

# THE IMPACT OF EDUCATION AND 90-DAY BLISTER PACK REFILL INTERVENTION ON ADHERENCE AND BLOOD PRESSURE CONTROL IN A FEDERALLY QUALIFIED HEALTH CENTER: A PROSPECTIVE, INTERVENTIONAL STUDY

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## BACKGROUND

Hypertension (HTN) is a common yet difficult disease to manage for a variety of reasons<sup>1</sup>. Many barriers exist that can prevent patients from meeting goals of hypertension control. Nonadherence to anti-hypertensive medication can be attributed to many different reasons ranging from psychosocial variables to insufficient knowledge about hypertension and the medications<sup>2</sup>. Medication adherence is very important in the maintenance and control of hypertension<sup>2</sup>. It is important to identify such barriers and limit them in order to achieve better management of hypertension.

## SPECIFIC AIMS

- To assess the acquisition of knowledge from a culturally appropriate educational session and maintenance of knowledge over course of the 90-day follow up period
- To determine if a change to a pharmacy administered 90-day automatic blister pack refill improved adherence
- To determine if a change to pharmacy administered 90-day blister pack refill model improves blood pressure control

## METHODS

**Design:** Prospective, interventional study  
**Population:** Rural, predominantly Hispanic patients who reside in a border community, treated at the federally qualified health center  
**Inclusion Criteria:** Aged 18 or older, established care with Mariposa Community Health Center (MCHC) with a diagnosis of hypertension and are actively on 1 or more antihypertensive, and must utilize MCHC pharmacy services  
**Data Collection:** Eligible patients were invited to attend an educational session on hypertension offered in English and Spanish. Knowledge and ASK-12 surveys were administered and collected in those interested in participating in study during the educational session. Antihypertensive medication was packaged in a 90-day blister pack for study participants and baseline blood pressure was measured during pick up. A second 90 day refill blister pack was prepared for participants for day 90-180. Blood pressure was measured and surveys were re-administered during the 90-day pick up.  
**Statistical Analysis:** Differences in BP from baseline and 90-day period were analyzed with paired T-test. Adherence was measured using period of days covered (PDC)<sup>3</sup>. Pre/post-knowledge and pre/post ASK-12 surveys were analyzed using the Wilcoxon signed-rank test. All data was analyzed with SPSS statistics software. An alpha level of 0.05 for significance was utilized for analysis.

## RESULTS

**Table 1: Demographic Characteristics**

	n (%)
<b>Gender</b>	
Male	6 (40)
Female	9 (60)
<b>Ethnicity</b>	
Hispanic/Latino	15 (100)
<b>Education Level</b>	
Elementary	4 (28.6)
Some High School	3 (21.4)
High School Degree/GED	2 (14.3)
College	5 (35.7)
<b>Primary Language</b>	
English	1 (6.7)
Spanish	14 (93.3)
<b>Age</b>	
45-54	1 (6.7)
55-64	5 (33.3)
65-74	6 (40.0)
≥ 75	3 (20.0)
<b># Antihypertensive Medications</b>	
1	5 (35.7)
1-3	8 (57.1)
4-6	1 (7.1)
<b>Active Insurance</b>	
Yes	15 (100)
<b>Without Insurance in past 12 months</b>	
No	15 (100)
<b>Insurance Type</b>	
Government	7 (50.0)
Self-Funded	4 (28.6)
Other	3 (21.4)



**Table 2: Blood Pressure and Adherence Outcomes**

	n	Mean (SD)	CI	P-Value
<b>Blood Pressure Control</b>				
SBP: Baseline-90 Day	13	6.85 (11.46)	-0.08 – 13.77	<b>0.05</b>
DBP: Baseline-90 Day	13	3.31 (9.49)	-2.43 – 9.04	0.23
<b>Adherence</b>				
PDC	15	1.15 (0.42)	-----	-----

**Table 3: Pre and Post Knowledge and ASK12 Survey Outcomes**

Knowledge Survey: Pre – Post Difference												
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<b>N</b>	13	12	13	13	13	13	12	13	13	13	13	13
<b>Z</b>	-1.00	0.00	-1.00	-1.00	-1.34	-0.73	-0.27	-1.00	-0.45	-1.00	-1.00	-0.59
<b>P-Value</b>	0.31	1.00	0.31	0.31	0.18	0.47	0.79	0.31	0.66	0.31	0.31	0.59

**Table 4: ASK-12 Survey Comparison**

ASK-12 Survey: Pre- Post Difference												
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
<b>N</b>	15	14	14	15	15	15	15	15	12	11	11	11
<b>Z</b>	-1.66	-1.26	-2.31	-1.29	-1.29	-0.30	-2.43	-1.41	-1.13	-1.22	-1.73	-0.55
<b>P-Value</b>	0.09	0.21	<b>0.02</b>	0.19	0.19	0.76	<b>0.02</b>	0.16	0.26	0.223	0.08	0.58

## CONCLUSIONS

- There was a significant decrease in SBP from baseline SBP, whereas there was no statistical difference seen in DBP from their baseline after completion of the first 90-day blister pack refill although there might have been a trend for reduction in DBP
- There was no statistically significant difference or any drop off in knowledge between pre and post surveys meaning that knowledge was retained during the first 90-day period. The ASK-12 had a significant difference in Q3 and Q7 between baseline and 90-day responses
- Adherence to antihypertensive medication amongst study participants was >100% [PDC  $\mu=1.15$ ,  $SD=0.42$ ] over the first 90-day period

## FUTURE DIRECTIONS

- Determine if there was an improvement in adherence from the 90-day to 180<sup>th</sup> day refill pick up
- Compare blood pressure control after the 180<sup>th</sup> refill
- Expand inclusion criteria to include other comorbidities that can be analyzed for improvement

## LIMITATIONS

- Small sample size due to difficulty in recruitment for attendance to educational session
- Health literacy was lower than presumed and individuals had difficulty completing surveys based on the scales given
- Study is still ongoing; unable to assess improvement in adherence to date

## REFERENCES

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## DISCLOSURES

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