HTN and improved referral rates for HTN follow-up, but no data were available for outcomes or patient willingness to comply with these referrals⁶. An academic hospital study demonstrated improved recognition and decreased reluctance to initiate appropriate chronic HTN therapy in the ED when a pharmacist-staffed HTN bridge clinic would follow-up with patients and help manage their medications, but there was no information available for connection to a primary care provider (PCP) or patient attitudes about the diagnosis⁷. While the barriers to HTN control are multi-factorial, belief systems regarding the disease are an important factor^{8,9} and, to date, there are no data available specifically investigating ED patients' attitudes toward HTN and the ED in general in the context of whether or not they intend to follow-up an elevated blood pressure (EBP) reading with their PCP.

This study investigates the characteristics of individuals with EBP in an academic urban ED and the degree of their awareness about their EBP and the seriousness of a HTN diagnosis. It also sought to identify characteristics associated with a positive intent to follow-up with a PCP, since these could be utilized by ED personnel to possibly improve a patient's chance of successful connection to a PCP after discharge.

Methods

Data collection

A survey was developed (see appendix) to ascertain respondent demographic data, history of HTN and smoking, satisfaction with the ED staff on a standard 1-5 scale, baseline HTN knowledge (as assessed by a series of 8 basic yes/no/maybe HTN questions), what education was given during the respondent's visit, and whether or not the respondent intended to follow-up his/her HBP with a primary care source. This was a cross-sectional convenience study of patients presenting to an academic ED (University of California, San Diego Medical Center) with an annual census of approximately 37,000. Patients were considered for enrollment from February 2010 to September 2012 if they met the inclusion criteria of being 18 years of age or older, English-speaking, and having at least one blood pressure reading equal to or greater than 140 systolic and/or 90 diastolic. Patients were enrolled during hours when trained research associates staffed the ED. Research associates were present 7 days a week

between the hours of 8:00 a.m. and 12:00 a.m. Only awake and alert patients were approached for participation, and only during a time when they were not being evaluated by physicians or medical students or having procedures being performed. This study was approved by the University of California, San Diego Human Research Protection Program. Of a total 310 surveys administered, 9 were eliminated for failing to meet the blood pressure inclusion criteria and 38 were discarded due to no recorded blood pressure and insufficient data to look up any recorded values, resulting in a total of 263 entries.

Data analysis

Demographic frequencies are presented as descriptive summary statistics. A paired 2-tailed Student's t-test was performed on blood pressure data. Contingency tables and corresponding Pearson Chi square tests were constructed from various survey components against the response to whether the respondent intended to follow up his/her blood pressure with a primary care source. The following adjustments were made in these tables to allow for appropriate chi-square test conditions: "unsure" and "maybe" responses were counted as "no" responses, the HTN knowledge scores were grouped in to 1-4 correct and 5-8 correct, satisfaction scores were grouped in to 1-3 and 4-5, Alaska natives/native Americans were grouped with the "other" group for ethnicity, "other" responses in education level were grouped with "HS/GED equivalent" based on free-text responses, "other" responses to the respondent's primary care source were counted as "emergency room/urgent care" based on free-text responses and health savings account responses were changed to "group insurance," and "other" responses to insurance type were counted as "no health insurance" based on their primary care source. A comparison of the same components with the same restrictions against whether or not the respondent was hypertensive at discharge was also performed. ***REGRESSION TABLE***

All data analysis was performed using 2007 Microsoft Excel and IBM SPSS 20. An alpha of 0.05 for any test was considered significant.

Results

A total of 263 surveys were eligible for inclusion in analysis. Study population statistics are shown in table 1. Overall, the mean age of participants was 52.4 (standard deviation 15.6), 146 (56.2%) of participants were male, over half of participants had an education level of at least some college, and the ethnic majority of participants was Caucasian (45.4%), followed Hispanic (22.7%) and African American (21.9%).

Table 2 summarizes intake and discharge blood pressure data. There was a significant difference between the admission and discharge readings for both systolic and diastolic blood pressure values.

Table 3 summarizes responses to various survey elements against whether or not the respondent intended to follow up his/her blood pressure with a primary care source. Significant associations were found in the following elements: gender (women more likely), primary care source, health insurance type, being told he/she had HBP prior to the ED visit (Yes response more likely), being told he/she had HBP during the ED visit (yes response more likely), being told by a doctor to take medications for HBP (yes response more likely), he/she currently taking medications for HBP (yes response more likely), receiving written discharge instructions (yes response more likely), he/she felt concerned about his/her HBP (yes response more likely), and HTN awareness score (5-8 score more likely).

Table 4 compares responses to various survey elements against discharge blood pressure status. Significant associations were found with the following elements: Annual income, being told he/she had HTN prior to the ED visit (yes response more likely to be hypertensive), being told he/she had HTN during the ED visit (yes response more likely to be hypertensive), receiving written discharge instructions (yes response more likely to be hypertensive), and he/she felt concerned about his/her HBP (yes response more likely to be hypertensive). Of note, intent to follow-up with a primary care source was not significantly associated with discharge blood pressure status.

Table 1		
Demographic and health insurance information		
Characteristic	Frequency	%
Gender		
Male	146	56.2
Female	114	43.8
Age, years: Mean (standard deviation)	52.4	(15.6)
Education		
Less than High School or GED	38	14.8
High School or GED equivalent	80	31.1
Associate degree or some college	89	34.6
Bachelor degree or higher	47	18.3
Other	3	1.2
Annual Household Income		
<\$20,000	129	57.6
\$20,000-40,000	42	18.8
\$40,000-80,000	27	12.0
>\$80,000	26	11.6
Ethnicity		
White	118	45.4
African American	57	21.9
Hispanic	59	22.7
Asian	14	5.4
American Indian or AK native	4	1.5
Other	8	3.1
Smoking status		
Never smoker	111	42.7
Past smoker	73	28.1
Current smoker	76	29.2
Health insurance status		
Group policy	78	30.6
Individual policy	23	9.0
Public insurance	90	35.3
None	54	21.2
Other	10	3.9
Primary source of medical care		
Private provider	139	53.9
Community clinic	69	26.7
Emergency room/urgent care	46	17.8
Other	4	1.6

Table 1. Demographic information of the study population.

Table 2			
Blood pressure intake and discharge data			
Measurement	Mean	Standard Deviation	
Intake systolic blood pressure	154	22	
Discharge systolic blood pressure	138	21	
			P value <0.01
Intake diastolic blood pressure	91	15	
Discharge diastolic blood pressure	79	13	
			P value <0.01

Table 2. Blood pressure statistics of the study population. P values are reported from a two tailed paired Student's t-test.

Table 3
Comparison of survey elements against intent to follow-up

Survey element		Intent to follow-up HTN with a PCP		P value
		Yes	No	
Age	18-39	30	16	0.201
	40-59	93	26	
	60+	58	17	
Gender	Female	89	15	0.002
	Male	95	44	
Ethnicity	African American	44	11	0.648
	Asian/Pacific Islander	10	1	
	Caucasian	81	30	
	Hispanic	41	14	
	Other/Mixed Descent	8	3	
Education level	Bachelor degree or higher	33	12	0.309
	Some college	55	23	
	HS diploma/GED	61	19	
	Less than HS diploma	32	5	
Annual income	<\$20,000	98	23	0.172
	\$20,000 - \$40,000	28	13	
	\$40,000 - \$80,000	16	9	
	>\$80,000	17	5	
Primary care source	ED/Urgent Care	27	18	0.019
	Community clinic provider	53	11	
	Private provider	102	30	
Health insurance type	Group insurance plan	55	21	0.027
	Individual insurance plan	18	3	
	Public insurance	71	14	
	No health insurance	36	21	
Smoking status	Current smoker	53	19	0.623
	Past smoker	50	19	
	Never smoker	80	22	
Pt told they have HTN prior to visit	No	23	26	0
	Yes	144	30	
Pt informed he/she had HTN during visit	No	79	40	0.001
	Yes	102	18	
Doctor has recommended pt take meds	No	15	10	0.001
	Yes	140	21	
Pt takes medications for HTN	No	28	15	0
	Yes	124	15	
Takes daily as rx	No	19	5	0.108
	Yes	106	11	
Satisfaction Score (Doctor)	1-3	21	12	0.075
	4-5	162	46	
Satisfaction Score (Nurse)	1-3	17	10	0.108
	4-5	168	50	
Verbal HTN discharge instructions	No	61	13	0.205
	Yes	40	4	
Written HTN discharge instructions	No	28	27	0.004
	Yes	24	5	
Concerned about BP	No	40	41	0
	Yes	143	19	
HTN Awareness Score	1-4 Correct	16	15	0.001
	5-8 Correct	169	45	

Table 3. Survey elements compared against intent to follow-up. P values are derived from chi-square tests for independence.

Table 4
Survey elements compared to discharge blood pressure

Survey Element	Discharge Blood Pressure		P value
	Hypertensive	Normotensive	
Age	18-39	20	0.25
	40-59	54	
	60+	38	
Gender	Female	49	0.69
	Male	66	
Ethnicity	African American	31	0.064
	Asian/Pacific Islander	10	
	Caucasian	46	
	Hispanic	25	
	Other/Mixed Descent	3	
Education level	Bachelor degree or higher	19	0.867
	Some college	36	
	HS diploma/GED	39	
	Less than HS diploma	19	
Annual income	<\$20,000	63	0.043
	\$20,000 - \$40,000	18	
	\$40,000 - \$80,000	7	
	>\$80,000	7	
Primary care source	Community clinic provider	32	0.705
	ED/Urgent Care	20	
	Private provider	63	
Health insurance type	Group insurance plan	35	0.94
	Individual insurance plan	10	
	Public insurance	38	
	No health insurance	29	
Smoking status	Current smoker	41	0.069
	Past smoker	29	
	Never smoker	44	
Pt told they have HTN prior to visit	No	16	0.001
	Yes	91	
Pt informed he/she had HTN during visit	No	41	0
	Yes	72	
Doctor has recommended pt take meds	No	7	0.001
	Yes	88	
Pt takes medications for HTN	No	20	0.189
	Yes	75	
Takes daily as rx	No	13	0.871
	Yes	63	
Satisfaction Score (Doctor)	1-3	17	0.696
	4-5	97	
Satisfaction Score (Nurse)	1-3	15	0.418
	4-5	100	
Verbal HTN discharge instructions	No	43	0.069
	Yes	31	
Written HTN discharge instructions	No	22	0.002
	Yes	22	
Intent to follow-up HTN with a PCP	No	22	0.07
	Yes	88	
Concerned about BP	No	31	0.014
	Yes	83	
HTN Awareness Score	1-4 Correct	13	0.669
	5-8 Correct	102	

Table 4. Survey elements against discharge blood pressure. P values are derived from chi-square tests for independence.

Discussion

This study identified several factors significantly associated with a positive intent to follow-up among the study population. In general, patients with better access to care (community or private provider with group or public insurance) and those who were receiving treatment for their BP were more likely to follow-up, as would be expected since a major barrier to proper HTN treatment is regular access to a provider⁸. Furthermore, those with higher HTN knowledge scores were also more likely to follow-up, which concurs with existing evidence that patients with a better understanding of HTN sequelae are more likely to be compliant in treating the disease^{10,11,12}.

Interestingly, satisfaction scores with doctors or nurses had no effect on intent to follow-up, nor did the staff type who informed the patient of his/her EBP, indicating that the patient's experience with ED personnel did not influence the effectiveness of the message. This is in agreement with other studies that have looked at the effect ED patient satisfaction has with compliance or other follow-up related issues and found generally that, despite high satisfaction scores, follow-up and/or compliance with post-discharge issues remains unchanged^{13,14}. While perhaps ineffectual at improving follow-up compliance, higher satisfaction scores have been found to be associated with decreased utilization of emergency care services and thus remain an important issue for EDs¹⁵.

There was a significant difference between admission and discharge BPs (trending toward normal) found in this study. It is not uncommon to see EBPs in the ED and it is a well known physiologic side effect of acute pain and anxiety, which could explain the difference in this population. It is important to note, however, that these assumptions about EBP in the ED are not always justified, as demonstrated in a large single hospital ED study where pain scores had no correlation with BP¹⁶. It was not possible from the data we collected to assess if these changes were secondary to therapeutic interventions taken in the ED and thus it is unclear if normotensive discharge patients were reflecting a more baseline BP or a side effect of medications commonly used in the ED.

We performed a subanalysis on the two groups that demonstrated that, despite significantly increased concern about BP in the hypertensive discharge group, they were not more likely to follow-up with a PCP. The two groups also had similar demographics, regular access to a PCP, and HTN knowledge scores. An explanation for the non-demographic similarities between these two groups is that the nature of their visit to the ED was unlikely directly related to HTN and learning about their elevated BP, while alarming, seemed comparatively less important than their chief complaint. Demographically, this result disagrees with several analyses of the U.S National Health and Nutrition Examination Survey that acknowledge significant differences in the prevalence of HTN within different age and ethnic groups^{2,17}. This could be attributed to a much smaller sample size, but it is also important to note that a single elevated BP reading does not allow for a diagnosis of HTN and thus it is likely some individuals within the discharge hypertensive group would not qualify for an actual diagnosis of HTN, which could skew results.

83% (63/76) of hypertensive discharge respondents were taking anti-HTN medications as prescribed, indicating poor control despite adequate access to regular medications and a provider to adjust them. While financial, access, and psychosocial barriers are important factors on the patient side of HTN control⁹, inappropriate and/or inadequate prescribing practices by providers are also to blame, and has been suggested to be a bigger contributor to poor control than noncompliance by patients in several studies^{18,19}. While appropriate treatment for HTN is beyond the scope of this study, it is important to note this segment of the study population who had adequate access to care and a pre-existing diagnosis of HTN, but were not under adequate control at the time of discharge from the ED. These patients could benefit from follow-up with their PCP not to establish a diagnosis, but rather to help eradicate "therapeutic inertia" from the provider.

The topic of successful control of HTN from the perspective of improving medication adherence is well-studied. In a large study, non-adherence with HTN medications has been shown to be as high as

28.4% in newly diagnosed patients²⁰, which is similar to the number of patients in this study not taking their HTN medications as prescribed. A Cochrane review on this topic found that evidence only existed for reduced daily doses to improve refill adherence, though the effect on BP was questionable (an example of undertreatment by PCPs)²¹. A study on the psychological attributes of adherent patients found that comprehensibility, manageability, and meaningfulness in a medication regimen were important predictors of adherence²². These limitations can be modified and/or offset, to a degree, with close PCP follow-up and an organized systematic review of hypertensive patients within a clinic^{3,23}, but patient attitudes remain an important contributor.

This study has a number of limitations. It is survey-based and partially relies upon patient recollection of previous HTN diagnosis, and therefore is subject to both participant bias and inaccurate information. The number of patients surveyed was relatively small, was a convenience sample, and did not include patients arriving after midnight or before 8:00 a.m. As a result, it is possible that selective enrollment may have introduced bias. Enrolled patients were generally not presenting to the ED for reasons they attributed to HTN and their preeminent concern with their current chief complaint may have biased their responses to their intent to follow-up on a relatively less concerning issue like HTN.

In summary, this study has found that ED patients who present with HTN who have regular access to a PCP, a good understanding of the sequelae or untreated chronic HTN, and a history of being told they have HBP are more likely to intend to follow-up their HBP with a PCP. Patient satisfaction scores, most demographics, and verbal HTN discharge instructions were not associated with an increased intent to follow-up. Written discharge instructions were positively associated with intent to follow-up, but were more frequently given only to patient hypertensive at discharge. These results and prior studies suggest that focusing on HTN education and delivering written discharge instructions emphasizing the importance of following-up with their PCP to every patient with HBP at any point during their ED visit could be a high yield and low cost target that may result in better follow-up with a PCP and, by extension, lower utilization of ED resources.

Future studies on this topic could include a more comprehensive psychiatric panel as well as a more complete follow-up to assess the characteristics of patients that actually completed a follow-up appointment with a PCP where their BP was discussed. Additionally, characteristics of patients that achieved better control after discharge would also be illuminating. Finally, a study specifically investigating the effect of written discharge instructions on patient follow-up regarding HTN could help clarify whether the association seen in this study actually has an impact on improving patient follow-up with their PCP and, subsequently, BP control.

References

1. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr, Jones DW, Materson BJ, Oparil S, Wright JT Jr, Roccella EJ; National Heart, Lung, and Blood Institute Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure; National High Blood Pressure Education Program Coordinating Committee. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. JAMA. 2003 May 21;289(19):2560-72.
2. Egan BM, Zhao Y, Axon RN. US trends in prevalence, awareness, treatment, and control of hypertension, 1988-2008. JAMA. 2010 May 26;303(20):2043-50.
3. Glynn LG, Murphy AW, Smith SM, Schroeder K, Fahey T. Interventions used to improve control of blood pressure in patients with hypertension. Cochrane Database Syst Rev. 2010 Mar 17;(3):CD005182.
4. Gindi RM, Cohen RA, Kirzinger WK. Emergency room use among adults aged 18–64: Early release of estimates from the National Health Interview Survey, January–June 2011. National Center for Health Statistics. May 2012. Available from: <http://www.cdc.gov/nchs/nhis/releases.htm>.

5. Khanna R, Pace PF, Mahabaleshwarkar R, Basak RS, Datar M, Banahan BF. Medication adherence among recipients with chronic diseases enrolled in a state Medicaid program. Popul Health Manag. 2012 Oct;15(5):253-60.
6. Shah T, Aronow WS, Peterson SJ, Goldwag D. Diagnosis, treatment, and referral of hypertension or prehypertension in an emergency department after an educational program: preliminary results. J Clin Hypertens (Greenwich). 2011 Jun;13(6):413-5.
7. Olivier HE, Jamero D. Implementation of a hypertension clinic using a streamlined treatment algorithm. Am J Health Syst Pharm. 2012 Apr 15;69(8):664-7.
8. Siegel D. Barriers to and strategies for effective blood pressure control. Vasc Health Risk Manag. 2005;1(1):9-14.
9. Marshall IJ, Wolfe CD, McKeivitt C. Lay perspectives on hypertension and drug adherence: systematic review of qualitative research. BMJ. 2012 Jul 9;345:e3953
10. Hacıhasanoğlu R, Gözümlü S. The effect of patient education and home monitoring on medication compliance, hypertension management, healthy lifestyle behaviours and BMI in a primary health care setting. J Clin Nurs. 2011 Mar;20(5-6):692-705.
11. Márquez Contreras E, Casado Martínez JJ, Ramos Pérez J, Sáenz Soubrier S, Moreno García JP, Celotti Gómez B, Gascón Vivó J, Martín de Pablos JL. Trial of the efficacy of health education programs on therapeutic compliance in arterial hypertension. Aten Primaria. 1998 Mar 15;21(4):199-204
12. Sclar DA, Chin A, Skaer TL, Okamoto MP, Nakahiro RK, Gill MA. Effect of health education in promoting prescription refill compliance among patients with hypertension. Clin Ther. 1991 Jul-Aug;13(4):489-95.
13. Gignon M, Ammirati C, Mercier R, Detave M. Compliance with Emergency Department Discharge Instructions. J Emerg Nurs. 2013 Jan 7.
14. Koonce TY, Giuse NB, Storrow AB. A pilot study to evaluate learning style-tailored information prescriptions for hypertensive emergency department patients. J Med Libr Assoc. 2011 Oct;99(4):280-9.
15. Fenton JJ, Jerant AF, Bertakis KD, Franks P. The cost of satisfaction: a national study of patient satisfaction, health care utilization, expenditures, and mortality. Arch Intern Med. 2012 Mar 12;172(5):405-11.
16. Svenson JE, Repplinger M. Hypertension in the ED: still an unrecognized problem. Am J Emerg Med. 2008 Oct;26(8):913-7
17. Ostchega Y, Dillon CF, Hughes JP, Carroll M, Yoon S. Trends in hypertension prevalence, awareness, treatment, and control in older U.S. adults: data from the National Health and Nutrition Examination Survey 1988 to 2004. J Am Geriatr Soc. 2007 Jul;55(7):1056-65
18. Rose AJ, Berlowitz DR, Orner MB, Kressin NR. Understanding uncontrolled hypertension: is it the patient or the provider? J Clin Hypertens (Greenwich). 2007 Dec;9(12):937-43.
19. Feldman RD, Zou GY, Vandervoort MK, Wong CJ, Nelson SA, Feagan BG. A simplified approach to the treatment of uncomplicated hypertension: a cluster randomized, controlled trial. Hypertension. 2009 Apr;53(4):646-53
20. Fischer MA, Stedman MR, Lii J, Vogeli C, Shrank WH, Brookhart MA, Weissman JS. Primary medication non-adherence: analysis of 195,930 electronic prescriptions. J Gen Intern Med. 2010 Apr;25(4):284-90.
21. Schroeder K, Fahey T, Ebrahim S. Interventions for improving adherence to treatment in patients with high blood pressure in ambulatory settings. Cochrane Database Syst Rev. 2004;(2):CD004804
22. Nabi H, Vahtera J, Singh-Manoux A, Pentti J, Oksanen T, Gimeno D, Elovainio M, Virtanen M, Klaukka T, Kivimaki M. Do psychological attributes matter for adherence to antihypertensive medication? The Finnish Public Sector Cohort Study. J Hypertens. 2008 Nov;26(11):2236-43.

23. Houlihan SJ, Simpson SH, Cave AJ, Flook NW, Hurlburt ME, Lord CJ, Smith LL, Sternberg HH.
Hypertension treatment and control rates: chart review in an academic family medicine clinic.
Can Fam Physician. 2009 Jul;55(7):735-41.

APPENDIX

Blood Pressure Awareness Questionnaire

I. General Information

1. Age: _____ 2. Gender: Male Female
3. Of what *race or ethnicity* do you consider yourself?
 Caucasian Asian/Pacific Islander
 African American American Indian/Alaskan Native
 Hispanic Other/Mixed Descent – Please Specify _____
 Decline to state
4. What is the *highest* level of education that you attained?
 Did not complete high school Master Degree
 Completed high school/GED Doctoral Degree
 Associates Degree/Less than 4 years of college Other post-graduate work/degree
 Bachelor Degree Please specify _____

 Decline to state
5. What is your *yearly* household income?
 Less than \$20,000 \$35,000 - \$54,999 \$75,000 or more
 \$20,000 - \$34,999 \$55,000 - \$74,999 Decline to state
6. If I needed routine health care, I would go to:
 My regular health care provider in a private office Different community clinics
 My regular health care provider in a community clinic Emergency department/urgent care
 The same community clinic each time, but with
Other _____
various health care providers
7. Which of the following best describes your *current* health insurance situation?
 Group insurance plan Individual insurance plan Public insurance
 Health Savings Account (HSA) No health insurance Other

II. History

8. **Before this ER visit**, has a doctor or other medical professional ever told you that you have high blood pressure (hypertension)? Yes-Doctor Yes-Other _____
 No (go to #13)
9. If yes, did he/she recommend that you take medications for your blood pressure? Yes
 No
10. Do you take doctor-prescribed medications for your blood pressure? Yes No
If Yes – Do you take them every day as prescribed? Yes (go to #13) No

11. If you do not take your medications every day or none at all – why not (check all that apply)?

- Cannot afford them
- Do not like the way they make me feel or side effects.

Explain _____

- Do not agree with physician that blood pressure needs treatment
- Do not think they are important to treat high blood pressure
- Prefer to try non-prescription methods on my own (holistic, etc)

Explain _____

- Religious reasons
- Other _____

12. Have you spoken with a medical professional about these reasons to look for alternative solutions? Yes No If yes, what was the outcome _____

1. Did a doctor or nurse **during this ER visit** tell you that you have high
2. blood pressure? Yes No

If yes, which of the following told you? Doctor Nurse Other

If yes, did he/she give you specific verbal (spoken) instructions about what to do about it after you are discharged? Yes No

III. Feelings

14. **Overall**, how do you feel about the *doctor(s)* who treated you at the emergency department today?

- Very satisfied Satisfied Neutral Dissatisfied Very dissatisfied

15. **Overall**, how do you feel about the *nurse(s)* who treated you at the emergency department today?

- Very satisfied Satisfied Neutral Dissatisfied Very dissatisfied

16. How do you feel about your *overall experience* at the emergency department today?

- Very satisfied Satisfied Neutral Dissatisfied Very dissatisfied

17. Do you think high blood pressure is a serious medical condition? Yes No Unsure

18. Do you think high blood pressure is related to heart disease/heart attacks? Yes No Unsure

19. Do you think high blood pressure is related to strokes? Yes No Unsure

20. Do you think high blood pressure is related to diabetes? Yes No Unsure

21. Do you think high blood pressure is a lifelong disease? Yes No Unsure

22. Do you think high blood pressure can be improved with lifestyle changes? Yes No Unsure

23. Do you think high blood pressure can be improved by taking medications? Yes No Unsure

24. Do you smoke? Current Previous, stopped when? _____ Never

25. Do you think high blood pressure is affected by smoking? Yes No Unsure

26. Are you concerned about your blood pressure? Yes No Unsure

27. Do you plan to follow up about your blood pressure with your source of routine health care (from question 6)?

Yes No Unsure

FROM THE MEDICAL RECORD IN WEBCHARTS

Medical Record # _____ Recorded intake BP ____/____

Recorded discharge (or latest recorded) BP ____/____

Time after intake:

Did the discharge instructions include information about hypertension? Yes No