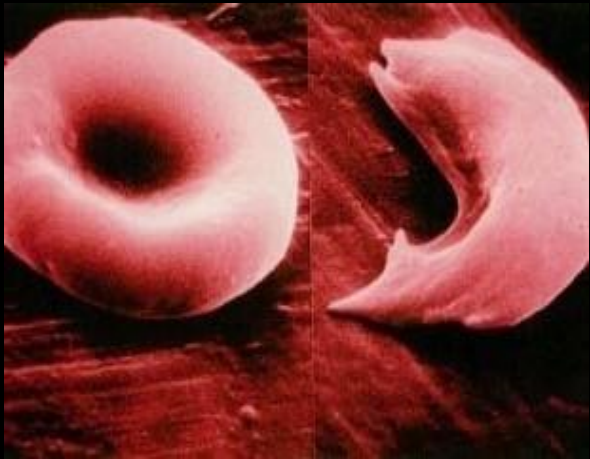


USE OF A DEPRESSION AND SLEEP IMPAIRMENT
TREATMENT GUIDELINE TO IMPROVE PERCEIVED
PAIN RATINGS AND QUALITY OF LIFE FOR
PATIENTS WITH SICKLE CELL DISEASE:
A QUALITY IMPROVEMENT PROJECT

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Faculty Advisor: Dr. Debra Siela

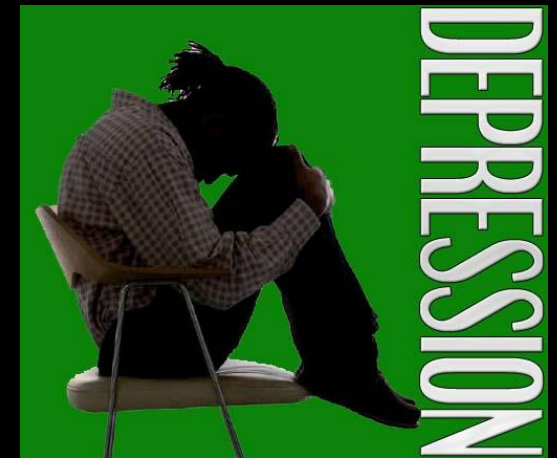
BACKGROUND



- Estimated 100,000 people with sickle cell disease (SCD) in the United States (Sickle Cell Disease Association of America, SCDAA, 2016)
- Millions affected throughout the world (CDC, 2016)
- 1:365 Black or African-American births;
1:16,300 Hispanic-American births
- Most significant effect of disease is acute and chronic pain
- Many physiological and psychosocial complications
- Increased morbidity and mortality

BACKGROUND

- Higher levels of depression, anxiety associated with chronic pain conditions
- Co-morbid pain and affective disorders contribute to:
 - Intensity of experienced pain
 - Sleep impairment
 - Poorer pain outcomes despite treatment
- Physical and psychological stress significant predictor of pain and vaso-occlusive crisis (VOC)
- Multimodal approach required to treat

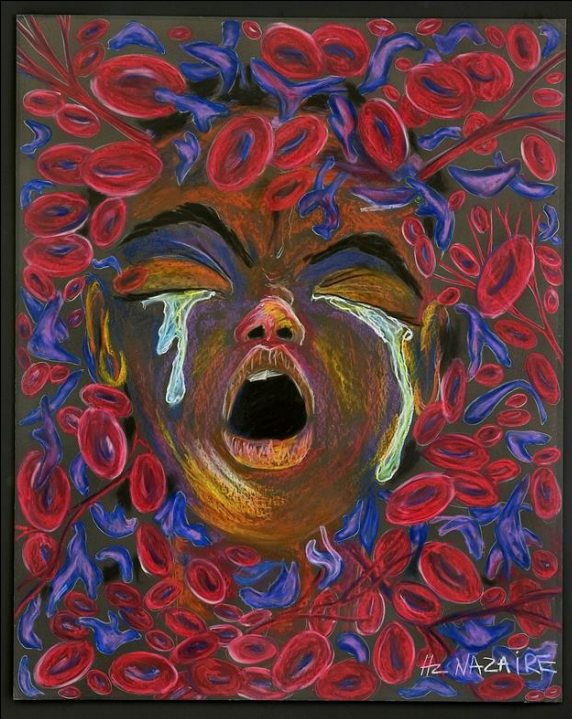


BACKGROUND

- Disrupted Sleep impacts
 - Pain
 - Physical functioning
 - Disability
 - Psychological health
- QOL
 - Impaired overall when compared to other chronic illnesses
 - Especially impaired during admission for crisis



LOCAL PROBLEM



- Hospital sponsored interdisciplinary sickle cell clinical redesign to improve pain management
- Treatment guidelines developed for ED, admission and outpatient
- Dedicated sickle cell treatment team
 - MDs; PC APRN; unit assistant manager, LCSW and CM, PC Chaplain,
- Target unit for hospitalization
- Benefits of redesign
 - Consistent, holistic approach
 - Trust building

WHAT WE DISCOVERED

- Identification of psychosocial stressors
 - Social isolation
 - Withdrawal
 - Feelings of abandonment
 - Poor relationships with friends and family members
- Evidence of insomnia and poor sleep hygiene

INTENDED IMPROVEMENT

- Purpose
 - Improve the process of assessment and treatment of depression and sleep impairment
- Goal
 - Improve overall pain levels and quality of life for patients with SCD

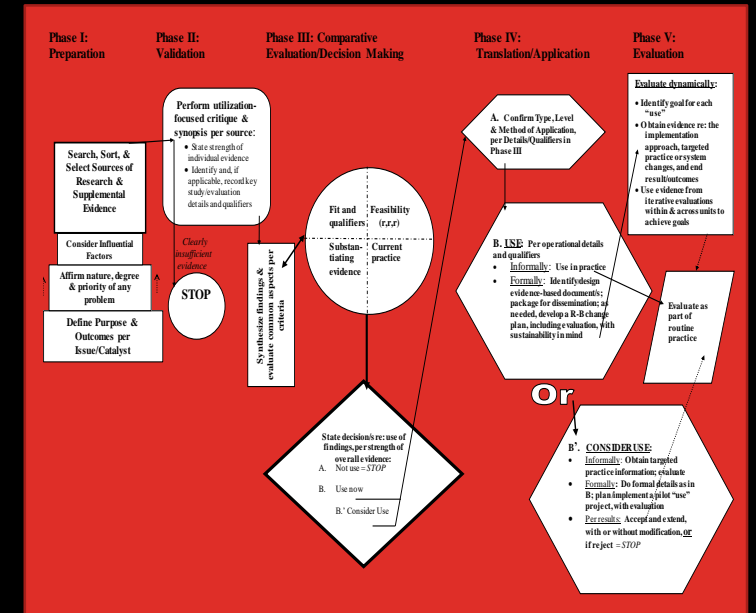


PROJECT QUESTIONS

- Is the use of the Stetler Model for implementation of an evidence-based guideline effective in implementing the proposed quality improvement project in this clinical setting?
- Does implementation of an evidence-based guideline facilitate the assessment and treatment of depression and sleep impairment on every patient admitted for VOC?
- Does identification and treatment of depression and sleep impairment result in a 50% improvement from baseline in depression, sleep impairment, pain and QOL?

THEORETICAL MODEL – THE STETLER MODEL

- Commonly used EBP model for nursing
- Proscriptive approach to assist in research utilization
- Five phases
 - Preparation
 - Validation
 - Comparative evaluation and decision-making
 - Translation and application
 - Evaluation
- Emphasizes critical thinking and decision making



PROJECT DESIGN

- Project team identified
 - Dedicated sickle cell team from clinical redesign
 - Geriatric/PC LCSW
 - Pharmacy
 - Psychiatric physician assistant (PA) & Medical Director of Psychiatry
 - And community representative from SCDAA, Southern CT
- Literature search: SCD, chronic pain, depression, sleep impairment, and QOL
- Review of current research, clinical guidelines, current practice

INTERVENTION

- Project design team expanded
 - Outpatient Attending Hospitalist MD, CM and LCSW
 - Director of Nursing for Medicine
- Four weekly meetings by team, several one-to-one meetings
- Creation of “Guideline for the Evaluation and Treatment of Depression and Sleep Impairment in Sickle Cell Disease” (“Guideline”)
- Approval from
 - VP Performance & Risk Management
 - BSU and Bridgeport Hospital IRB
 - P&T Committee
 - Medical Executive Committee
 - Chief of Medicine (final approval)

Bridgeport Hospital

**Guideline for the Evaluation and Treatment of Depression and Sleep Impairment
In Sickle Cell Disease**

• Updated: July 2016
• Original: July 2016

Introduction:

- Vaso-occlusive crisis (VOC) pain is both an acute and chronic factor of sickle cell disease (SCD).
- Acute, recurrent, and unremitting pain is often joined by other affective disorders that impact pain chronicity, such as depression, insomnia, anxiety, aggression, despair, helplessness and inappropriate pain coping strategies, as well as other psychiatric disturbances.
- “Chronic pain is often associated with other conditions that enhance its chronicity. These include psychosocial factors such as depression, anxiety, feelings of despair, insomnia, loneliness, helplessness, posttraumatic stress disorder (PTSD), and dependence on pain medications” (NIH, 2014, p. 56).
- The NIH (2014) recommends an evaluation for depression be available to all adults with sickle cell disease.
- This guideline should be used to:
 - Guide the evaluation of the existence of depression in this patient population and provide treatment recommendations for consideration.
 - Guide the evaluation of the existence of sleep impairment in this patient population and provide treatment recommendations for consideration.

Patient Assessment:

- Upon admission, during the Palliative and Pain Consult, or at each outpatient visit in the Bridgeport Hospital Sickle Cell Clinic, the patient will be assessed using the following tools:
 - **The Patient Health Questionnaire (PHQ-9) – Appendix A1/A2.** The PHQ-9 is a nine question self-assessment tool that can be used to both screen for and monitor treatment for depression (Maury, 2012).
 - **The Pittsburgh Sleep Quality Index (PSQI) – Appendix B1/B2.** The tool is used to measure the quality and patterns of sleep in the adult. The tool measures seven domains, including, “subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction” over the previous month (Smyth, 2012, para. 2).
 - **Numerical Rating Pain Scale (NRS) and Simple Descriptive Pain Scale (SDPS).** Pain level will be assessed during the initial pain consult using a verbal 0-10 NRS, with “0” being no pain, and “10” being worst possible pain. During the course of the admission and prior to discharge, patients will be asked to describe whether their pain is “better”, the “same” or “worse” as the previous evaluation using the SPS (Pasero & McCaffery, 2011).
 - **The Quality of Life Scale (QOLS) – Appendix C1/C2.** The QOLS is a 16 item self-assessment tool. It has been adapted for use in patients with chronic illnesses, to include a question regarding independence and ability to care for oneself (Burckhardt, 2003; Burckhardt & Anderson, 2003).
- Inquire about current or past use of antidepressants, anxiolytics, benzodiazepines or non-benzodiazepine hypnotics.
- Determine if the patient is a candidate for initiation or change of antidepressant therapy.
- Initiate SW or Psychiatry consult(s) if needed.
- Determine if the patient is a candidate for initiation or change of hypnotic therapy.
- Provide Sleep Hygiene tips.

Guideline for the Evaluation and Treatment of Depression and Sleep Impairment In Sickle Cell Disease

- Updated:
- Original: July 2016

Introduction:

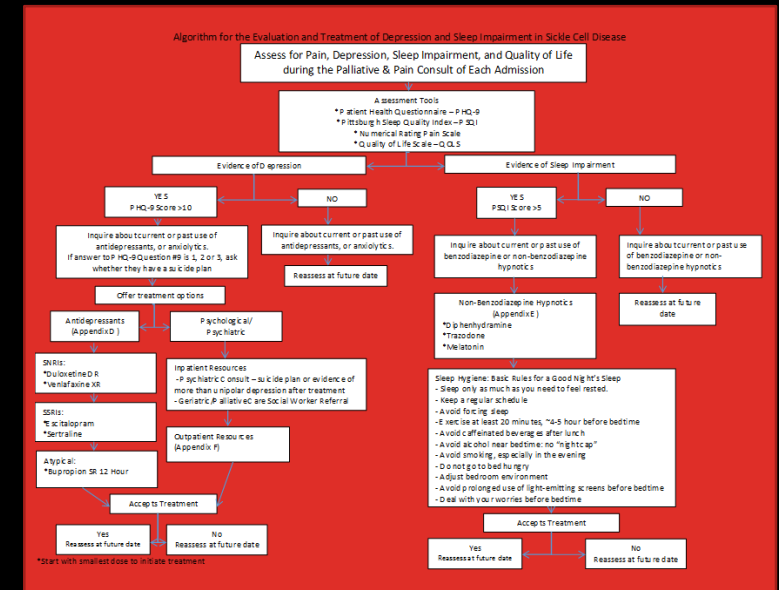
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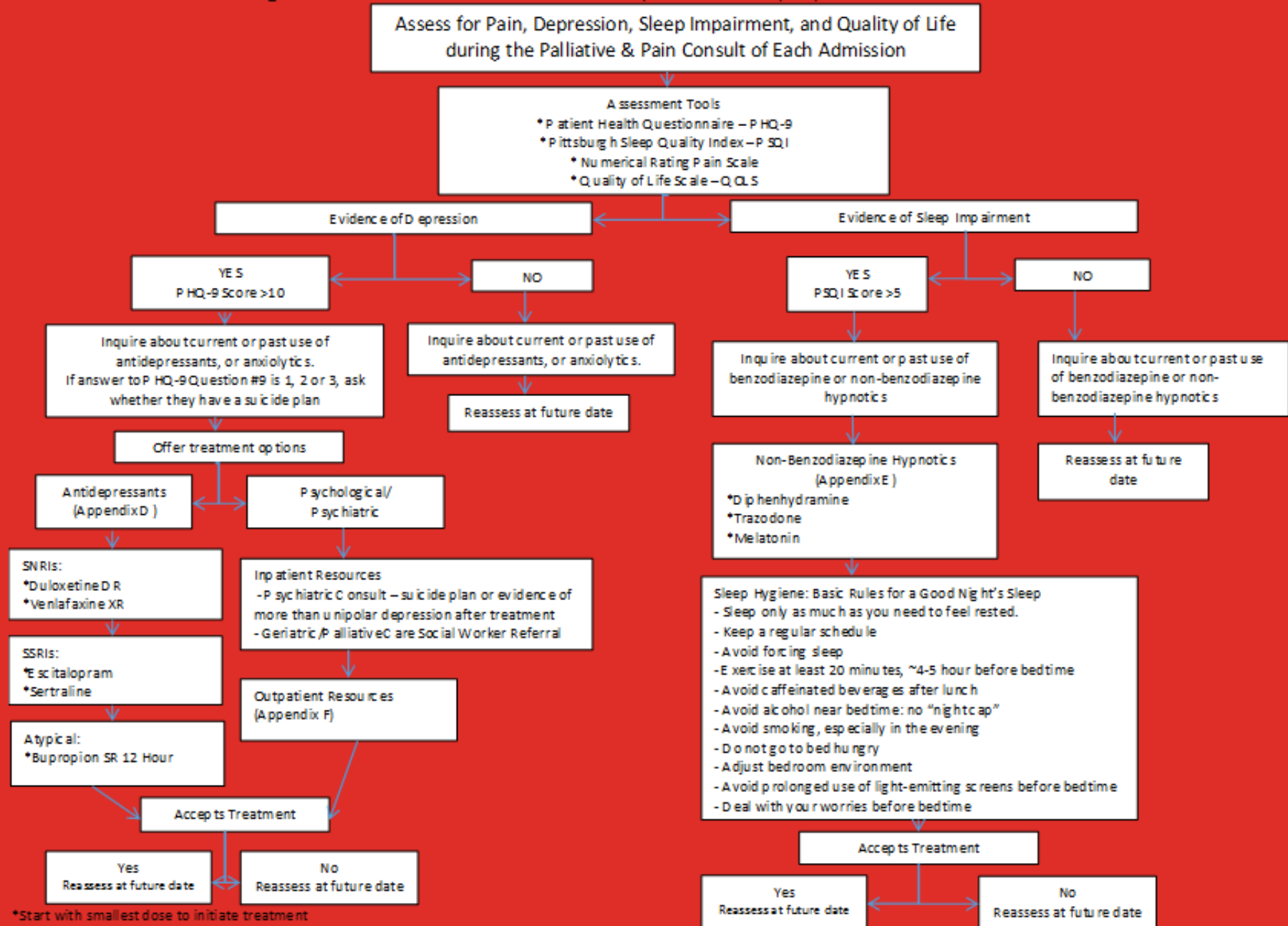
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METHODS OF EVALUATION

- Four assessment tools
 - Patient Health Questionnaire – PHQ-9
 - Pittsburgh Sleep Quality Index – PSQI
 - Quality of Life Scale – QOLS
 - Numerical Pain Intensity Scale and Simple Descriptive Pain Scale
- Every adult patient admitted for sickle cell disease
- Treatment offered if depression or sleep impairment identified
- Reassessment at each readmission



Algorithm for the Evaluation and Treatment of Depression and Sleep Impairment in Sickle Cell Disease



ASSESSMENT TOOLS

GUIDELINE ASSESSMENT TOOLS FOR DEPRESSION, SLEEP, QUALITY OF LIFE AND PAIN

Assessment Tool	Description
The Patient Health Questionnaire (PHQ-9)	Nine question self-assessment tool used to screen for and monitor treatment for depression (Maurer, 2012). Demonstrates sensitivity of 61% and specificity of 94% for mood disorders in adults.
The Pittsburgh Sleep Quality Index (PSQI)	Tool using seven domains to measure quality and patterns of sleep in the adult (Smyth, 2012). Has both an internal consistency and reliability coefficient (Cronbach's alpha) of 0.83 for the seven domains.
The Quality of Life Scale (QOLS)	16-item self-assessment tool adapted for use in patients with chronic illnesses (Burckhardt, 2003; Burckhardt & Anderson, 2003). Tool has shown an internal consistency ($\alpha = .82$ to $.92$) with a high test-retest reliability in stable chronic illness groups over a three-week period ($r = 0.78$ to 0.84).
Numerical Pain Intensity Scale (PIS) and Simple Descriptive Pain Scale (SDPS)	PIS – Verbal 0-10 scale, with “0” being no pain, and “10” being worst possible pain. SDPS - Patient asked to describe whether their pain is “better”, the “same” or “worse” as compared to previous evaluation. Validity and reliability have been well established (Pasero & McCaffery, 2011).

ANALYSIS OF EVALUATION DATA

- Outcome Measurements
 - Chart audits
 - Assessment results
 - Pain scores on admission and discharge
 - Any treatment accepted or refused, continued or discontinued
 - Number of admissions
 - Length of stays
 - Demographic data
 - Gender
 - Age
 - Race and ethnicity
 - Sickle cell genotype

RESULTS

- 15 patients were assessed for the initial assessment; 10 patients signed consents
 - 32 assessments were completed between September 13, 2016 and March 10, 2017
- Admissions decreased over time for each patient evaluated for the project (i.e. those that signed consents, as well as those not readmitted)
- Length of stay (LOS) decreased from 5.90 to 4.90
 - Overall LOS decreased from 9.70 from start of redesign project

DEMOGRAPHICS

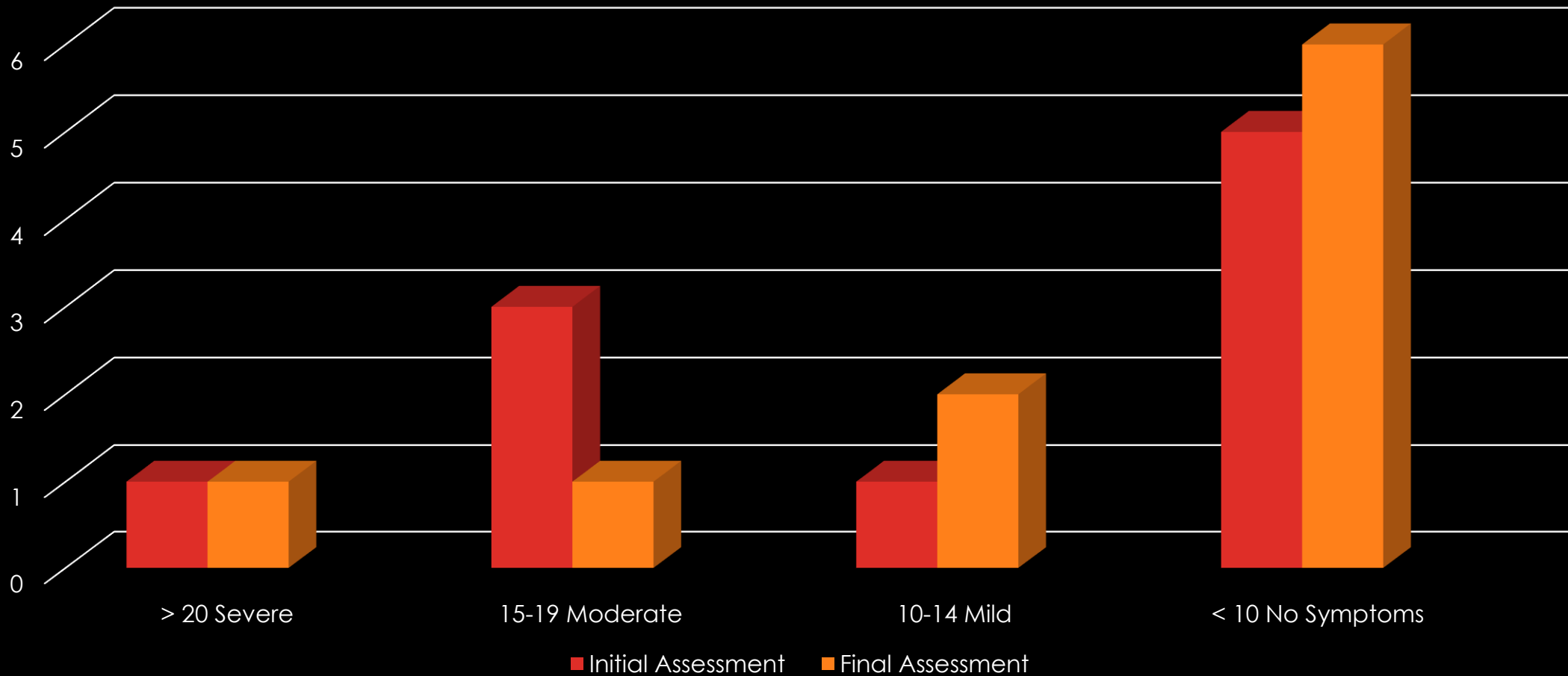


Patient Demographics		
Variable	N	Percentage
Gender		
- Male	2	20
- Female	8	80
Ages		
- 18-20	2	20
- 21-30	4	40
- 31-40	2	20
- 41-50	1	10
- 51-60	1	10
Race/ethnicity		
- Black/African American – Non Hispanic	9	90
- Black/African American – Hispanic	1	10
Genotype		
- homozygous hemoglobin SS (HbSS)	8	80
- hemoglobin S β^0 -thalassemia (Hb S β^0 -thalassemia)	1	10
- other or combination	1	10

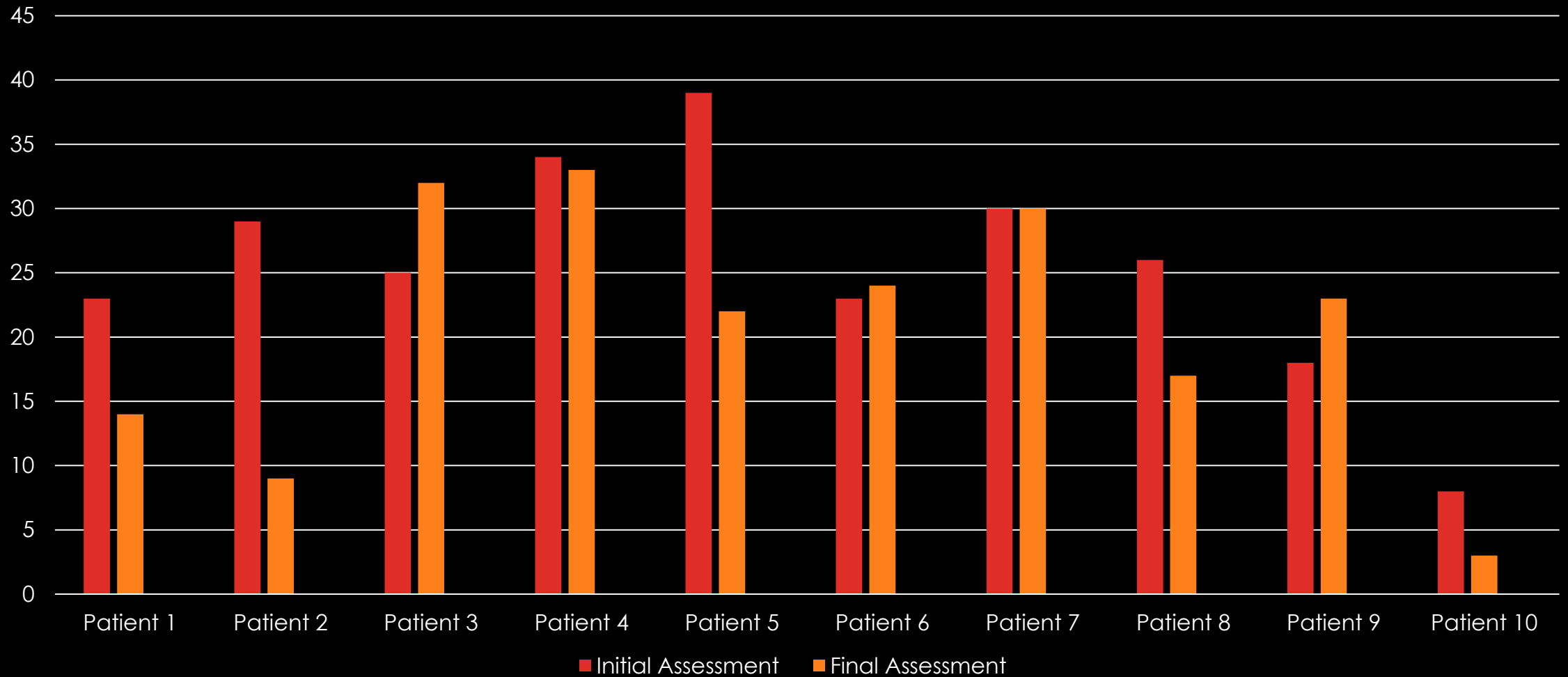
RESULTS

- Patient Health Questionnaire (PHQ-9) (>10)
 - 60% showed improvement ($p=.047$)
- The Pittsburgh Sleep Quality Index (PSQI) (≥ 5)
 - 60% showed improvement
 - 1 person's sleep dropped to normal range (<5)
- Quality of Life Scale (QOLS) (Range 16-112)
 - 70% showed improvement ($p=.011$)
 - Average 75.6 on initial assess; Average 80 on final assess

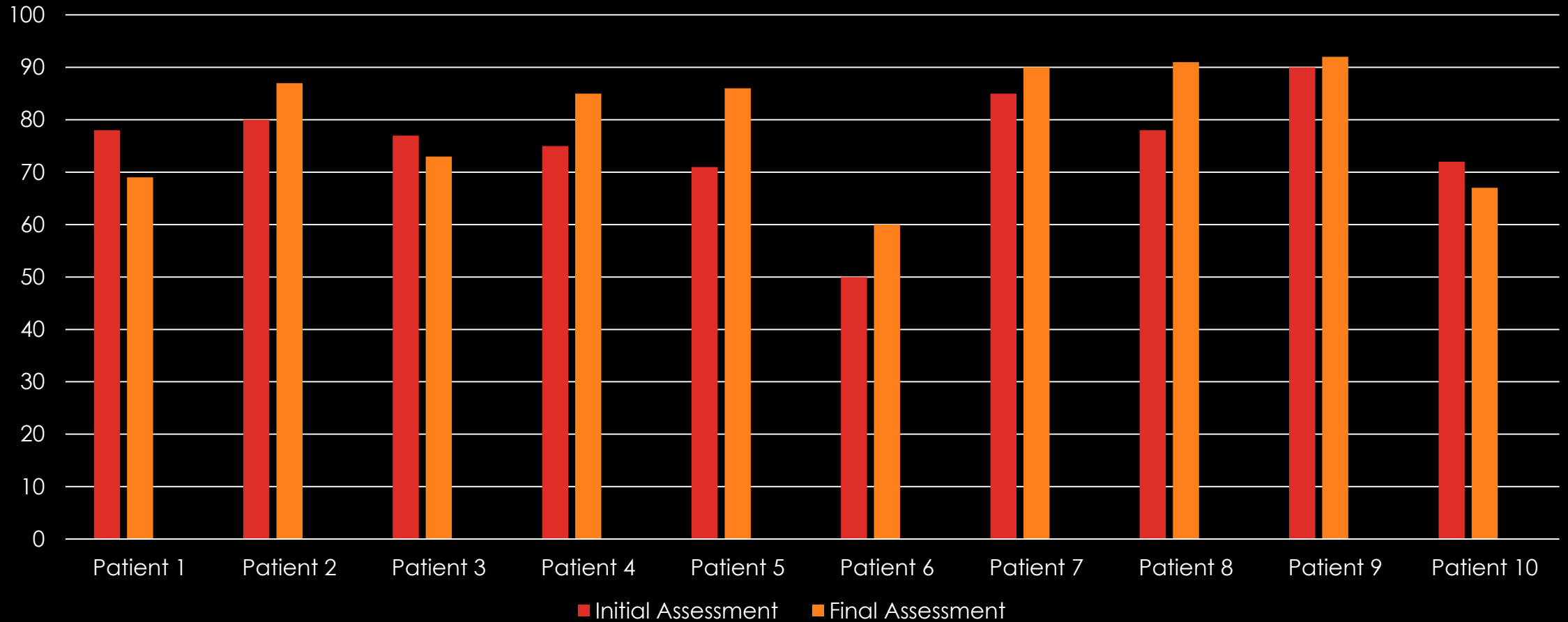
PATIENT HEALTH QUESTIONNAIRE – PHQ-9



PITTSBURGH SLEEP QUALITY INDEX - PSQI



QUALITY OF LIFE SCALE - QOLS



Correlations

		NRS	Global PHQ9	Global PSQI	Global QOLS
NRS	Pearson Correlation	1	.381*	.396*	-.262
	Sig. (2-tailed)		.031	.025	.147
	N	32	32	32	32
Global PHQ9	Pearson Correlation	.381*	1	.469**	-.468**
	Sig. (2-tailed)	.031		.007	.007
	N	32	32	32	32
Global PSQI	Pearson Correlation	.396*	.469**	1	-.323
	Sig. (2-tailed)	.025	.007		.071
	N	32	32	32	32
Global QOLS	Pearson Correlation	-.262	-.468**	-.323	1
	Sig. (2-tailed)	.147	.007	.071	
	N	32	32	32	32

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

RESULTS

SUMMARY

- Stetler Model effective in guiding process
- Interdisciplinary teams provide expertise
 - To evaluate evidence-based research
 - To create guidelines promoting evidence-based practice
- The “Guideline” is an effective tool to evaluate and treat depression in this patient population
- The four assessment tools show utility for use in both the inpatient and outpatient settings

RELATION TO THE EVIDENCE

Goral, Lipsitz & Gross (2010)

- 27 country survey
- Prevalence of psychiatric disorders with other correlates
 - Strong association with chronic pain and comorbid psychiatric disorders
- Significant association with
 - Depression
 - Anxiety
 - Sleep disorders
 - Higher number health care visits

Levenson et al. (2008)

- Pain diaries of 232 patients with SCD
- Higher levels of depression and anxiety
- Higher mean pain scores
- More interference and distress from pain
- Most days pain and depression reported not crisis days

RELATION TO THE EVIDENCE

Emery, Wilson, & Kowal (2014)

- Chronic pain patients
- Examined effects of depression on sleep behaviors
- 55% - met diagnostic criteria for major depressive disorder
- 97% met criteria for insomnia disorder

Wallen et al. (2014)

- Prevalence of sleep disturbance association with pain and depression in SCD
- 71.2% prevalence sleep disturbance
- 20.6% depressed; 10% thoughts of suicide
- Correlation between depression and sleep quality ($p < .001$)

LIMITATIONS

**Limitations live
only in our minds.
But if we use our
imaginations, our
possibilities
become limitless.**

Jamie Paolinetti

WWW.LIVELIFEHAPPY.COM

- Small convenience sample
 - Impacts generalizability
- Some patients not readmitted
 - Project expanded to outpatient sickle cell clinic
 - Unable to reassess those patients not seen at sickle cell clinic
 - 5 patients lost to follow-up

INTERPRETATION

- Patients with SCD have both acute and chronic pain associated with the physical effects of their disease
- Patients have pain every day, not just crisis pain.
- Not every patient is hospitalized for acute pain episodes.
- Psychological effects related to chronic and acute pain include
 - Depression
 - Sleep impairment
- Assessing for and treating both depression and sleep impairment have a positive impact on:
 - Pain
 - Length of stay
 - Need for hospitalization due to vasoocclusive crisis.
- Patients should be evaluated for depression and sleep impairment in the outpatient setting to capture the ill psychological effects of pain

CONCLUSIONS

- The Stetler Model – effective in translating research into practice
- Interdisciplinary teams effective
 - Evaluation of literature
 - Creation of guideline
- Guideline
 - Utility in assessment and treatment options for depression and sleep impairment
 - Easy to work with
 - Can be implemented by various members of interdisciplinary team
 - Can be used in inpatient and outpatient setting
 - Could be expanded to other chronic illnesses
- Decision made to expand guideline use to the outpatient setting
 - Timely – as hospital admission decreased

IMPLICATIONS FOR PRACTICE

- Evaluation for depression and sleep impairment identifies key co-morbidities which impact pain and increase morbidity and mortality
- Early detection leads to early treatment and utilization of support services
- Early treatment can positively impact need for hospitalization

RECOMMENDATIONS

- Expand use of guideline to the outpatient sickle cell clinic
- Evaluate guideline for use with other chronic illnesses, especially those in which pain is a factor





"Ten Redefined"

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THANK YOU! SPECIAL THANKS TO

BRIDGEPORT HOSPITAL SICKLE CELL PROJECT TEAM, PALLIATIVE
CARE SERVICE, HOSPITALIST SERVICE, AND LEADERSHIP

HERTZ NAZAIRE

HAITIAN-BORN, BRIDGEPORT, CT ARTIST

FOR ALLOWING THE USE OF HIS ARTWORK “TEN REDEFINED” – HE **PAINTS**
TO SHOW THE IMPACT SICKLE CELL DISEASE AND DEPRESSION HAVE ON HIS
LIFE. ([HTTP://WWW.NAZAIRE.INFO](http://www.nazaire.info))

AND

IN MEMORY OF

KAREEM BUTLER 40

WILLIAM MIMS 47

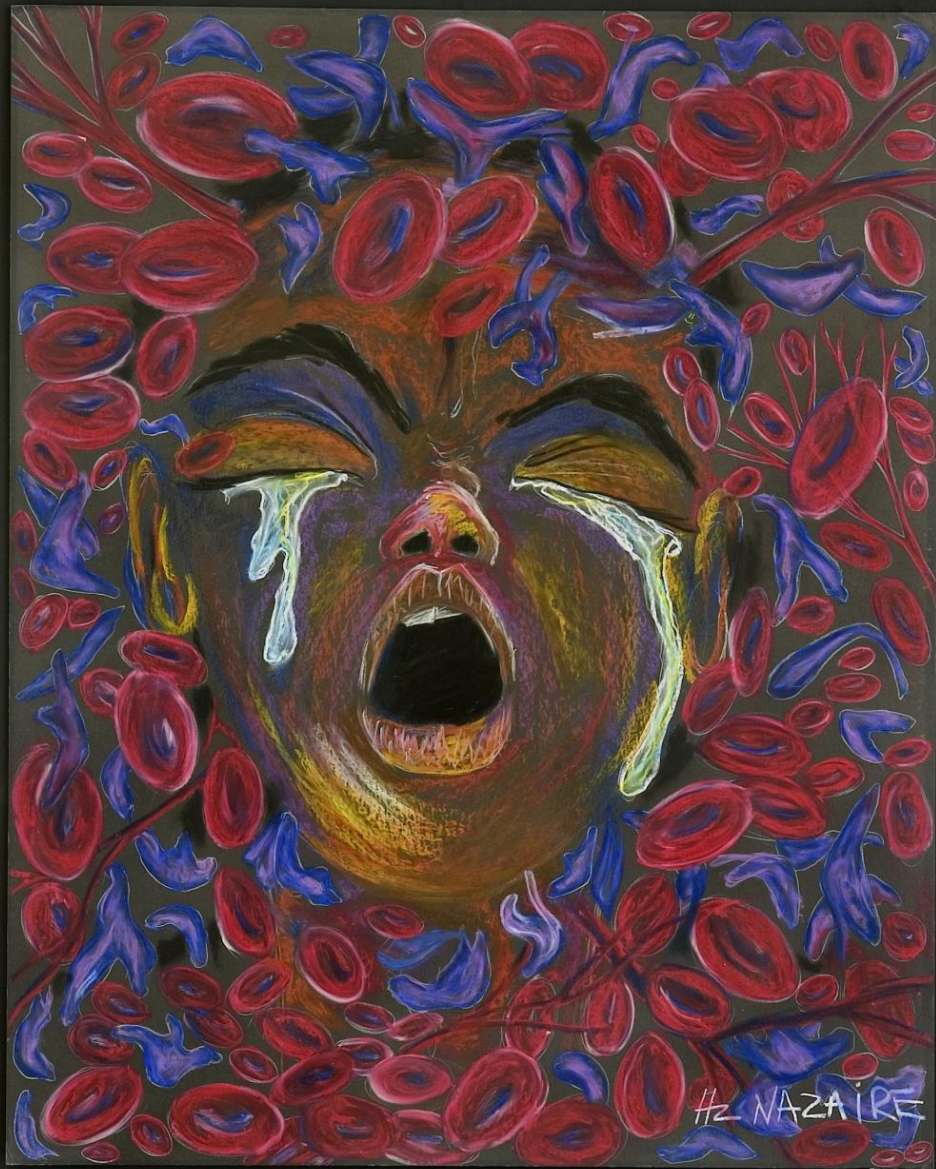
SHANTE KIPPING 39

CAROLINE DAVIS 52

QUESTIONS



FOR ADDITIONAL QUESTIONS
PLEASE CONTACT
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