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THE FINANCIAL IMPACT OF CLOSING THE HYPERTENSION BLOOD PRESSURE CARE GAPS AT BLUE CROSS AND BLUE SHIELD OF LOUISIANA

Mingyan Cong, PhD, MS; Miao Liu, MS; Jason Ouyang, MD, MPH; Brian Badinger, BS; Krystal Berthelot, MS; Hope Landry, RN ; Benjamin V. Vicidomina, BS
Blue Cross and Blue Shield of Louisiana, Baton Rouge, LA, USA

Background

- Hypertension Care Gap Closure is a strategy that aims to bridge the gap between a Blue Cross and Blue Shield of Louisiana (BCBSLA) member's current hypertension treatment and the possible optimal outcomes.
- Among its initiatives, the BCBSLA Quality Blue program, a value-based insurance design model, focuses on helping to close care gaps of several conditions. Hypertension is crucial among these.
- Although closing the blood pressure gap in hypertension care is a well-established practice, few studies explore the relationship between healthcare cost and blood pressure care gap closure.
- Compliance definition for this study: Blood pressure lower than 140/90 mmHg.
- This study seeks to quantify the financial impact of blood pressure care gap closure on hypertensive members' healthcare cost.

Methodology

Interrupted time series models with fixed effect were conducted to quantify the savings for care gap closure.

$$Y = a + b1 * x + b2 * mon + b3 * x * mon + \sum_i^n ci * fi + e$$

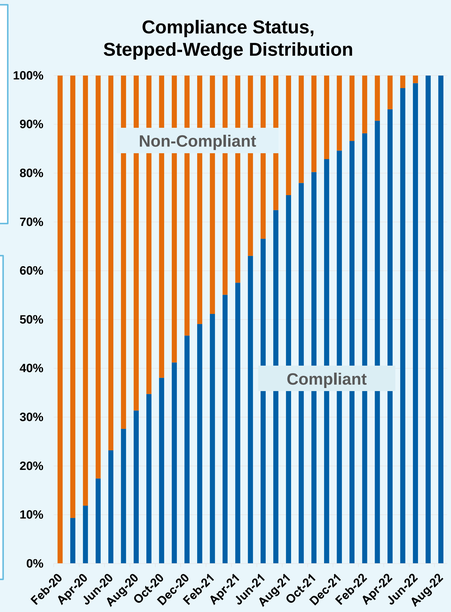
- Y – medical cost
- a – constant
- b, c – parameters
- x – dummy variable indicates the status of compliance (x=1 for compliance)
- mon – relative month sequence (mon=0 for the first month of compliance, -1 for the first month before compliance, 1 for the first month after compliance, etc.)
- f – other factors (risk, participation in Care Management programs)
- Fixed effect: Person-level fixed effect (factors that are consistent within person level, such as gender, index age, comorbidity, marketing region, etc.) will be controlled by defining person identity as fixed effect.

Study Design/ Population Selection

Stepped-Wedge Cluster Randomized Trial:
Included HEDIS-captured eligible members for care gap measures who had blood pressure readings between February 2020 and August 2022 (31 months) with first measure recorded as "non-compliance" and last measure recorded as "compliance" (< 140/90 mmHg). (n=24,097)

Excluded those who:
- Had less than 25 eligible months during the study period
- After compliance, failed to maintain compliance
- Did not have BCBSLA as the primary medical insurance or were out-of-state members
- Had any of the following claims during the study period: hospice, rare condition, maternity, transplant, nursing home, dialysis, HIV
- Had medical costs greater than $150,000 in any month within the study period

Study population: 6,026



Conclusion

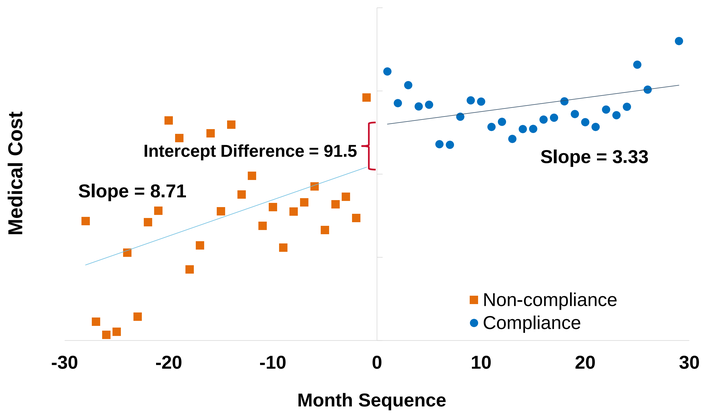
- Members with closed blood pressure care gaps showed medical savings.
- Members who continuously maintained closed blood pressure care gaps for a longer time showed higher medical savings.
- Cumulative savings for the first year of closed blood pressure care gaps are estimated to be **$244** per member, with a reduction of **23** per 1,000 inpatient admissions and **48** per 1,000 emergency department visits.

References

Moran, Andrew E., et al. "Cost-effectiveness of hypertension therapy according to 2014 guidelines." *New England Journal of Medicine* 372.5 (2015): 447-455.

Results

Figure 1. Raw Plot of Medical Cost vs. Month Sequence



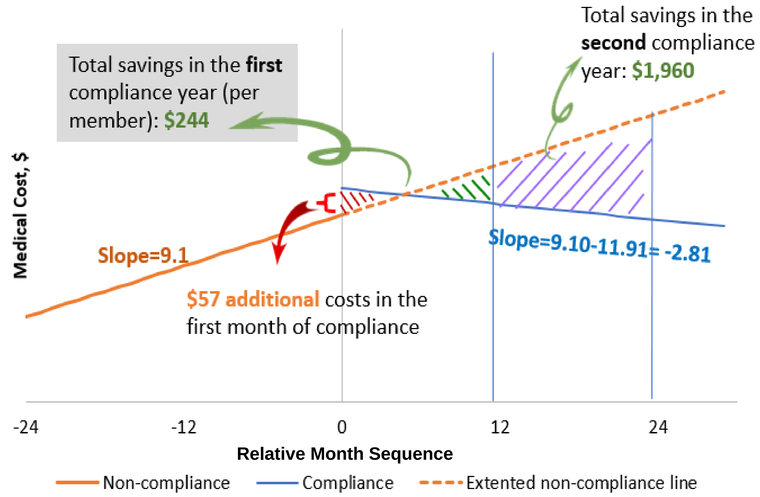
- Plots show monthly average medical cost vs. relative month sequence using simple linear regression without controlling confounding factors. (0 is the first month of compliance.)
- Medical cost trend increased when members' blood pressure readings recorded non-compliance.
- After members' blood pressure readings became compliant, the increasing trend of medical cost started to slow down.

Table 1. Coefficient Estimations from Interrupted Time Series Models

		Medical Cost as Dependent Variable		IP as Dependent Variable		ED Visit as Dependent Variable	
Notes	Variables	Coefficient est.	P>|t|	Coefficient est.	P>|t|	Coefficient est.	P>|t|
Impact of compliance on intercept (0 month)	x	57.04	0.100	0.00003	0.965	-0.00328	0.037
Medical cost increasing rate (slope) of non-compliance	mon	**9.10**	**0.016**	**0.00017**	**0.043**	2.29E-04	0.181
Impact of compliance on increasing rate of medical cost	x*mon	**-11.91**	**0.003**	**-0.00030**	**0.001**	-0.00012	0.515
	Risk stable	26.32	0.674	0.00013	0.924	0.00290	0.308
	Risk at risk	**196.77**	**0.002**	0.00187	0.189	**0.01340**	**<0.001**
	Risk struggling	**721.94**	**<0.001**	**0.00907**	**<0.001**	**0.02873**	**<0.001**
	Risk at crisis	**2681.41**	**<0.001**	**0.04499**	**<0.001**	**0.04976**	**<0.001**
	Risk healthy	omitted		omitted		omitted	
Quality Blue participation		8.47	0.825	-0.00012	0.889	0.00139	0.425
Disease Management participation		**-88.70**	**0.010**	**-0.00308**	**<0.001**	**-0.00462**	**0.003**
	α (constant)	140.57	0.067	0.00088	0.607	0.00572	0.107

- Interrupted Time Series models were run on medical cost, hospital admissions (IP) and emergency department (ED) visits.
- BCBSLA observed a savings of **$244** per member (statistically significant) for the first year of gap closure.
- In the first year after blood pressure is controlled under 140/90 mmHg, the reduction in IP was estimated to be **23** per 1,000 members; the reduction in ED visits was estimated to be **48** per 1,000 member (statistically significant).

Figure 2. Medical Cost Savings Estimation



- Savings were calculated as areas between the extended non-compliance line and the compliance line.
- Per member savings in the first and second compliance years were estimated to be **$244** and **$1,960**, respectively.

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