The 65th ASH Annual Meeting Abstracts

# POSTER ABSTRACTS

## 901.HEALTH SERVICES AND QUALITY IMPROVEMENT - NON-MALIGNANT CONDITIONS

### Relative Influence of Biological Versus Behavioral Determinants of Utilization Among Adults with Sickle Cell Disease

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Background:
For Sickle Cell Disease (SCD) and most chronic diseases, there is evidence that behavioral comorbidities and the social determinants of health trump biological comorbidities as influencers of healthcare utilization. To better target resources in an Adult Sickle Cell Medical Home, we competed behavioral versus biological determinants as influencers of the variance in disease management target variables.

Method:
The sample consisted of unique patients (N=545) that utilized healthcare services at one urban academic medical center between 2017-2021. The disease management outcome variables of interest were the number of inpatient discharges, number of emergency department visits, number of outpatient visits, and total costs. Preditors/risk factors were defined as the number of behavioral comorbidities and number of biological comorbidities [both defined using DRGs], as well as the number of visits for vaso-occlusive crises (admittedly a tautology, since VOCs were defined by ED and inpatient visits). We used Pearson Correlation to assess bivariate relationships between predictors and outcomes. We then used a mixed-random effects model to quantify the degree of impact of risk factors on healthcare utilization.

Results:
Results are shown in Table 1. The results indicated that behavioral comorbidities, biological comorbidities, and the number of sickle cell crises were all significantly associated with healthcare utilization. However, parameters from the mixed model indicated that the number of biological comorbidities had a greater impact on the number of inpatient discharges compared to the other risk factors. Similarly, the number of biological comorbidities had a greater impact on the number of ambulatory visits and total costs when compared to the other risk factors. In contrast, the number of behavioral comorbidities contributed the most to the number of emergency department visits.

Conclusion:
In adults with SCD in a disease management program, the weight of biological comorbidities more influences hospitalizations, ambulatory visits, and total costs than the weight of behavioral comorbidities or vaso-occlusive crises. In contrast, the weight of behavioral comorbidities more influences ED visits than do other predictors tested. Future research among programs using multidisciplinary care to address biopsychosocial predictors of utilization should test whether aligning program elements and places of care according to the relative contributions of these predictors enhances disease management outcomes. Programs should also test whether using tailored treatment plans that establish individual risk profiles for adults with Sickle Cell Disease, using models such as the ones shown, heighten the efficacy of multimodal interventions to improve risk and outcomes.

References

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**Disclosures Smith:** *Agios:* Consultancy, Research Funding.

| Healthcare Utilization / Risk Factors | Number of Inpatient Discharges | Number of Emergency Dept Visits | Number of Ambulatory Visits | Total Costs |
|---|---|---|---|---|
| Pearson Correlation (R, *P* Value) | | | | |
| **Number of Behavioral Comorbidities** | 0.28 (<0.0001) | 0.25 (<0.0001) | 0.21 (<0.0001) | 0.25 (<0.0001) |
| **Number of Vaso-occlusive Crises** | 0.24 (<0.0001) | 0.31 (<0.0001) | 0.21 (<0.0001) | 0.19 (<0.0001) |
| **Number of Biological Comorbidities** | 0.36 (<0.0001) | 0.16 (<0.0001) | 0.40 (<0.0001) | 0.43 (<0.0001) |
| Mixed Model-Random Effect (β, *P* Value) | | | | |
| **Number of Behavioral Comorbidities** | 0.33 (<0.0001) | 1.38 (<0.0001) | 0.43 (<0.0018) | 4583.55 (<0.0001) |
| **Number of Vaso-occlusive Crises** | 0.18 (<0.0001) | 0.91 (<0.0001) | 0.83 (<0.0001) | 1941.39 (<0.0001) |
| **Number of Biological Comorbidities** | 0.39 (<0.0001) | 0.39 (<0.0001) | 1.17 (<0.0001) | 7422.28 (<0.0001) |

**Figure 1**

https://doi.org/10.1182/blood-2023-187483