

**Hospitalization rates among persons with HIV who gained Medicaid or private insurance in 2014: Moving From Ryan White to Medicaid or Private Insurance Did Not Boost Hospital Use; BUT Older HIV+ 55-64 Had Double the Hospitalization Rate; Low CD4 & Detectable Viral load also had Higher Hospitalization Rates**

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Older age (55-64 years old) , CD4 <200, VL >400, and number of 2013 hospitalizations were associated with higher rates of 2015 hospitalizations

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When low-income people with HIV moved from safety-net Ryan White coverage to Medicaid or private insurance under the Affordable Care Act, gaining inpatient coverage did not spawn a surge in hospital admissions [1]. In fact, the hospitalization rate waned slightly after people got inpatient benefits with Medicaid or private insurance.

Thousands of people with HIV relied solely on the Ryan White HIV/AIDS Program for outpatient medical and support services until the Affordable Care Act (Obamacare) made Medicaid and private insurance available to many in 2014. Ryan White offers no inpatient support, while Medicaid and private insurance typically do. Whether this large uptake of Medicaid and private insurance by low-income people with HIV would spur a jump in hospital admissions remained unknown until this study by HIV Research Network investigators.

The study involved 1634 people from 3 HIV Research Network sites, including 2 that expanded Medicaid through the Affordable Care Act and 1 nonexpansion site. Participants had relied only on Ryan White coverage in 2013 and remained in care through 2015. The primary outcome was the 2015 hospitalization rate. To identify factors independently associated with hospitalization in 2015, the researchers used negative binomial regression adjusted for gender, race, age, HIV risk factor, CD4 count, viral load, clinic site, and number of 2013 hospital admissions.

The analysis focused on 1174 people who continued to rely solely on Ryan White, 352 who switched to Medicaid, and 108 who switched to private insurance. In those 3 groups proportions of women were 24%, 38%, and 26%; proportions of blacks 39%, 71%, and 48%; proportions of Hispanics 46%, 5%, and 29%; and proportions of whites 15%, 24%, and 23%.

From 2013 to 2015 hospitalization rates fell marginally in all 3 insurance groups:

- Remained on Ryan White: 8.4 to 6.3 per 100 person-years
- Switched to Medicaid: 21.3 to 20.2 per 100 person-years
- Switched to private insurance: 7.4 to 3.7 per 100 person-years

Multivariate regression analysis identified 4 independent predictors of hospital admission in 2015:

1. **Compared with 18- to 34-year-olds, 55- to 64-year-olds had a doubled hospitalization rate (incidence rate ratio [IRR] 2.18, 95% confidence interval [CI] 1.08 to 4.41).** (Compared with the youngest age group, being 35-44 of 45-54 did not affect hospital admission rate.)
2. **A CD4 count below 200 versus at or above 500 raised the hospitalization rate 5 times** (IRR 5.00, 95% CI 2.60 to 9.61).
3. **More hospital admissions in 2013 doubled the 2015 hospitalization rate (IRR 1.97, 95% CI 1.44 to 2.68).**
4. **A viral load at or below 400 almost halved the hospitalization rate (IRR 0.55, 95% CI 0.32 to 0.94).**

In this analysis switching to Medicaid or to private insurance was not associated with 2015 hospitalization rates in this HIV group.

"Gaining inpatient coverage," the researchers concluded, "does not appear to increase inpatient utilization among people with HIV."

#### Reference

1. Chow J, Nijhawan A, Raifman J, Gebo K, Moore R, Berry S. Hospitalization rates among persons with HIV who gained Medicaid or private insurance in 2014. IDWeek 2018, October 3-7, 2018, San Francisco. Abstract 1906. Poster at <https://idsa.confex.com/idsa/2018/webprogram/Paper70309.html>

### Hospitalization rates among persons with HIV who gained Medicaid or private insurance in 2014

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## **BACKGROUND**

- States with and without Medicaid expansion have likewise demonstrated overall increases in emergency department usage, but non-significant decreases in hospitalizations<sup>1,2</sup>.
- The Ryan White HIV/AIDS Program (RWHAP), which provides coverage for outpatient medical services and support services (e.g. transportation and case management) to thousands of low-income persons with HIV (PWH), does not pay for inpatient care.
- Many PWH who relied on RWHAP alone gained Medicaid or private insurance coverage with the Affordable Care Act in 2014<sup>3</sup>.
- It is unknown whether such insurance transitions, which included inpatient coverage, affected hospitalization rates among PWH.

## **OBJECTIVE**

To determine whether changes from RWHAP alone to Medicaid or private insurance in 2014 are associated with changes in hospitalization rates among PWH.

## METHODS

### Subjects:

- 1634 patients from 3 HIV Research Network sites: 2 in Medicaid expansion states, 1 in a non-expansion state
- Enrolled in RWHAP and without other coverage in 2013, consistently engaged in care through 2015

### Outcome:

2015 Hospitalization rate(per 100 person years)

### Statistics:

Negative binomial regression

Covariates: Gender, race, age, HIV risk factor, CD4 count, HIV viral load, clinic site, number of 2013 hospitalizations

## RESULTS

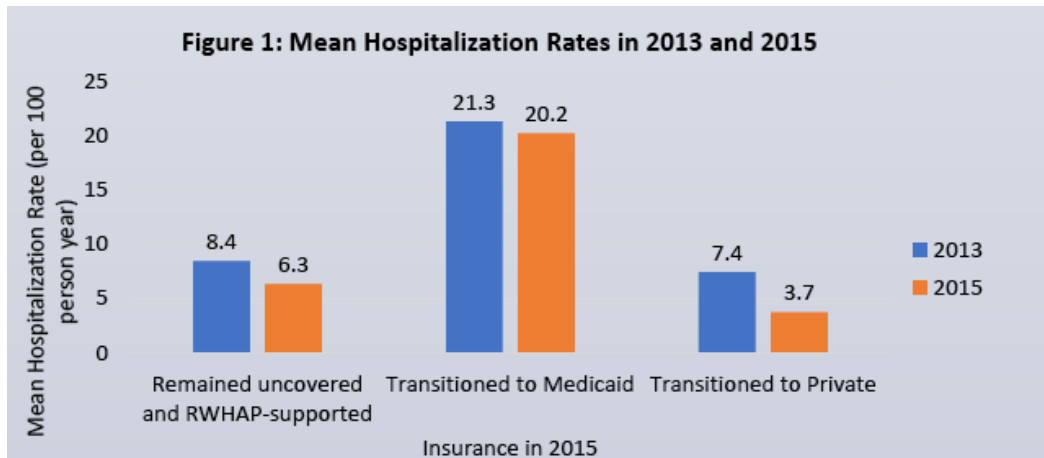
	Remained uncovered and RWHAP-supported (N=1174)	Transitioned to Medicaid (N=352)	Transitioned to Private (N=108)
Characteristic	N (%)	N (%)	N (%)
Gender			
Female	284 (24%)	134 (38%)	28 (26%)
Male or transgender	890 (76%)	218 (62%)	80 (74%)
Race/ethnicity			
White or other	180 (15%)	83 (24%)	25 (23%)
Black	456 (39%)	250 (71%)	52 (48%)
Hispanic	538 (46%)	19 (5%)	31 (29%)
Age			
18-34	236 (20%)	40 (11%)	19 (18%)
35-44	403 (34%)	64 (18%)	16 (15%)
45-54	382 (33%)	145 (41%)	48 (44%)
55-64	153 (13%)	103 (29%)	25 (23%)
HIV risk			
Heterosexual or other	557 (47%)	165 (47%)	49 (45%)
MSM	582 (50%)	106 (30%)	52 (48%)
IDU	35 (3%)	81 (23%)	7 (6%)
CD4 count			
<200	87 (7%)	45 (13%)	5 (5%)
200-499	455 (39%)	129 (37%)	35 (32%)
500+	632 (54%)	178 (51%)	68 (63%)
Viral load			
≤400	1013 (86%)	274 (78%)	101 (94%)
>400	161 (14%)	78 (22%)	7 (6%)

Characteristic	Univariate IRR* (95%CI)	Multivariate IRR* (95% CI)
Insurance in 2015		
Remained uncovered and RWHAP-supported	-	-
Transitioned to Medicaid	<b>3.20 (1.94-5.29)</b>	1.26 (0.71-2.23)
Transitioned to Private	0.59 (0.21-1.62)	0.48 (0.18-1.28)
Gender		
Female	-	-
Male or transgender	1.37 (0.84-2.23)	0.86 (0.47-1.58)
Race		
White or other	-	-
Black	1.33 (0.76-2.34)	1.19 (0.62-2.27)
Hispanic	0.60 (0.31-1.17)	0.83 (0.40-1.72)
Age		
18-34	-	-
35-44	0.90 (0.38-2.14)	0.91 (0.45-1.83)
45-54	1.32 (0.68-2.57)	1.51 (0.75-3.07)
55-64	<b>2.15 (1.04-4.43)</b>	<b>2.18 (1.08-4.41)</b>
Risk factor		
Heterosexual or other	-	-
IVDU	<b>2.28 (1.14-4.57)</b>	1.77 (0.68-4.60)
MSM	1.40 (0.84-2.33)	1.68 (0.92-3.05)
CD4 count		
<200	<b>7.09 (3.92-12.83)</b>	<b>5.00 (2.60-9.61)</b>
200-499	1.51 (0.86-2.65)	1.26 (0.71-2.22)
≥500	-	-
VL ≤400	<b>0.26 (0.16-0.44)</b>	<b>0.55 (0.32-0.94)</b>
# of hospitalizations, 2013	<b>2.85 (1.94-4.19)</b>	<b>1.97 (1.44-2.68)</b>

\*IRR: Incidence Rate Ratio

Model also adjusted for site, data not shown



## REFERENCES

1. Barakat MT, Mithal A, Huang RJ, et al. Affordable Care Act and healthcare delivery: A comparison of California and Florida hospitals and emergency departments. *PLoS One*. 2017;12(8):e0182346.
2. Hempstead K, Cantor JC. State Medicaid Expansion and Changes in Hospital Volume According to Payer. *The New England journal of medicine*. 2016;374(2):196-198.
3. Berry SA, Fleishman JA, Yehia BR, et al. Healthcare Coverage for HIV Provider Visits Before and After Implementation of the Affordable Care Act. *Clin Infect Dis*. 2016;63(3):387-395.

## CONCLUSIONS

- Switching to Medicaid or private insurance was not associated with 2015 hospitalization rates
- Gaining inpatient coverage does not appear to increase inpatient utilization among PWH
- This is consistent with overall trends among the general population<sup>2</sup>
- Older age (55-64 years old) , CD4 <200, VL >400, and number of 2013 hospitalizations were associated with higher rates of 2015 hospitalizations
- There were pre-existing differences in hospitalization rates among the three groups even though they were all uncovered and RWHAP-supported in 2013

### Limitations:

- Limited number of sites
- Sample size
- Hospitalizations only captured in the corresponding hospital systems