# Pain Quality and Location Reported During Outpatient Visits and Inpatient Stays in Adults with Sickle Cell Disease

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❖ **Pain** is a subjective experience that frequently affects people with chronic illness such as sickle cell disease (SCD).

Normal Cell — Normal Hemoglobin
Sickle Cell — Abnormal Hemoglobin — Blockage
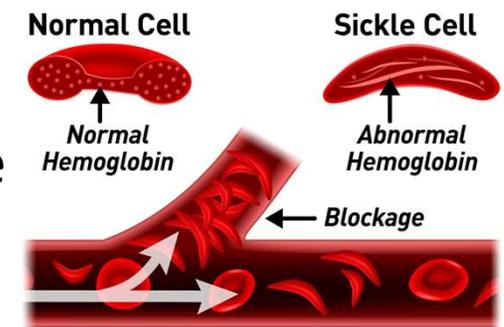
❖ **Patient-reported** verbal pain quality descriptors and locations will augment comprehensive **pain assessment**.

❖ Researchers suggested that patient with **widespread** chronic pain may have **severe intense** pain.

❖ Yet, information is scarce on **pain quality** and **location** in adults with sickle cell disease (SCD).

Purpose

To describe **self-reported pain quality** and **location** during outpatient and inpatient visits by adults with SCD.

Methods

Design

Retrospective Secondary Analysis

Data Source

UIC SCD PAIN*Report*It® study-phase2 (R01HL078536)

Sample

❖116 adults with SCD-related pain (≥ 3 on scale 0-10)

❖ Subjects with at least 1 outpatient and 1 inpatient visit during the study period

DEMOGRAPHICS AND CHARACTERISTICS FROM A BASELINE DATA

Age (year)	Mean (SD)	**33 (12)**
Sex	Male	**35%**
	Female	**65%**
Ethnicity	African American	**98%**
	Other	**2%**
Education	≤ High School	**49%**
	Vocational School	**14%**
	Some College	**28%**
	College or Higher	**7%**
	Unknown	**3%**
SCD Type	SS	**78%**
	SC	**11%**
	Other	**11%**

SS= Hemoglobin SS
SC= Hemoglobin SC

Methods

Measures

❖ **PAIN*Report*It®**, the assessment part of **PAIN*Relieve*It** program

❖ Pain intensity average (0-10)

❖ Pain quality word descriptors (total 78 descriptors)

❖ Pain locations (48 body areas)

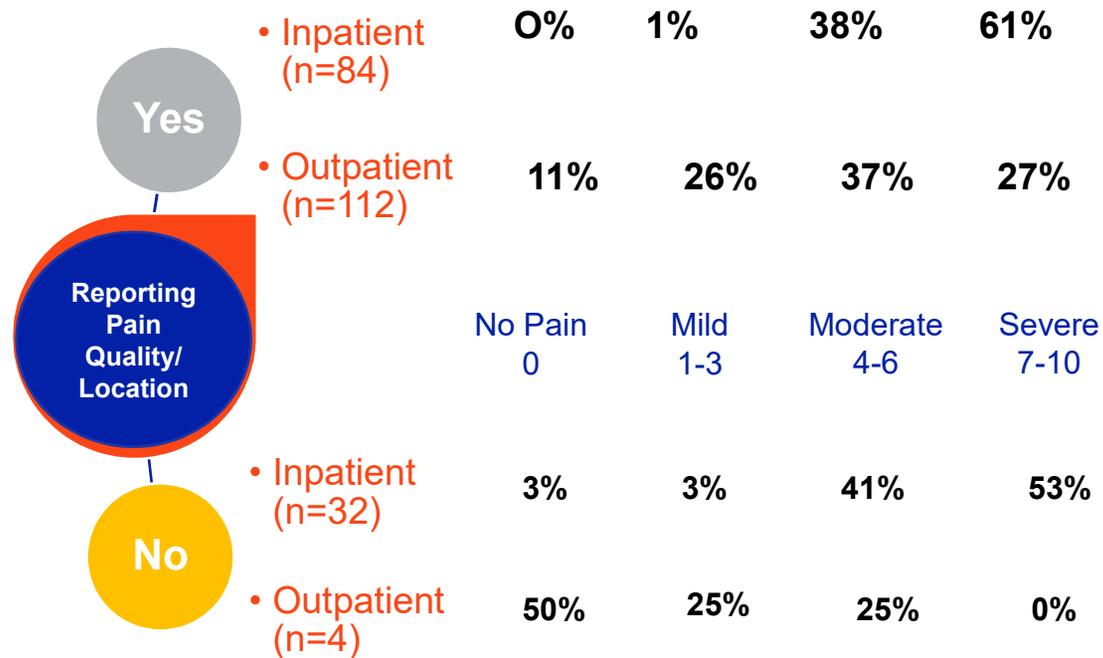❖ Painful body surface area (PBSA) measured by pixels on a 2D body diagram

Analysis

❖ Descriptive statistics, correlations in SPSS
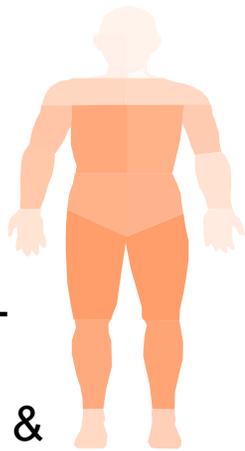
❖ Image analysis in ImageJ software

Results

Average Pain Intensity Scores

		No Pain 0	Mild 1-3	Moderate 4-6	Severe 7-10
Yes	• Inpatient (n=84)	O%	1%	38%	61%
	• Outpatient (n=112)	11%	26%	37%	27%
No	• Inpatient (n=32)	3%	3%	41%	53%
	• Outpatient (n=4)	50%	25%	25%	0%

Reporting Pain Quality/ Location

Results

Inpatient

- 40%-60% back & extremities
- ~30% chest

%	Frequency
3%	3
3%	3
5%	6
6%	7
6%	7
7%	8
8%	9
8%	9
8%	9
9%	10
9%	11
11%	13
11%	13
14%	16
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25%	29
26%	30
33%	38
34%	39
34%	39
36%	42
37%	43
39%	45
41%	48
41%	48
47%	55
50%	58
57%	66
59%	68

Outpatient
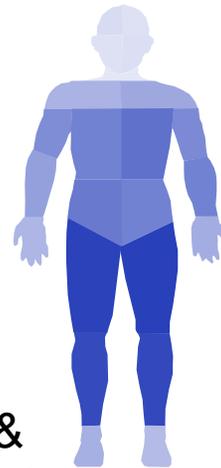
- 50%-70% back & extremities
- ~40% chest
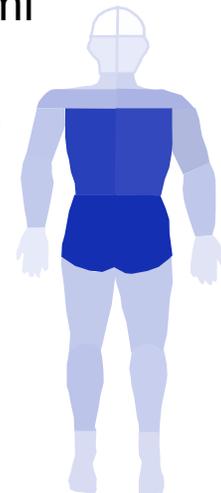
%	Frequency
3%	3
3%	4
8%	9
9%	11
9%	11
10%	12
10%	12
11%	13
11%	13
12%	14
12%	14
13%	15
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28%	33
30%	35
33%	38
34%	39
39%	45
40%	46
42%	49
42%	49
45%	52
47%	55
59%	69
60%	70
60%	70
62%	72
63%	73
63%	73
68%	79
68%	79

Pain Frequency Map

Color grid shows the **frequency** of each pain area marked as painful and **% of individuals** that reported pain in a specific area, darker color indicates higher frequency

Results

Inpatient / Out-patient	Intensity	Quality	PBSA	Location
Average Pain Intensity	1 / 1	-.01	.06	-.1
Pain Quality Descriptors	.12	1 / 1	.21*	.24**
Pain Body Surface Area	.06	.09	1 / 1	.32**
No. Pain Location	.08	.35**	.39**	1 / 1

Pain Characteristics	Inpatient Mean ± SD	Outpatient Mean ± SD	P
Average Pain Intensity Score (0-10)	**7 ± 2**	5 ± 3	<.001
Pain Quality Descriptors (78 words)	15 ± 14	**19 ±11**	.004
Pain Body Surface Area (pixel counts)	8911 ± 9080	**9473 ± 9255**	.6
No. of Pain Location (48 areas)	**12±9**	12±8	.91

Positive significant correlations between pain characteristics are displayed in orange for inpatient and blue for outpatient.
**. Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)

Results from Paired t-test for the differences between inpatient and outpatient

Discussion and Conclusion

❖ Greater proportions of **chest, back** and **lower extremities** pain in SCD were consistent with the SCD pathophysiology, e.g. frequent crisis pain reported in chest, back and long bones.

❖ Average **pain intensity** was **higher** during the inpatient stays compared to outpatient which may interfered with patient's self-reporting quality and location during the visit.

❖ Using **2D body diagram** to document pain location to precisely quantifying the painful body areas may help determining the origin, type of pain and to guide diagnosis.

❖ **PAIN*Report*It**®, assessment tool, and **pain frequency map** are valuable for future clinical and experimental pain studies.

Future Directions

- ❖ Dermatomes (areas od skin supplied by a single spinal nerve) associated with each pain location
- ❖ Determine a specific PBSA value that may predict patient admission to hospital or conditions that require immediate medical attention

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