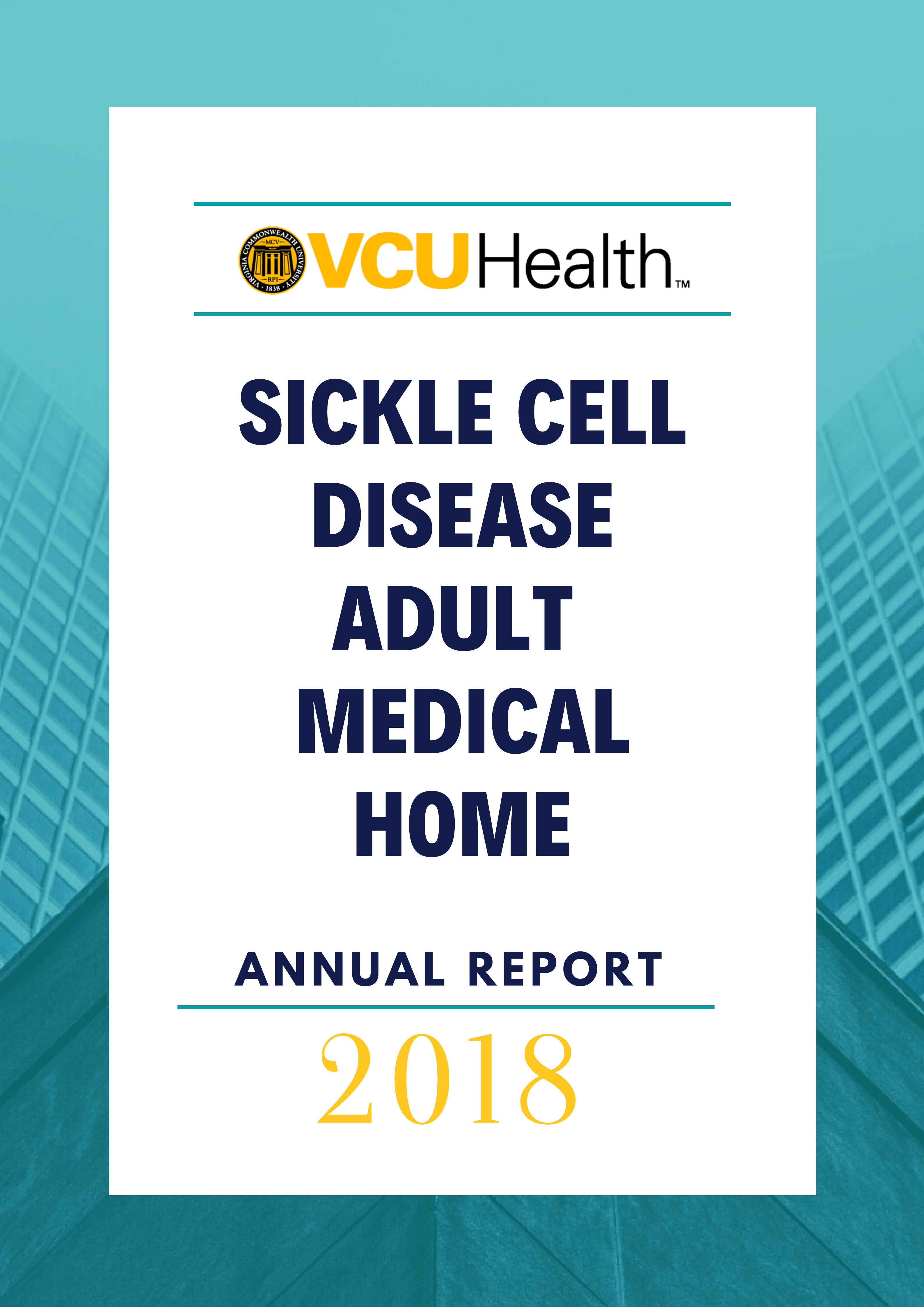

VCU Health™

SICKLE CELL DISEASE ADULT MEDICAL HOME

ANNUAL REPORT

2018

SCD ADULT MEDICAL HOME EXECUTIVE SUMMARY

SITUATION

In 2016, Sickle cell disease (SCD) readmissions were increasing, after a long history of decline at VCU. SCD was also a key driver of high hospital resources utilization and poor patient-reported outcomes. The Sickle Cell Disease Medical Home was launched to address this issue for the highest utilizers at VCU Health while impacting the entire adult SCD population. The program's funding was based on the success of a pilot that showed cost savings of $333,000 for 5 patients in 12 months.

BACKGROUND

In 2016 VCU Health was on its way to seeing approximately 600 patients with SCD annually as inpatients or outpatients. In FY16 the 30-day SCD readmission rate was 33.7%, up from 22.5% in FY14. The average SCD length of stay was 6.7 days, compared with an expected length of 4.2 days. The number of ED visits for SCD patients in FY17 was projected to be double that of FY14. The percent of ED returns in 3 days was projected to be triple that of FY14.

PROJECT EXECUTION

The SCD Adult Medical Home was assembled and approved as part of VCU Health's Vision by Design investment in the fall of 2017. January 1, 2018 was the official beginning of year one. The Medical Home was structured and designed using quality improvement principles (DMAIC project planning cycle, PDSA implementation cycles). It consisted of separate multidisciplinary teams to coordinate inpatient care, emergency care, and ambulatory care respectively (Figure). These teams were overseen by a leadership team teams of administrators and clinical leaders. Weekly on Tuesdays, clinicians, behavioral health professionals, the project manager, and allied health professionals including the patient navigators met to review the progress of interventions on individual high-utilizing patients and to create or adjust their treatment plans. Immediately following this meeting, the leadership team consisting of administrators, clinical champions, and the project manager held weekly oversight meetings in order to coordinate activities of all teams.

RESULTS

Success was evaluated by reduction in the 30-day readmission rate, average length of stay and overall costs. We also measured patient satisfaction with pain management and provider satisfaction with support for caring for the SCD population. For the 50 highest utilizing patients:

- 30-day readmissions were reduced from 47.1% at baseline to 36.4% at 12 Months.
- Average LOS was reduced from 6.1 days at baseline to 4.8 days at 12 months.
- Total inpatient days were reduced by 100 days (206 to 106) over the first year.
- This resulted in a 25.43% reduction in costs for the first year, totaling $1,347,056.47.

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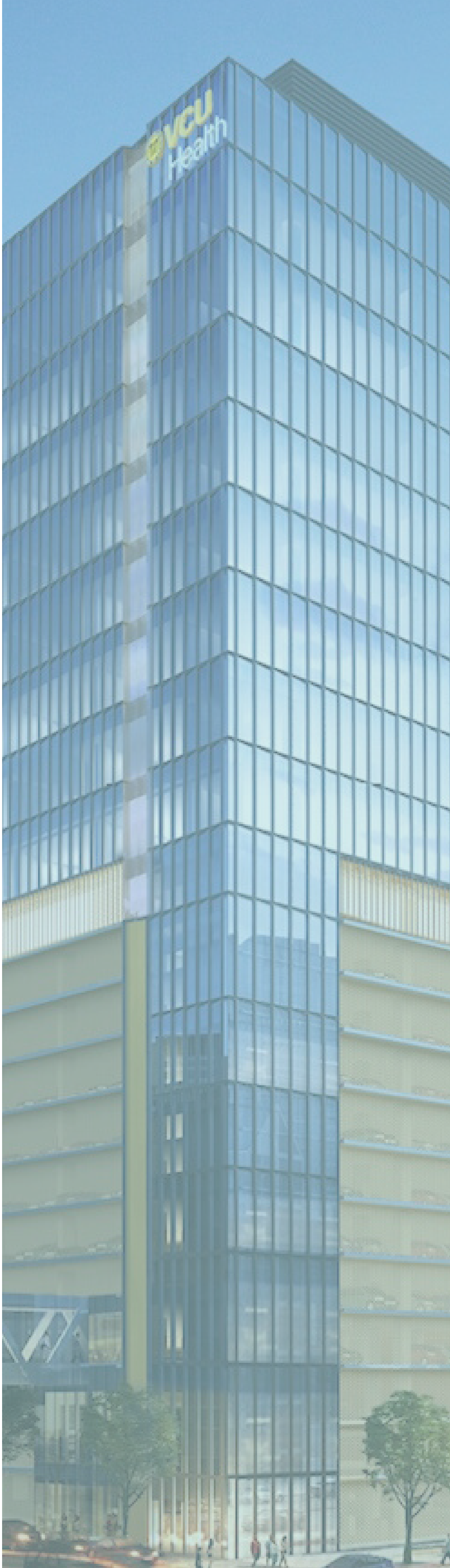


A MESSAGE FROM DR. SMITH

The US medical home for adults with sickle cell disease is in disrepair. There are not enough willing providers. Even the willing providers are often undertrained to care for what used to be a childhood disease, but now because of very good pediatric care is depositing thousands of newly adult sickle cell patients on the system's doorstep each year. Adolescence and young adulthood is a terrible time to enter the adult health care system for chronically ill patients. Behavioral, social, and environmental causal determinants of health far outweigh the biological determinants. These determinants are rapidly changing for adolescents with sickle cell disease. They face new health care disparities not found in the pediatric system. They clog urban emergency departments and hospitals with often unnecessary visits. They leave home, lose their insurance, and may fail to take responsibility for their chronic disease and their lives. Too frequently, they die.

Therefore, after a pilot program demonstrating feasibility and limited success, a huge expansion (repair and remodeling, if you will) of the VCU Adult Sickle Cell Medical Home was funded in 2018. The newly established team set out to achieve the Institute for Healthcare Improvement Triple Aim for adults with sickle cell disease--improving the patient experience of care (including quality and satisfaction), improving the health of the population, and reducing the per capita cost of health care. This first Annual Report suggests we largely achieved those aims. To achieve them, we of course tried to provide excellent medical care when patients were in the hospitals and clinics. But we added two major interventions: team case management and individual care management by community health workers assigned to high-utilizing adults or adults with extreme psychosocial determinants.

We are proud of our still-growing team and believe our model will work for many with chronic disease. We are now adding integrated behavioral healthcare members to our team, and believe next year's report will show more progress toward or beyond the outcome targets we set for ourselves.

We are grateful to VCU Leadership, the Vision by Design program, and to our staff and patients for a great team effort in funding and executing this program in 2018. We hope readers of this report will be inspired toward excellence with compassion in the care of adult patients with chronic disease. We are certain we are a national leader of such programs for adults with sickle cell disease.

Wally R. Smith, MD
Florence Neal Cooper Smith Professor of Sickle Cell Disease
Vice Chair for Research, Division of General Internal Medicine

A MESSAGE FROM DR. LIPATO

Since coming to VCU in 2013 the adult sickle cell clinic has grown tremendously. When I arrived, the clinic was very busy and at that time the clinic only had two clinical providers, with me joining as the third. We currently have two physicians, two nurse practitioners, a clinical social worker, two patient navigators, and pharmacy technician who interact with patients on a daily basis. This growth in the clinical aspect of the adult sickle cell program allows us to be greatly involved in all aspects of our patients' care here at VCU.

In addition to the outpatient clinic that has grown in size since 2013, we now have 16 4-hour clinic sessions every week, we also have a Monday to Friday presence on the inpatient side. Our inpatient nurse practitioner takes an active role in assisting the general internal medicine inpatient teams manage patients when they get admitted. She also sees patients when they are in the emergency room and helps coordinate their care.

This year we recently started working on a pilot program that will lead to the creation of an outpatient infusion clinic where patients can get treated for vaso-occlusive crises, avoiding the need to utilize the emergency room. This expansion will add to the experience we already have managing patients who require chronic simple blood transfusions, and patients on exchange transfusion who we co-manage with transfusion medicine.

Thokozeni Lipato MD
Assistant Professor
Division of General Internal Medicine

STATE OF SICKLE CELL DISEASE

What is Sickle Cell Disease?

Sickle cell disease (SCD) is a genetic disorder of red blood cells affecting patients of African, Mediterranean, and East Indian descent resulting in severe pain crises, organ failure, and early death.

What is the current state of SCD nationally?

There has been little progress in altering the natural history of sickle cell disease (SCD). Adolescents and adults have not benefitted from the major progress in morbidity and mortality seen in children. ED utilization rates rise dramatically after childhood. Hospital readmission rates and acute care utilization among 18-30 year olds (48.9%) is almost twice as high as that of younger patients aged 10-17 years (27.4%). Admissions are in turn tied to early mortality.

Throughout the US, the greatest hurdle to improving the care of adolescents and adults with SCD remains how to implement evidence-based, comprehensive care. This includes a consistent and close relationship with a SCD medical provider and an ancillary care team and self-care support system (psychologists, social workers, educational specialists, parent and patient support groups, community agency supports). Many adult SCD centers lack such ample services, which are more consistently found in pediatrics. When patients transition from pediatric to adult SCD care, they often leave a feathered nest and enter an abyss. This transition represents an opportunity for intervention to avoid establishing a pattern of high healthcare utilization in early adulthood.

A plethora of research has demonstrated individual, actionable psychosocial barriers to care in SCD, including stress, poor psychological adjustment, poor coping and poor self-efficacy. Actionable social barriers and patient-clinician relationship barriers also abound, including poor provider supply, provider mistrust, and social stigma. A decade of research has reported poor health-related quality of life in SCD, reflecting effects of these barriers.

WHY IS THIS A PRIORITY?

Why VCU? Why 2018?

At VCU Health, Sickle Cell Disease is a key driver of high readmission rates, high ED utilization, and excess length of stay. In FY16 the 30-day readmission rate for SCD at VCU was 33.7% (up from 22.5% in FY14). The average length of stay (LOS) for SCD inpatient encounters was 6.7 days, compared with the CMS arithmetic mean LOS of 4.2 days. The number of ED visits for SCD patients in FY17 was projected to be double that of FY14. The percent of ED returns in 3 days was projected to triple in FY17 compared to FY14. The literature showed that improved discharge planning, ensuring access to a primary care provider and appropriate ancillary providers could decrease the 30-day SCD readmission rate.

A grant-funded pilot aimed at reducing readmissions and LOS in SCD patients was expiring July 2017. This pilot used community health workers in coordination with the adult sickle cell clinic to target several of the highest utilizers in the SCD population. For patients enrolled in the pilot, readmissions were reduced by 18.4%, LOS was reduced by 1.2 days, and the number of clinic appointments doubled. If the program is not continued, these gains will likely be lost, resulting in a return to higher utilization.

Current Data and Performance at VCU

Readmission rates for adult SCD patients were rising. The VCUHS readmission rate for adult patients with SCD increased from 22.9% to 33.7% from FY14-FY16. The FY17 readmission rate was 31.2%.

LOS for patients with SCD was above the CMS geometric mean LOS. The average observed LOS for SCD in FY16 was 6.7 compared to the CMS arithmetic mean LOS of 4.2 days.

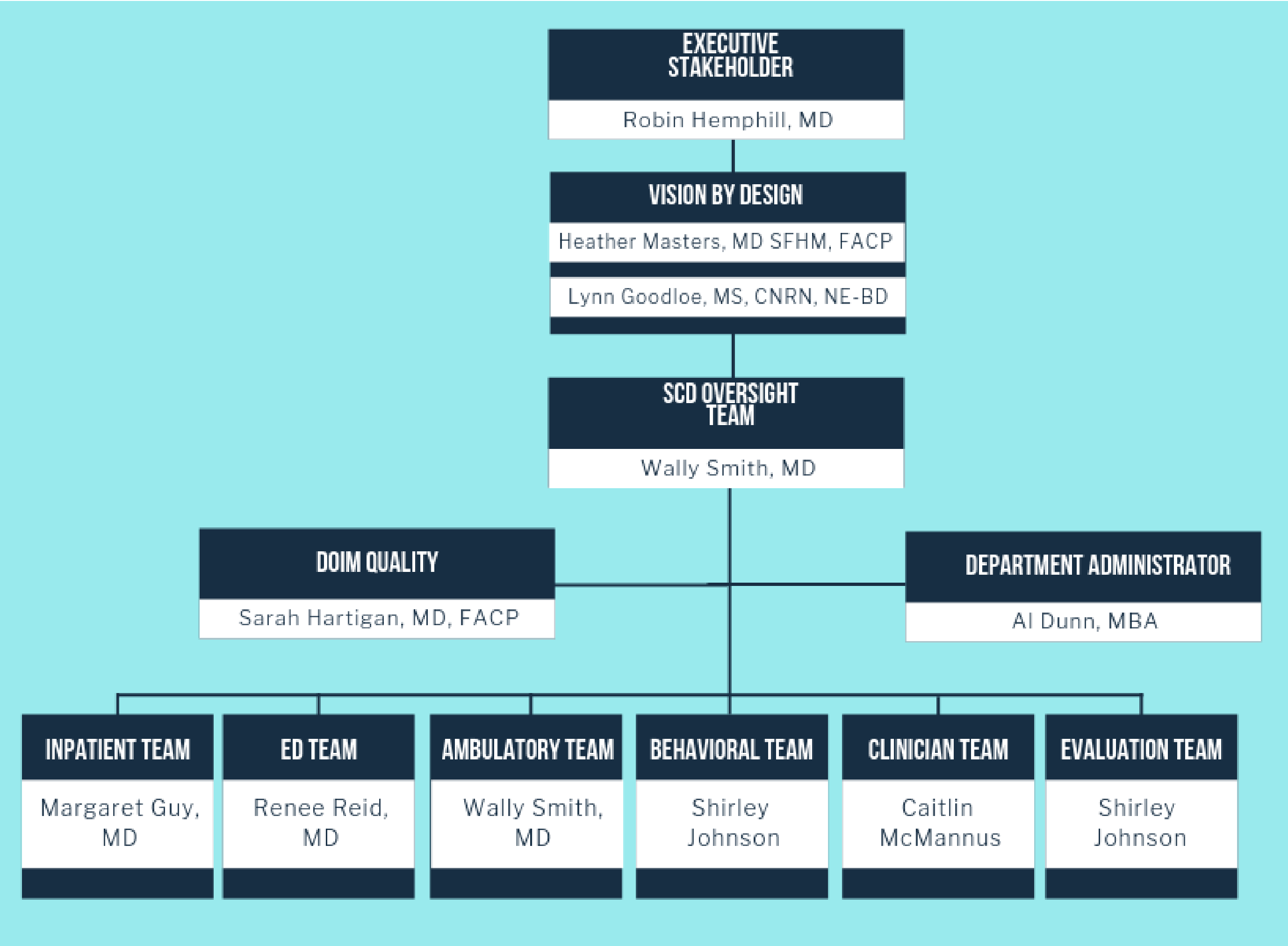
ED utilization rates were rising for adult SCD patients. In FY14, there was an average of 385 ED discharges for patients with SCD, while there were 691 ED discharges in FY17 for the same volume of patients. Additionally, the percent of ED 3-day returns was trending up, from 6% in FY14 to 17% in FY17,

SCD ADULT MEDICAL HOME MULTIDISCIPLINARY TEAMS

The SCD Adult Medical Home provides a multidisciplinary clinic offering a patient-centered approach to care for adult patients with SCD. About 3,500 adult sickle cell patients are living in Virginia and we care for about 600 adults, so there is still work to do to reach each one. We are providing a better state of health for the sickle cell patients in Virginia.

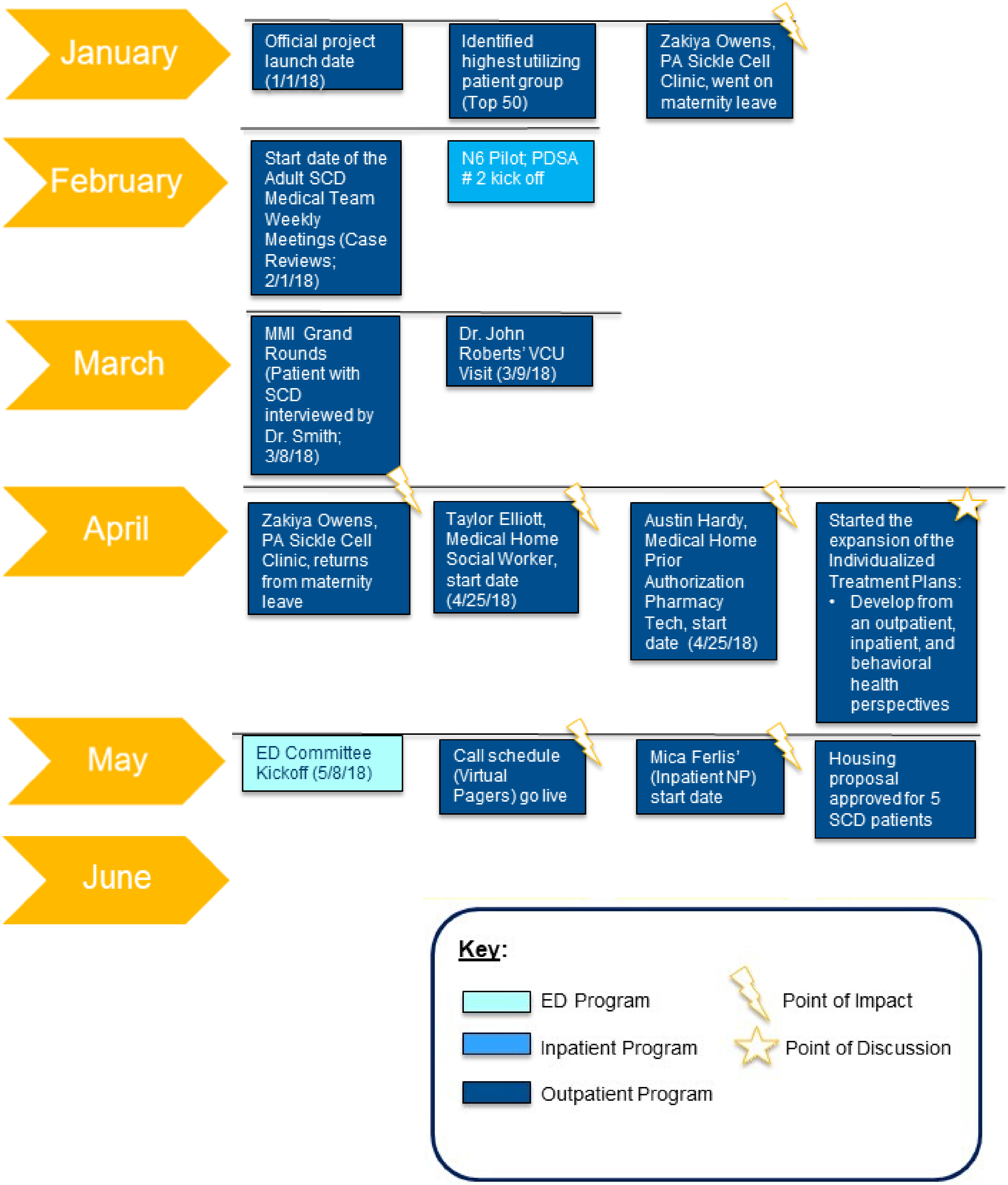
Dr. Smith is the lead clinician for the adult SCD program at VCU. Formal Co-Investigators include India Sisler, MD, leader of the Pediatric sickle cell program, and Thokozeni Lipato, MD, co-investigator in the adult program. Available study coordinators include Daniel Sop, M.S. and Fota Sall, BA. Additional available sickle cell providers who see our patients Mica Ferlis, FNP, Caitlin McManus, FNP, and a new APP to be hired.

All adult VCU SCD physicians have extensive experience in the management of SCD. Dr. Smith has cared for adults with SCD almost exclusively since 1984 at two institutions, the University of Tennessee (1984-1991) and VCU Health (1991-present). Dr. Lipato has cared for SCD patients for more than 10 years at U Minnesota and VCU.



OVERSIGHT TEAM

The Oversight Team consists of members of the clinical team, program manager, OI project coordinator, and the QI research coordinator. This team began meeting in October 2017. Meetings were held weekly for two hours, until year 2, when they were reduced to weekly for one hour.



January
- Official project launch date (1/1/18)
- Identified highest utilizing patient group (Top 50)
- Zakiya Owens, PA Sickle Cell Clinic, went on maternity leave ⚡

February
- Start date of the Adult SCD Medical Team Weekly Meetings (Case Reviews; 2/1/18)
- N6 Pilot; PDSA # 2 kick off

March
- MMI Grand Rounds (Patient with SCD interviewed by Dr. Smith; 3/8/18)
- Dr. John Roberts' VCU Visit (3/9/18)

April
- Zakiya Owens, PA Sickle Cell Clinic, returns from maternity leave ⚡
- Taylor Elliott, Medical Home Social Worker, start date (4/25/18) ⚡
- Austin Hardy, Medical Home Prior Authorization Pharmacy Tech, start date (4/25/18) ⚡
- Started the expansion of the Individualized Treatment Plans: ☆
  - Develop from an outpatient, inpatient, and behavioral health perspectives

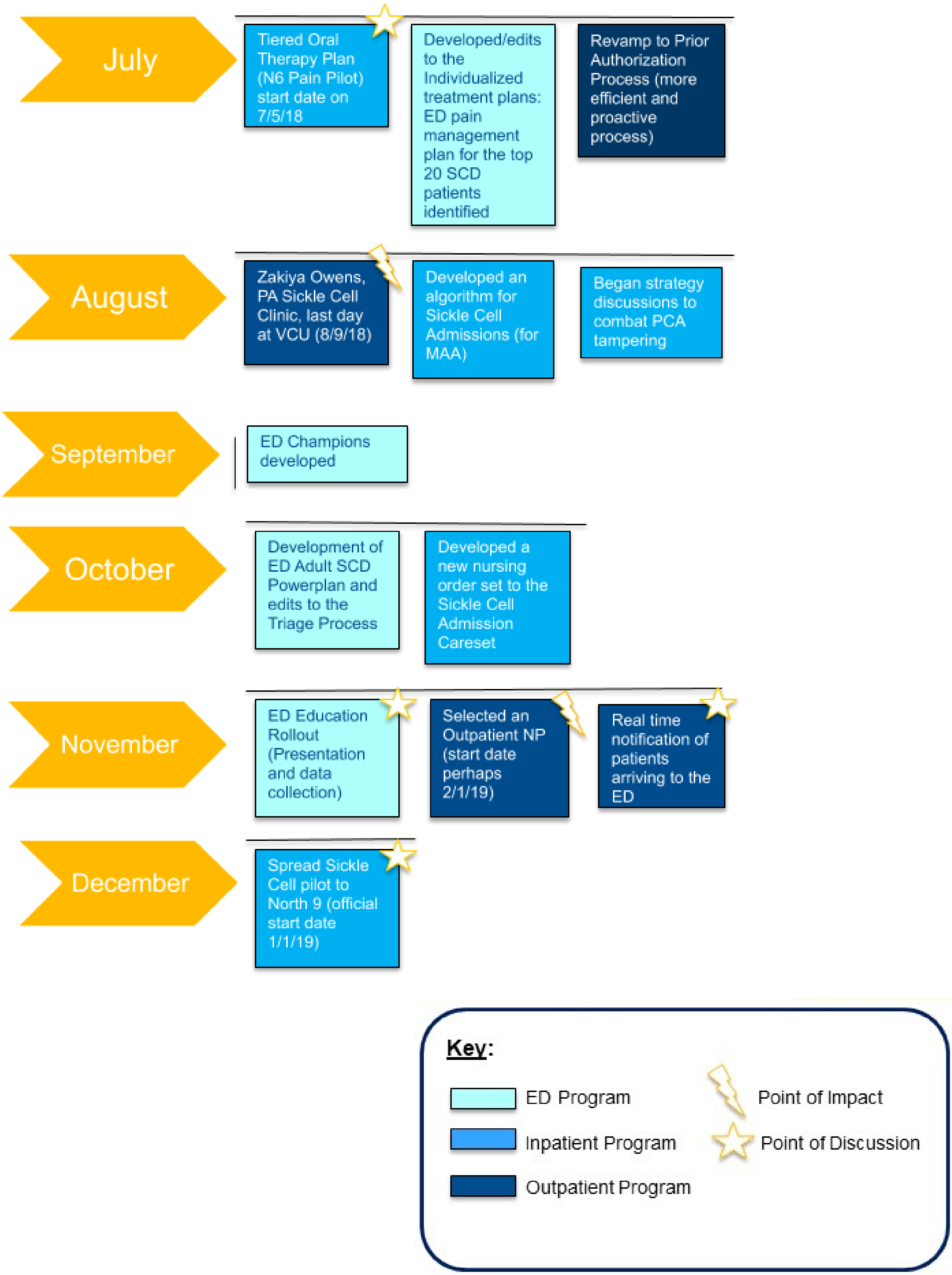
May
- ED Committee Kickoff (5/8/18)
- Call schedule (Virtual Pagers) go live ⚡
- Mica Ferlis' (Inpatient NP) start date ⚡
- Housing proposal approved for 5 SCD patients

June

Key:

▭ ED Program	⚡ Point of Impact
▭ Inpatient Program	☆ Point of Discussion
■ Outpatient Program	

OVERSIGHT TEAM Cont.



July

- Tiered Oral Therapy Plan (N6 Pain Pilot) start date on 7/5/18 ☆
- Developed/edits to the Individualized treatment plans: ED pain management plan for the top 20 SCD patients identified
- Revamp to Prior Authorization Process (more efficient and proactive process)

August

- Zakiya Owens, PA Sickle Cell Clinic, last day at VCU (8/9/18) ⚡
- Developed an algorithm for Sickle Cell Admissions (for MAA)
- Began strategy discussions to combat PCA tampering

September

- ED Champions developed

October

- Development of ED Adult SCD Powerplan and edits to the Triage Process
- Developed a new nursing order set to the Sickle Cell Admission Careset

November

- ED Education Rollout (Presentation and data collection) ☆
- Selected an Outpatient NP (start date perhaps 2/1/19) ⚡
- Real time notification of patients arriving to the ED ☆

December

- Spread Sickle Cell pilot to North 9 (official start date 1/1/19) ☆

Key:

□ ED Program

▨ Inpatient Program

■ Outpatient Program

⚡ Point of Impact

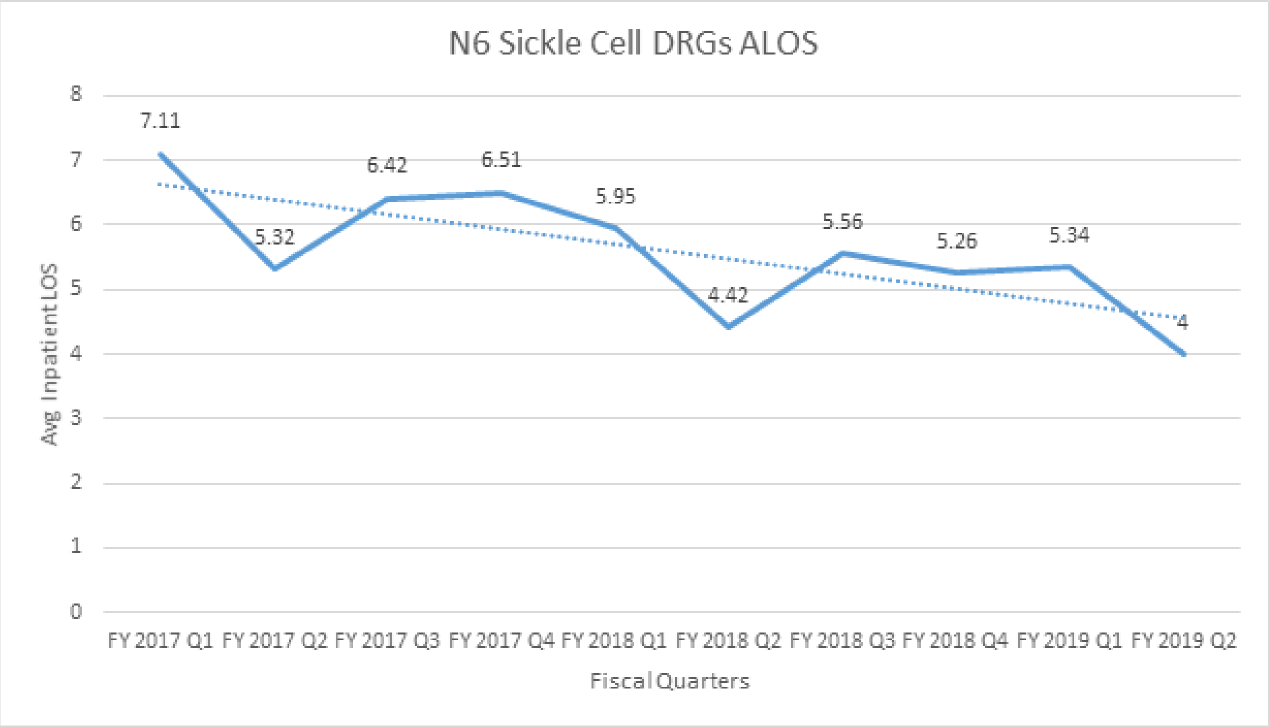
☆ Point of Discussion

INPATIENT TEAM

The Inpatient Team consists of self-interested and engaged hospitalists, nurses, pharmacists, along with the overall physician lead Dr. Smith, began meeting biweekly two or more years prior to funding of the formal Adult Medical Home through Vision by Design. This team develops inpatient treatment plans, and oversees geographic routing of patients, including admission triage from the ED. It coordinates discharge planning with outpatient team members. It designs and implements interventions to improve safe but effective inpatient opioid prescribing.

Results Highlight:

As a result of the work of the Inpatient Team, we noted a dramatic reduction in the length of stay (LOS) from implementation to conclusion on the pilot unit (N6).

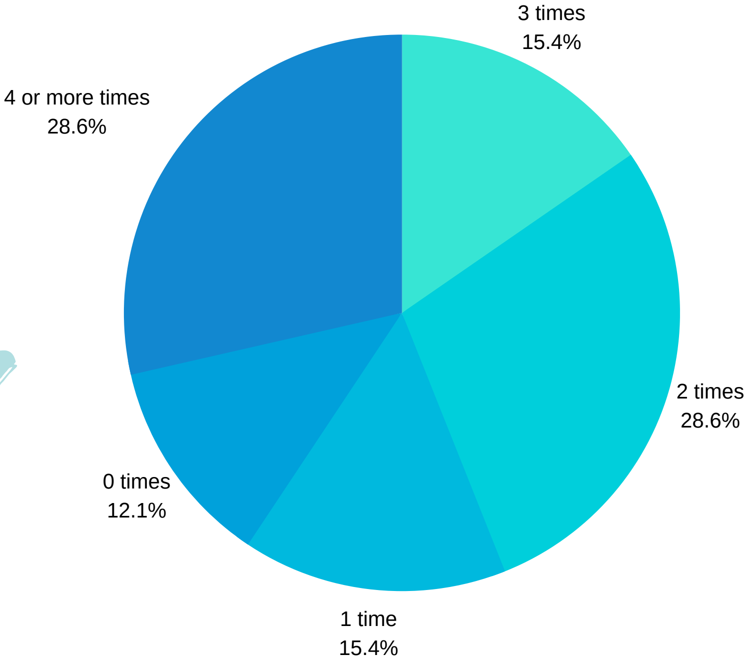


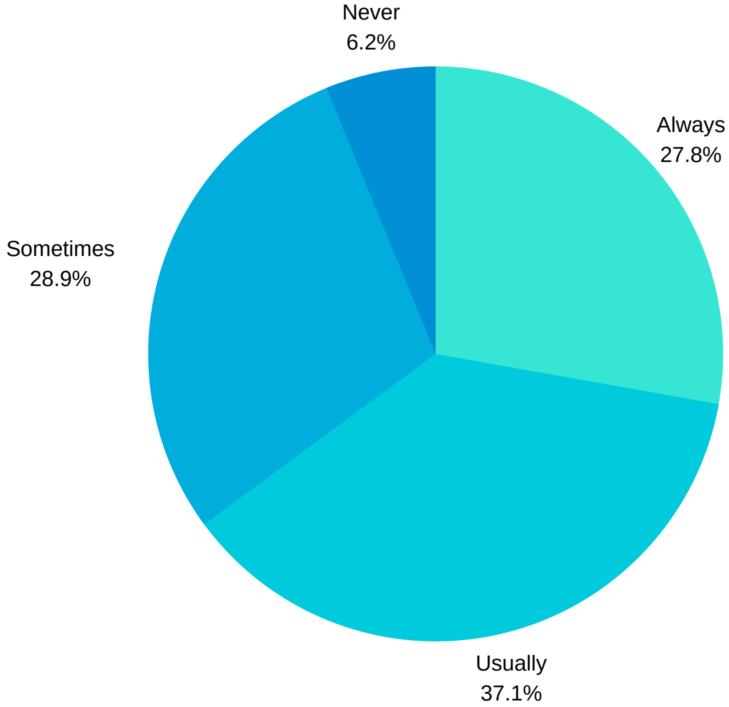
ED TEAM

The ED Team was the second clinical team to form, after the inpatient team. After several meetings with the oversight team, the ED identified clinician champions to form a team that now meets monthly to collaborate on best practices concerning ED triage, management, and disposition for SCD patients.

Results Highlights
The ED Team developed/updated individualized treatment plans, adult SCD Power Plans, refined triage process, and implemented patient critera for expedited care to the CDU unit.

In the past 6 months, how many times did you go to the emergency room because of a pain attack (crisis)?



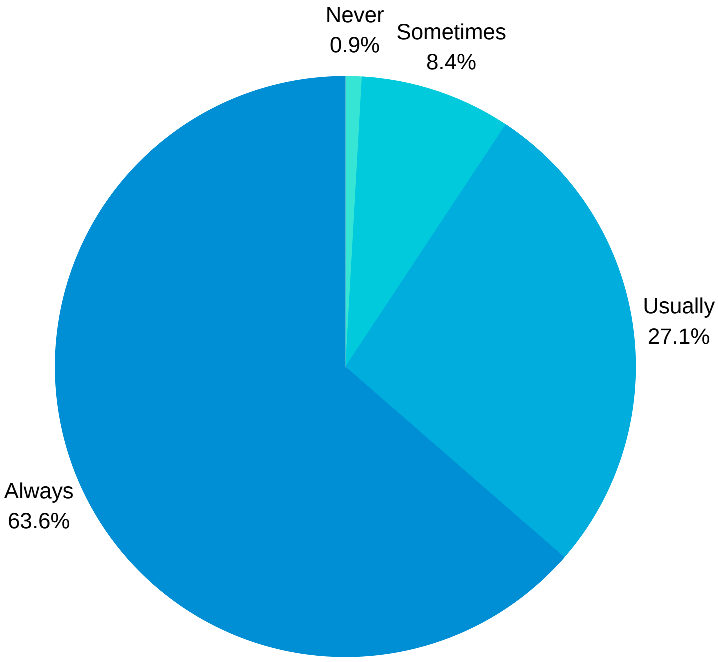


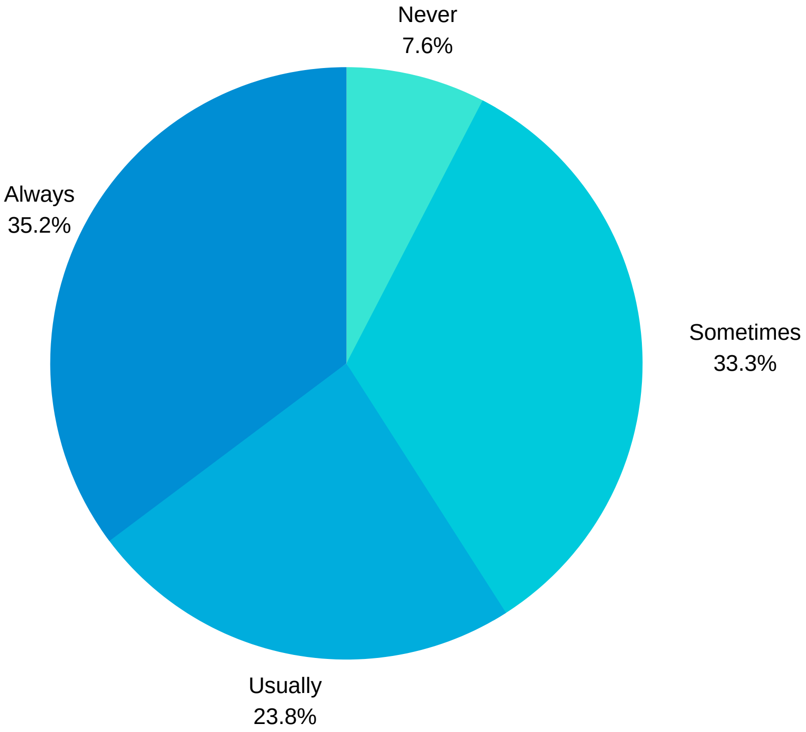
In the past 6 months, how often were you satisfied with the care you received?

AMBULATORY TEAM

The Ambulatory Team team began meeting monthly after the ED team. It consists of SCD clinicians, the project manager, and ambulatory administrative and clinical staff. It meets in the SCD clinic space. It intervenes to improve clinic patient visit flow processes, scheduling concerns including waiting times, “bumps” due to provider scheduling changes, no-shows, prior authorizations for prescriptions, patient complaints, ambulatory transfusion scheduling, preparation, and policies.

In the past 6 months, how often were you satisfied with the care you received during your clinic visit?





In the past 6 months, when you tried to make an appointment to see a doctor or nurse, how often were you able to get one as soon as you wanted?

CLINICIAN TEAM

Due to schedule limitations of SCD clinical providers, communication has been a problem, especially ifor concerns where collaborative effort is needed including opioid management plans, emergency department treatment plans, clinic visit protocols, transfusion schedules, and new transitioning patients from pediatrics. Due to this issue, a Clinician Team meeting was established to have a designated time for patient care discussions and provider communication. Monthly meetings focus on the following issues:

Call Schedule

The inpatient NP builds and distributes the call schedule, based off of provider personal schedules. Planning this schedule requires clinician communication of vacations, outages, etc. and it has been helpful to be able to communicate this in person.

Pediatric to Adult Transition

For over 10 years, the adult SCD team has met with and collaborated with the pediatric SCD team, led by Dr. India Sisler, in order to formally hand off patients from one care setting to the next. Pediatric to Adult SCD Transition has a national concern, and has been the topic of two external grants to VCU. The first pilot grant created an intervention curriculum and a readiness assessment scale that is now used nationally—the TIP-RFT. The second external grant is a PCORI intervention grant, a site cluster-randomized controlled trial of peer-mentoring plus QI interventions, vs QI interventions alone . VCU is in the QI interventions alone arm of the trial. This PCORI grant has moved the pediatric and adult SCD teams towards working more intently with the 15-25 year old transition age patients. We now hold monthly support groups for 18-25 year olds, led by the MSW from the Behavioral Health Team. Activities consist of education and social outings. Further, we have developed more thorough introduction procedures to receive these patients into the adult SCD clinic from the pediatric clinic. The TIP-RFT and other evaluation tools are being administered to assess patients' readiness and ability to function as adults, both at the time of care transfer, and yearly until age 25.

Standard Visit Protocols

Standardized treatment and visit protocols are being designed based on a new categorization scheme intended to subclassify overlapping categories of high vs low utilizers, new vs continuing patients, patients suspected of opioid misuse vs not, and patients needing high-touch behavioral management vs not. The below criteria, among others, are being assessed for each patient to determine a treatment and visit category.

- New (y/n)
- Admitted within 30 days (y/n)
- Opioid Med management refill only (y/n)
- Annual exam (y/n)
- Transition-age (18-25 y/n)
- Opioid Use Disorder or Med management taper (y/n)
- Standard followup (y/n)
- High utilizer

CLINICIAN TEAM Cont.

Inter-provider Communication

Communication within the provider team and outside of the team (ED, hospitalists, specialists, case managers, Non-VCU providers, etc) has been enhanced using the Cerner electronic medical record and its internal messaging system. The clinical providers rotate the coverage of the dedicated SCD clinical pager that is on 24/7 based on the call schedule agreed upon and made by the inpatient nurse practitioner. Additional communication occurs via texting between the SCD clinical providers, team case management meetings, and committee meetings with the ED providers and inpatient hospitalists.

Opioid management plans

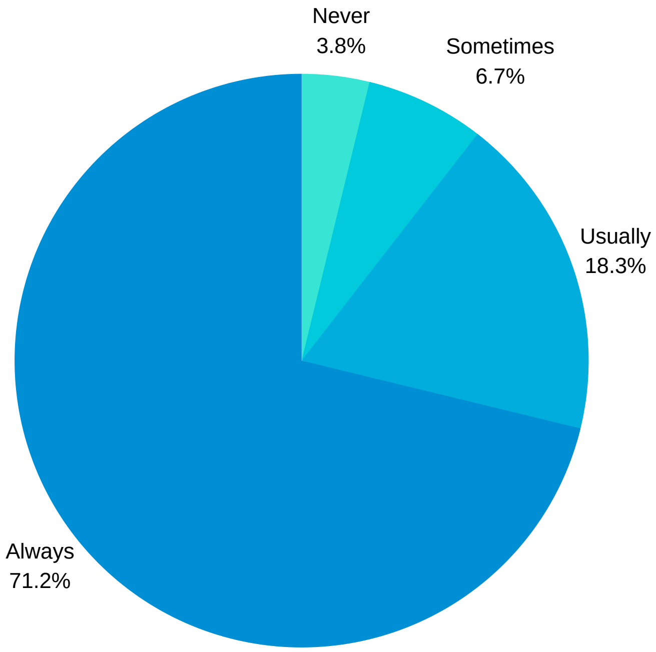
New plans are being constructed to manage the patients according to category. Existing Individualized Pain and SCD treatment plans are already in place for about 200 of the 600 patients. These are now being upgraded to include:

- Opioid Escalation plans
- Opioid trial protocols
- Refill protocols
- Opioid De-esclataion plans
- Misuse or OUD detection and management survey results
- Transfusion management

Transfusion Management

The use of exchange transfusion (apheresis) and simple transfusion is abundant for SCD patients. It is used for stroke prophylaxis, profound anemia, and in rare cases, for pain control. Transfusion medicine is intimately involved with the SCD team to best utilize scarce blood resources. The inpatient nurse practitioner manages transfusion order sets and keeps a list of patients requiring routine regular transfusion or apheresis. Annual check-in meeting with the transfusion program allow revisions of protocols or improvements in the quality of delivery of blood resources. The transfusion nurse communicates via Cerner message or by paging system to communicate if issues arise during transfusions.

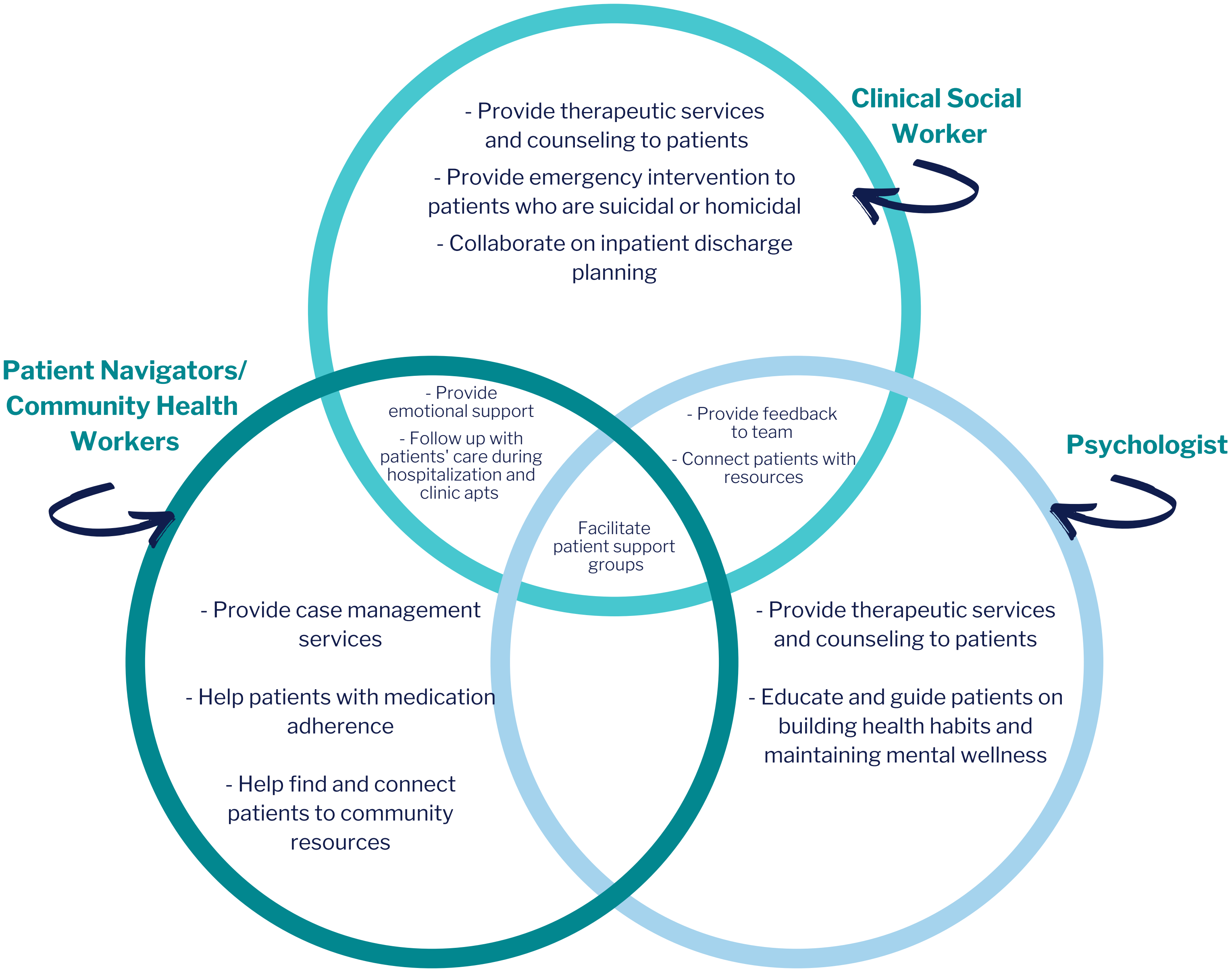
In the past 6 months, how often were you satisfied with the care you received from this doctor or nurse?



BEHAVIORAL HEALTH TEAM

The Behavioral Health Team is one of the newest additions to the Adult SCD Medical Home, due to an increase in staffing and organizational priorities to holistically treat patients. The Behavioral Health Team was established in Fall 2018, and the team shares a variety of responsibilities including: Weekly meetings to review policies, design and measure performance metrics, develop individual treatment plans, discuss complex psychosocial cases, and recommend steps for implementing consistent team interventions. The Behavioral Health Team also tackles issues relating to "replacement therapy" for patients misusing their medicines, and substituting the patient's opioids with Methadone or Suboxone. The Behavioral Health Team consists of patient navigators (also known as community health workers), a clinical social worker, and the program manager. A clinical psychologist and a psychiatrist will also join the team in the near future. The team members present the key points and conclusions of their weekly meetings to the entire Adult SCD Medical Home, during weekly interdisciplinary case meetings.

Wellness Services for Patients with Sickle Cell Disease



Clinical Social Worker

- Provide therapeutic services and counseling to patients
- Provide emergency intervention to patients who are suicidal or homicidal
- Collaborate on inpatient discharge planning

Patient Navigators/ Community Health Workers

- Provide case management services
- Help patients with medication adherence
- Help find and connect patients to community resources

Psychologist

- Provide therapeutic services and counseling to patients
- Educate and guide patients on building health habits and maintaining mental wellness

- Provide emotional support
- Follow up with patients' care during hospitalization and clinic apts

- Provide feedback to team
- Connect patients with resources

Facilitate patient support groups

TRANSITION TEAM

The Transition Team has two important components that help navigate a successful transfer of care for patients leaving the pediatric program for the adult program. The first component is the excellent work completed by our pediatric department in preparing the patients for transition beginning their freshman year of high school. Yet, for years the concerns have been once a patient is ready to graduate, how they will comply with continuing sickle cell care for themselves, especially since resources in adult programs are minimally available? Throughout the transition process, we have felt a disservice to the patients on how to best educate them on the complexity of their disease as their bodies begin to change, social stigmas and importance of person-centered goals for the patient.

The support from the health system finally provided resources that would guide the adult program to develop a formal transition program. The age that the adult program uses as a guideline for is ages 18-25, as we have determined through years of gathering data, this is the most vulnerable age group with sickle cell disease.

The clinical social worker. Taylor Elliott, has been assigned as the key personnel tasked to work on programs focused on this age group. Her first goal was to work on a support group dedicated to the adult transition patients, as well as including upcoming graduating seniors from pediatrics. The groups began in Fall 2018 and have continued each month throughout the year. Currently, attendance is sparse, but in 2019, we have some great ideas for social engagement, as well as ongoing education that we will use to try and increase attendance.

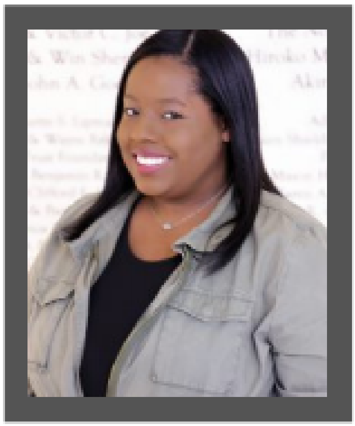
QUALITY IMPROVEMENT TEAM

Sarah Hartigan, M.D.

Associate Chair of Quality
and Safety

Emily Holt

Quality Improvement
Project Coordinator



Chantal McHenry

Quality Improvement
Program Manager

The quality improvement team worked with the oversight team to develop the PCMH proposal and gain the support of hospital leadership. Next, they constructed a multi-phase plan for project development and implementation. The Lean Six Sigma DMAIC methodology was used to give teams a systematic and structured approach to process improvement. The various SCD committees gained experience with valuable QI tools such as project charters, structured brainstorming techniques, process maps, and communication plans. These tools helped the teams improve coordination of care by eliminating inefficiencies, streamlining workflows and improving communication between providers. They also helped identify opportunities for improvement in clinical care and addressed these through development of standardized care pathways. The QI team oversaw implementation of these pathways using rapid-cycle tests of change known as the PDSA cycle.

SCD ADULT MEDICAL HOME TEAM MEMBERS

Wally Smith, MD

Dr. Smith is a primary physician specializing in internal medicine, pain management, and care of adult patients with SCD. He holds the Florence Neal Cooper Smith professorship for SCD and is a national and international expert in SCD and pain management.

Thokozeni Lipato, MD

Dr. Lipato is a physician specializing in SCD, pain, and addiction. He and a team of providers including inpatient and outpatient nurse practitioners work together to see the patients during their clinic visits and as inpatients as needed.

Shirley Johnson, LSW

Shirley is a project manager in charge of supervising the interdisciplinary SCD Adult Medical Home including behavioral health team. She works to reduce hospital readmissions and length of stay, improve quality and outcomes of care, and improve satisfaction for identified patients.

Al Dunn, MBA

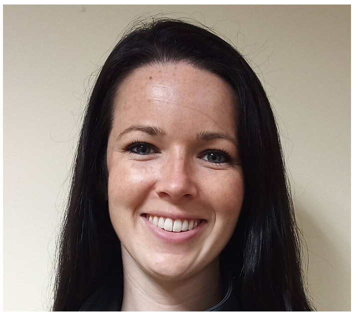
Al is the administrator for the Department of General Internal Medicine. For the last 5 years, he has worked with Dr. Smith in the SCD Program to successfully improve the care of patients and significantly reduced the cost of care for the health system.

Mica Ferlis, ACNP

Mica is a nurse practitioner that works in collaboration with the physicians to deliver health care services to patients with SCD in the inpatient setting.

Caitlin McManus, MSN, RN, AGPCNP-B

Caitlin is a nurse practitioner that works in collaboration with the physicians to deliver health care services to patients with SCD in the outpatient setting.



Taylor Elliott, MSW

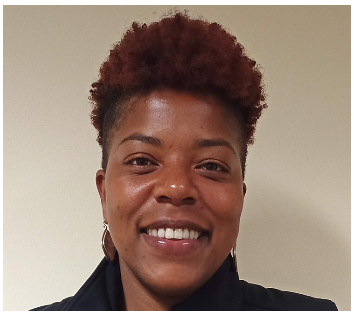
Talyor is a clinical social worker, working in the clinic to assist patients and their families regarding social and emotional support. She also is essential in facilitating transition of care from VCU Children's Hospital to the adult setting.

Daniel Sop. MS

Daniel is a biomedical engineer who serves as a senior clinical research analyst. He uses his engineering training to improve analytical and systematic processes for the SCD program.

Stefani Vaughan-Sams
Marla Brannon, BSW

Stefani and Marla are patient navigators, also working in the clinic every week to assist patients and their families regarding health-related expenses not covered by insurance, transportation costs, and employment options. They are also essential in facilitating transition of care.



Austin Hardy, CPHT

Austin is a prioritization specialist. He was hired as a pharmacy tech to handle approvals for opioid medication, check medication fills, incompliance, coordinate with nursing staff on ACC4, and input data for approvals in any medication compliance.

Donna Casey

Donna facilitates day to day administrative, personnel and program oversight for the Sickle Cell Program Manager and Medical Director. She supports fiscal and time management objectives by coordinating administrative services through effective interactions with the healthcare system team, administration, and support staff as well as hiring, leave and personnel management tasks.

ADULT SCD POPULATION AT VCU

GENDER

336
FEMALES

231
MALES

AGE

UNDER 40	316
40-60	194
65+	47

COMORBIDITY

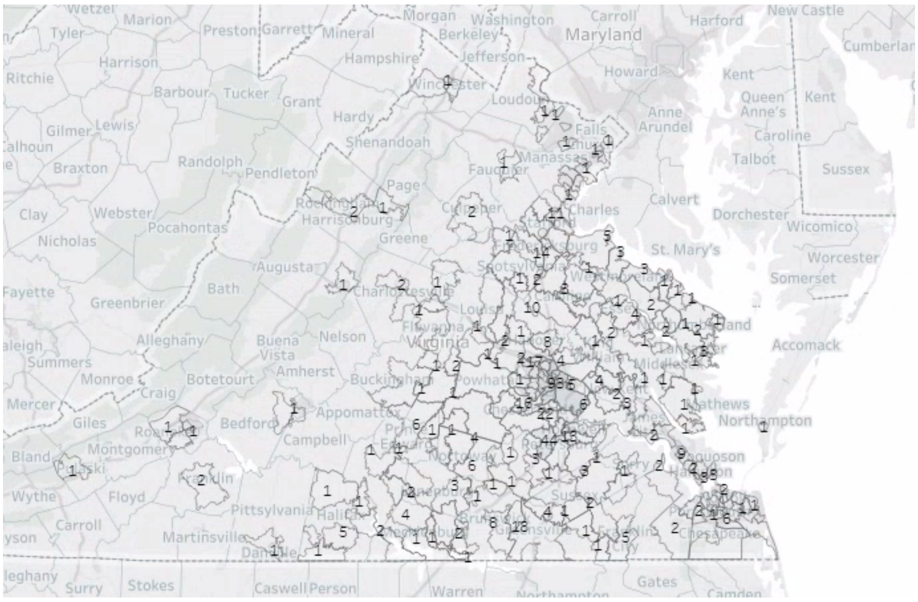
TOP 5 BY NUMBER OF OCCURANCES

42	ACUTE CHEST SYNDROME
42	PRIMARY HYPERTENSION
30	END STAGE RENAL DISEASE
29	HTN CKD WITH STAGE 1-4 CKD/UNS CKD
25	SEPSIS UNSPECIFIED ORGANISM

LOCATION

TOP 10 IN VIRGINIA

1. RICHMOND
2. HENRICO
3. PETERSBURG
4. NEWPORT NEWS
5. NORTH CHESTERFIELD
6. CHESTER
7. FREDERICKSBURG
8. CHESTERFIELD
9. NORFOLK
10. HAMPTON



TYPE OF INSURANCE

157	MEDICARE
148	PRIVATE
144	MEDICAID
118	UNINSURED

RESULTS FOR ENTIRE ADULT SCD POPULATION

NUMBER OF INPATIENT DAYS

803 FEWER DAYS

AVERAGE LENGTH OF STAY

0.72 FEWER DAYS

30 DAY READMISSION RATE

9.76 %

ED 3 DAY RETURN RATE

18.49 %

CHARGES AVERTED **$1.248 MILLION**

RESULTS FOR TOP 50 UTILIZERS

NUMBER OF INPATIENT DAYS

100 FEWER DAYS

AVERAGE LENGTH OF STAY

0.31 FEWER DAYS

30 DAY READMISSION RATE

1.4 %

ED 3 DAY RETURN RATE

18.49 %

EDUCATION AND OUTREACH

The SCD administrative team traveled to Albuquerque, New Mexico to be trained on the ECHO program. This is a virtual network on presentations, discussion and didactic exchange for clinicians and other SCD providers around Virginia and elsewhere to obtain support for caring for patients with SCD. The program will launch in Februiary 2019.

Project ECHO®

Virginia Commonwealth University

WHAT'S COMING IN 2019?

We have many exciting goals for the 2019 year, including:

EXPAND

- Expand the Transition Program to screen all incoming patients on their skills and knowledge of SCD,depression, anxiety and risk for substance misuse screening.
- Expand outpatient clinic availability for patients and schedule same day appointments.
- Expand the TOTP model in the inpatient setting for more providers on various floors of the hospital.
- Expand personnel for the medical home to include additional patient navigation, psychologists, nurses and APP's.
- Expand clinical research, to include gene therapy and bone marrow transplant.
- Work with legislatures on expanding funding for SCD care around the commonwealth.

INNOVATE

- Develop a day hospital infusion center for patients who need care but may be able to avoid a hospitalization.
- Launch ECHO program.
- Standardize high v. low ED utilization and frequent v. infrequent asks for increase in home pain medication.
- Define "high dose" of opiates.
- Classify patients into groups according to opiate dosage and ED utilization and develop standardized treatment plans with opiate management and behavioral health intervention

COLLABORATE

- Collaborate with the Health System and Virginia Supportive Housing for placement of homeless sickle cell patients in a new apartment complex.
- Partner with Schools of Engineering and Pharmacy for research.
- Partner with pharmaceutical company to train empower patients to advocate for themselves using care coordination..

VCUHealth™

Sickle Cell Disease Program

We would like to acknowledge the following research projects that assisted us with development of the Adult SCD Medical Home at VCU:

- **National Heart Lung and Blood Institute: R18HL112737, Enhancing Use of Hydroxyurea in Sickle Cell Disease Using Patient Navigators, NCT02197845**
  NHLBI awarded a five year, three million dollar dissemination grant testing the use of patient navigators assisting patients with compliance of Hydroxyurea.

- **Health Resources and Services Administration: SiNERGE, Sickle Cell Disease Treatment Demonstration Program Regional Collaborative for the North East Region**
  John Hopkins University selected VCU as a site to test the effectiveness of CHW's around the state, as well as securing new physicians to treat patients for Sickle Cell Disease.

- **Patient-Centered Outcomes Research Institute**
  Virginia Commonwealth University is a sub-site to a grant issued to Atrium Health to work on a "Cooperative Effectiveness of Peer Mentoring Vs. Structured Education-Based Transition Programming for the Management of Care for Transition in Emerging Adults with Sickle Cell Disease."

This annual report was produced by the Sickle Cell Disease Program at Virginia Commonwealth University. It was graphically designed by Jessica Capano.

For more information, visit https://www.vcuhealth.org/services/sickle-cell-program