Access To Care For Medicaid And Commercially-Insured United States Patients With Sickle Cell Disease

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BACKGROUND

- Sickle cell disease (SCD) is a genetic disorder in which hypoxia produces polymerization of sickle hemoglobin (HbS). This triggers multiple downstream effects of red cell distortion (sickling), hemolysis, occlusion of blood flow, and inflammation leading to significant end-organ damage and ischemic tissue injury that accumulates over a patient's lifetime.
- Fatigue, pain (vaso-occlusive crisis, acute chest syndrome) and other clinical complications are under recognized, under treated and associated with early death. To mitigate these complications and reduce mortality, treatment with red blood cell transfusions (RBCs) and hydroxyurea (HU) is recommended[1].
- Prior research has demonstrated that the pediatric SCD population is more likely to have access to quality care (hematologists and other specialized care) while the adult SCD population has notable barriers to access of quality care that includes varying insurance coverage and specialist availability[2].
- Previous literature has shown the challenges faced by SCD patients in their transition from pediatric to adult care, but did not describe key treatments or services surrounding this critical transition[2].

OBJECTIVE

- To describe the outpatient and inpatient healthcare resource utilization patterns in a large cohort of SCD patients in the US.

METHODS

Study Design and Data Sources

- This is a retrospective administrative claims database analysis among a sample of Commercially-and Medicaid-insured populations in the US.
- These databases provide detailed outcomes measures including outpatient pharmacy claims, resource utilization and associated costs for healthcare services delivered in both inpatient and outpatient settings for over 41 million individuals.
- For this study, de-identified US administrative claims data from January 1, 2009 through December 31, 2014 were extracted from the Truven Health MarketScan® Commercial Claims Database and Medicaid Database.

Patient Selection

- For each year (2009-2014), the following inclusion/exclusion criteria* were applied:
  - Prevalent SCD patients
  - Either 1 inpatient or 2 outpatient (different days) non-diagnostic claims for SCD (ICD-9 code 282.41, 282.42 or 282.6x)
  - Continuous enrollment in medical and pharmacy benefits for year of SCD identification
  - 1 year of continuous enrollment in medical and pharmacy benefits prior to SCD identification

  *Note that patients could qualify in multiple years if they met all criteria in each year (i.e., a patient could qualify in 2010, 2011, and 2012)

Outcomes

- Utilization of the following healthcare services was measured in the year prior to SCD identification:
  - Inpatient [IP] admissions
  - Emergency department (ED) visits
  - Specialist visits [hematologist/oncologist, primary care]
    - Primary care includes internal medicine, medical doctor, osteopathic, family practice, geriatric, preventative and pediatricians
    - Oncologists were included with hematologists as they generally have hematology as a secondary specialty, which is not able to be captured in this dataset
  - Hydroxyurea [HU] use
    - Any use
    - Adherence as determined by the medication possession ratio (MPR), and those with 90 days of continuous use based off days supplied in outpatient pharmacy claims
- Averages across all years were reported to provide a comprehensive overview of prior year utilization among SCD patients.
- All results were reported by age group (<6, 6-11, 12-17, 18-30, 31-44, 45+), and payer (Commercial, Medicaid).

RESULTS

Table 1. Annual Cohorts[1]

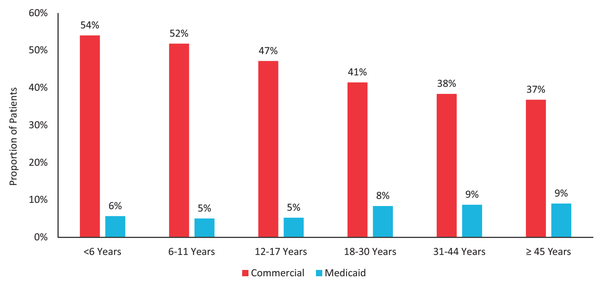
	2009	2010	2011	2012	2013	2014
Commercial	2,619	2,748	2,929	3,285	2,752	2,969
Medicaid	4,807	5,055	4,963	5,189	6,649	7,007

1 MarketScan Medicaid Databases had an underlying increase in enrollees compared to Commercial Databases during this time frame; states contributing Medicaid data may vary over time.

Table 2. Average Patient Characteristics (all years)

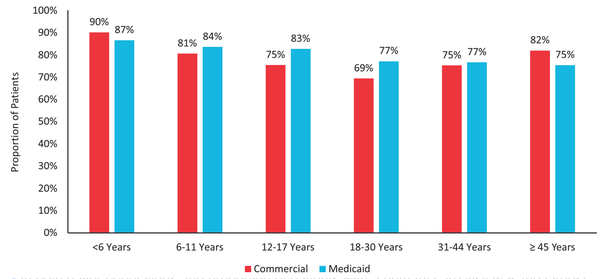
	Commercial	Medicaid
Average Age, Mean (SD)	27.4 (17.2)	17.2 (13.1)
Age Groups, N (%)		
<6 Years	235 (8%)	1,026 (18%)
6-11 Years	383 (13%)	1,252 (22%)
12-17 Years	451 (16%)	1,115 (20%)
18-30 Years	634 (22%)	1,372 (25%)
31-44 Years	579 (20%)	550 (10%)
≥45 Years	603 (21%)	298 (5%)
Females, N (%)	1,658 (58%)	2,965 (53%)
Geographic Location, N (%)		
Northeast	474 (16%)	Unavailable
North Central	490 (17%)	
South	1,614 (56%)	
West	264 (9%)	
Unknown	43 (2%)	
SCD Genotype, N (%)		
HbSS	1,031 (36%)	2,480 (44%)
HbSC	259 (9%)	445 (8%)
Sickle Cell Thalassemia	194 (7%)	194 (4%)
Other	53 (2%)	73 (1%)
Unspecified/Unknown	1,348 (47%)	2,421 (43%)
Top 3 Comorbid Conditions , N (%)		
Asthma	336 (12%)	1,370 (24%)
Chronic Pain	133 (5%)	587 (11%)
Acute Chest Syndrome	131 (5%)	572 (10%)

Figure 1. Proportion of Patients with at Least 1 Hematologist/ Oncologist Visit in the Prior Year



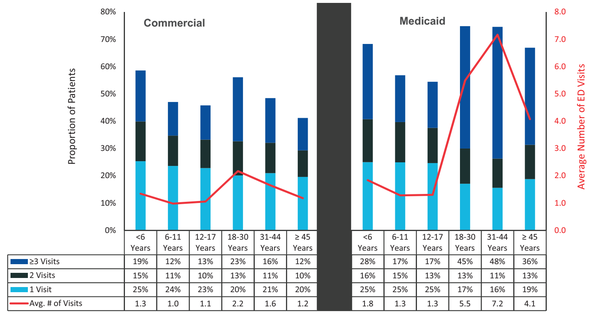
- Compared with patients in Medicaid, a markedly larger proportion of Commercial patients had a hematologist/oncologist visit, with the same finding observed across all age groups.
- A marked drop in the proportion of patients with a hematologist/oncologist visit was observed in Commercial patients at age 18-30 years.

Figure 2. Proportion of Patients with at Least 1 Primary Care Visit in the Prior Year



- In both payer populations, the proportion of patients with a primary care visit was the largest among those <6 years of age and lowest among those age 18-30 years.

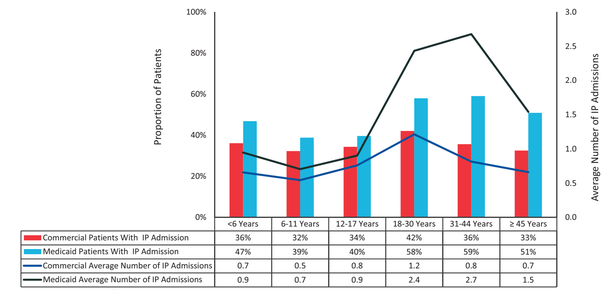
Figure 3. Average Prior Year ED Visits



	Commercial						Medicaid					
	<6 Years	6-11 Years	12-17 Years	18-30 Years	31-44 Years	≥ 45 Years	<6 Years	6-11 Years	12-17 Years	18-30 Years	31-44 Years	≥ 45 Years
≥3 Visits	19%	12%	13%	23%	16%	12%	28%	17%	17%	45%	48%	36%
2 Visits	15%	11%	10%	13%	11%	10%	16%	15%	13%	13%	11%	13%
1 Visit	25%	24%	23%	20%	21%	20%	25%	25%	25%	17%	16%	19%
Avg. # of Visits	1.3	1.0	1.1	2.2	1.6	1.2	1.8	1.3	1.3	5.5	7.2	4.1

- Medicaid patients had a higher mean number of ED visits compared to Commercial patients and this trend was observed across age groups but was more marked in patients ≥18.
- A marked increase in the proportion of patients with ≥3 ED visits was observed at age 18-30 years in both payer populations.

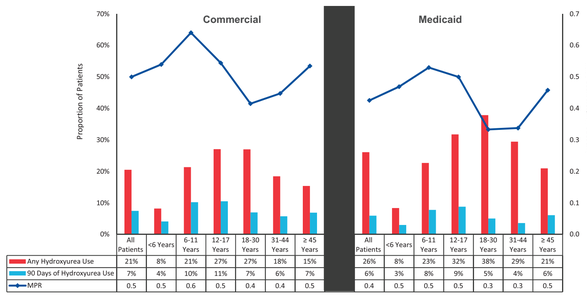
Figure 4. Average Prior Year Inpatient Admissions



	<6 Years	6-11 Years	12-17 Years	18-30 Years	31-44 Years	≥ 45 Years
Commercial Patients With IP Admission	36%	32%	34%	42%	36%	33%
Medicaid Patients With IP Admission	47%	39%	40%	58%	59%	51%
Commercial Average Number of IP Admissions	0.7	0.5	0.8	1.2	0.8	0.7
Medicaid Average Number of IP Admissions	0.9	0.7	0.9	2.4	2.7	1.5

- The Medicaid population consistently had a larger proportion of patients with an inpatient admission and higher number of IP admissions compared with the Commercial population with the difference more marked in adults (≥18).

Figure 5. Average Prior Year Hydroxyurea Utilization



	Commercial						Medicaid					
	All Patients	<6 Years	6-11 Years	12-17 Years	18-30 Years	31-44 Years	≥ 45 Years	All Patients	<6 Years	6-11 Years	12-17 Years	18-30 Years	31-44 Years	≥ 45 Years
Any Hydroxyurea Use	21%	8%	21%	27%	27%	18%	15%	26%	8%	23%	32%	38%	29%	21%
90 Days of Hydroxyurea Use	7%	4%	10%	11%	7%	6%	7%	6%	3%	8%	9%	5%	4%	6%
MPR	0.5	0.5	0.6	0.5	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.3	0.3	0.5

•Medication Possession Ratio [days supplied of HU during prior year/365]

- Under 40% of patients (all genotypes) had a claim for HU across payers and age groups and under 10% had 90 days of continuous HU use across payers and most age groups.
- The proportion of patients with any HU used peaked at ages 18-30 years in both payer populations; however, patients in this age group were least likely to use HU continuously for at least 90 days.
- In all age groups, Commercial patients were also more adherent (determined by MPR) to HU treatment compared with Medicaid patients.

LIMITATIONS

- The MarketScan® Research Databases represent a sample of individuals with employer- and Medicaid sponsored health insurance; thus, findings from this study may not be generalizable to populations with other forms of insurance or the uninsured.
- Data and identification of a diagnosis utilized ICD-9-CM diagnosis codes only reflect the claims submitted by the physicians for reimbursement.
- Potential of underestimating the proportion of patients who visited a hematologist/oncologist is present as we were unable to identify nurse practitioners working in those settings who billed separately for their services. The proportion of claims with a missing/unknown provider varied greatly between payers (20% for Medicaid and 3% for Commercial).
- Potential of underestimating the proportion of patient with HU use as it is specified for use in HbSS patients and all genotypes were included in analysis. The large percent of patients with unknown genotype also complicates interpretation of the HU use results.
- Medication data indicate drugs administered in a physician's office or filled through an outpatient pharmacy, the data do not indicate if the medication was used as prescribed; in addition, over-the-counter medications and medications administered in the inpatient setting are not captured.

CONCLUSIONS

- Claims for hematologist/oncologist visits were strikingly low among Medicaid patients. Further research is needed to determine if this represents differential access or if this is related to different clinic structures or billing practices.
- Access to specialty care is the poorest during the transition from pediatric to adult (18-30 age group) care for both Commercial and Medicaid patients.
- Higher ED and IP utilization in conjunction with lower HU compliance may indicate greater disease severity and/or unmet needs among adult (≥18 age group) Medicaid SCD patients.
- These data highlight the importance of ongoing initiatives, such as those lead by the ASH SCD Coalition, to increase access to SCD care, across all patients in the US. The need for Medicaid programs focused on SCD is also highlighted by the data.

References

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2. ASH. State of Sickle Cell Disease 2016 Report. Accessed 2017. http://www.scdcoalition.org/pdfs/ASH%20State%20of%20Sickle%20Cell%20Disease%202016%20Report.pdf

Disclosures

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http://bit.ly/2zNhCpv

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