

# Optimizing Infusion Center Operations At



**Stanford**  
HEALTH CARE

Penn Medicine

OHSU

uchealth

TEXAS ONCOLOGY  
*More breakthroughs. More victories.®*

Hartford HealthCare  
Cancer Institute

Memorial Sloan Kettering  
Cancer Center

UCSF

JOHNS HOPKINS  
MEDICINE

Nebraska  
Medicine

HUNTSMAN  
CANCER INSTITUTE  
UNIVERSITY OF UTAH

VANDERBILT UNIVERSITY  
MEDICAL CENTER

NewYork-Presbyterian

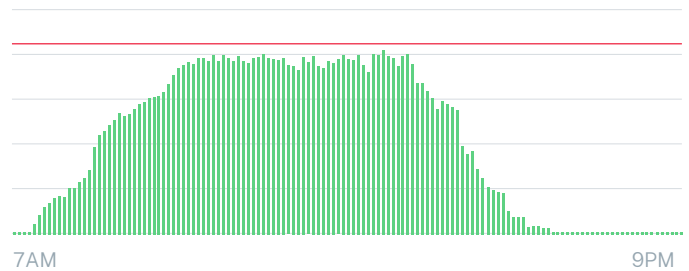
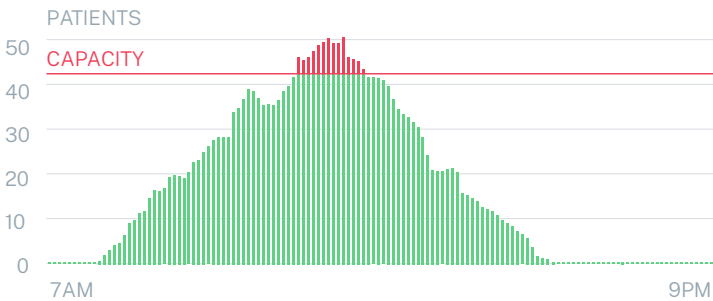
SSMHealth.

Wake Forest®  
Baptist Health

NOVANT  
HEALTH

OKLAHOMA  
CANCER SPECIALIST  
AND RESEARCH INSTITUTE

ENLOE  
REGIONAL CANCER CENTER



**700**  
INFUSION CENTERS

**720,000+**  
ADDITIONAL TREATMENTS

**13,500+**  
CHAIRS UNDER MANAGEMENT



**LOWER  
WAIT TIMES**

**INCREASE  
PATIENT ACCESS**

**SAVE COSTS**

## Schedule smarter through optimized templates

Set yourself up for a smooth flow with templates engineered to minimize delays by level-loading the day

## Manage the day before it unfolds

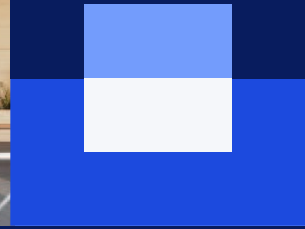
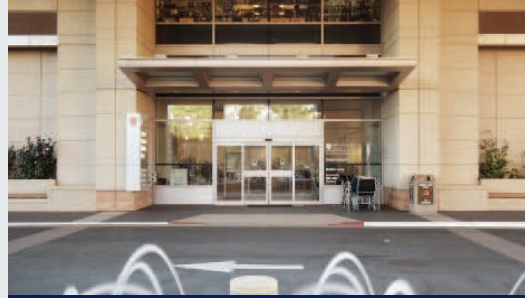
Use utilization projections by time of day to help anticipate bottlenecks and steer add-ons

## Understand your resource utilization in seconds

Built-in reporting and allocation models make it easy to track utilization patterns and opportunities



Template Slots for MONDAY										
	Template	Heatmap				Difference	Appt Starts	Appt Finishes	Patients in Chair	Total Starts/hr
		(0 - 1]	(1 - 2]	(2 - 3]	(3 - 5]	(5 - 6]	6+			
Infusion durations split into six categories	8:00	1			1	1	1	4	0	4
	8:15							0	0	4
15 minute start intervals all day	8:30	1	1	1				3	0	7
	8:45							0	0	7
Simultaneous patient starts match up to nursing schedule	9:00			1			1	2	1	8
	9:15		1					1	0	9
Number of available appointments per duration and time slot	9:30							0	1	8
	9:45	2						2	0	10
	10:00					1		1	0	11
	10:15							0	0	11
	10:30	1						1	1	11
	10:45	1				1		2	2	11
	11:00							0	0	11
	11:15				1			1	1	11
	11:30	1					1	2	2	11
	11:45	1						1	1	11
	12:00				1			1	1	11
	12:15	1						1	0	12
	12:30		1					1	1	12



## Overview

The Stanford Cancer Center is one of 72 elite NCI-designated Cancer Centers in the entire country and one of 33 NCCN Member Institutions. Stanford advances the understanding and treatment of cancer through a multidisciplinary, integrated and collaborative community of physicians and scientists. It performs over 65,000 infusions annually across 3 centers and is growing steadily.

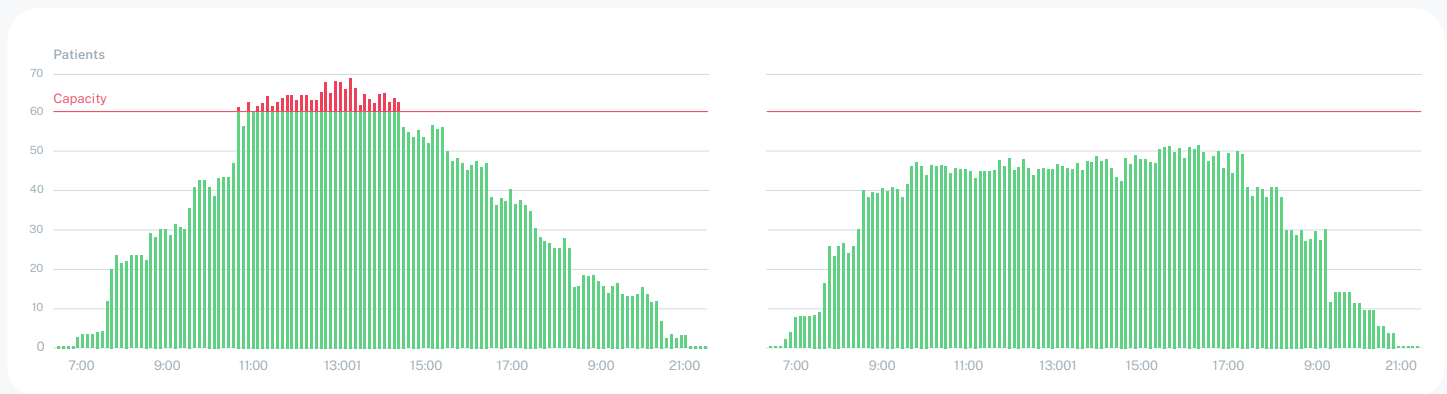
## Problem

- Triangular usage profile that resulted in excess capacity in the mornings and evenings and peaks at mid-day
- Long patient wait times during the middle of the day
- High overtime costs
- Resources not being used optimally

## Solution

Stanford partnered with LeanTaaS to jointly develop iQueue for Infusion Centers and deployed it at one of its 60 chair centers to create optimized infusion scheduling templates.

iQueue for Infusion Centers uses data science and machine learning to create optimized scheduling templates in order to continuously maximize patient flow and chair usage.



Utilization curve **before**

Utilization curve **after**

## RESULTS

▼ **31%**

**LOWER**

Median wait times

▼ **78%**

**LOWER**

Emergency call back  
overtime pay

▼ **17%**

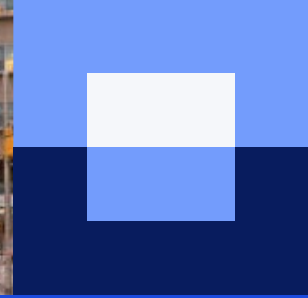
**LOWER**

Total Cost per unit  
of service

▲ **25%**

**HIGHER**

Percentile points in  
nursing satisfaction



## Overview

Ranked as Pennsylvania's #1 health system, Penn Medicine is a world-renowned academic medical center in Philadelphia that combines education, research, and clinical care to provide the best possible patient care.

Penn Medicine's Abramson Cancer Center Infusion Suite at the Perelman Center for Advanced Medicine sees over 50,000 infusion visits each year and is one of 72 elite NCI-designated Cancer Centers in the entire country and one of 33 NCCN Member Institutions.

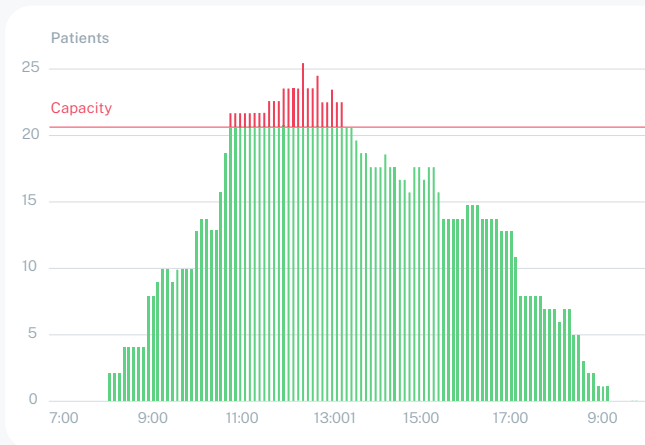
## Problem

- History of patient and staff dissatisfaction with long wait times
- Nurses feeling rushed and pressured to perform essential functions such as documentation and education because of uneven schedules and the way patients arrive throughout the day
- Extended wait times, especially in the middle of the day

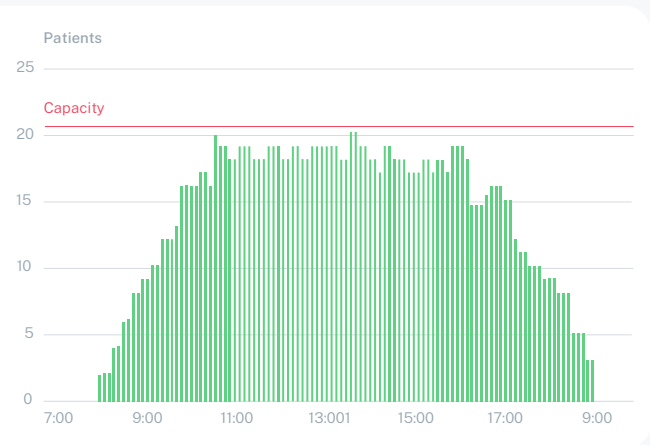
## Solution

Leadership at the cancer center initially deployed iQueue for Infusion Centers on its 4th floor unit with 21 chairs to optimize their scheduling templates, provide daily management guidance about what to expect each day, and to understand why days did not go as planned.

The center achieved outstanding results at this pilot location as shown below, and as a result, leadership extended the use of iQueue for Infusion Centers to many of its other floors and locations, bringing the total number of chairs managed through the solution to 181.



Utilization curve **before**



Utilization curve **after**

## RESULTS

▲ **25%**

**INCREASE IN**  
Patient volumes

▲ **20%**

**INCREASE IN**  
Patient hours

▼ **22%**

**DECREASE IN**  
Average wait times

▼ **13%**

**DECREASE IN**  
Average wait time  
during peak hours



## Overview

Oregon Health and Sciences University's Knight Cancer Institute is one of 72 elite NCI-designated Cancer Centers in the country and the only designation in Oregon. OHSU is a public research university in Oregon entirely dedicated to health sciences with a main campus, including two hospitals, in Portland, Oregon. OHSU has implemented iQueue for Infusion Centers across 6 sites and over 100 chairs - the 7th site will implement later this year.



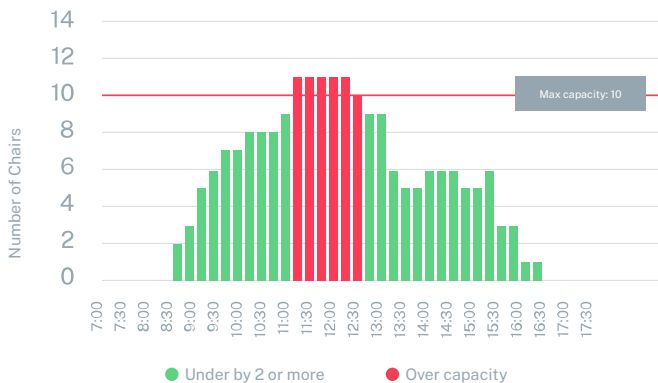
## Problem

- Satisfying patient demands, especially during peak hours
- High patient wait times leading to patient dissatisfaction
- Ineffective chair utilization, not optimizing capacity of center
- Nurses frustrated by short, rushed lunches while maintaining heavy workloads

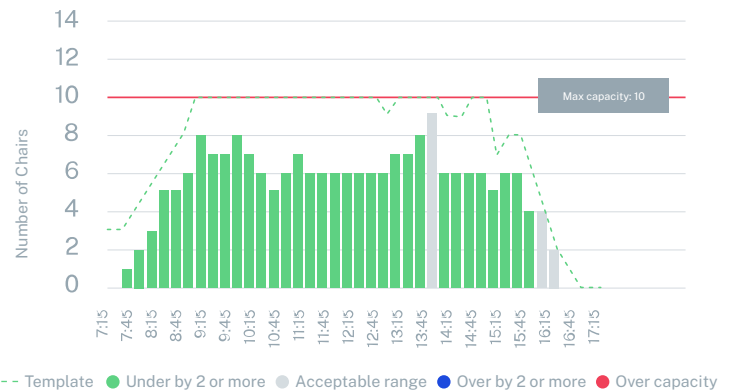
## Solution

OHSU chose to deploy iQueue for Infusion Centers to help nurses and staff smooth daily infusion schedules and workflows, and to decrease wait times for patients. Using iQueue, OHSU reduced the occurrence of chairs running out, decreased drug wait times, and also closed on time more frequently, reducing overtime hours. OHSU also flattened their midday peak as seen in the main Tualatin location below, allowing nurses to take lunches more frequently than before.

At the Gresham campus in particular, schedulers were able to optimize future weekly schedules through schedule grooming, resulting in more balanced workloads. All CHO campuses, post-iQueue implementation, were able to accept a larger volume of patients.



Utilization curve **before**



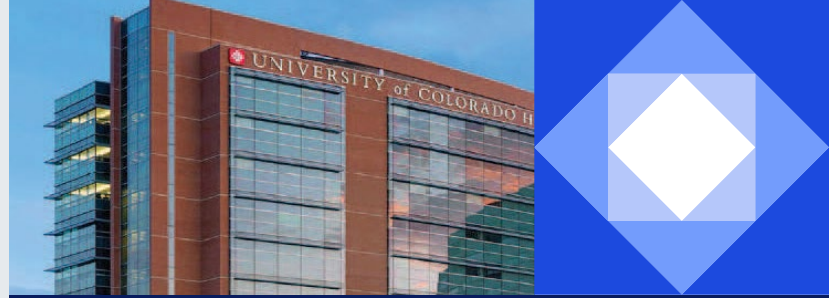
Utilization curve **after**

## RESULTS

- ▼ **39%** DECREASE IN Percent of days over max capacity
- ▼ **14%** DECREASE IN Peak chair utilization
- ▼ **31%** DECREASE IN Running past scheduled close
- ▼ **5%** DECREASE IN Drug wait times

“iQueue helped the schedulers so much that the charge nurses thought the phones were broken!”

Tyler Van Brunt,  
Assistant Nursing Director



## Overview

The University of Colorado Cancer Center in Denver is one of 72 elite NCI-designated Cancer Centers in the entire country and one of 33 NCCN Member Institutions and the only one in Colorado.

Known worldwide for developing and setting new standards in the treatment of many types of cancer, it has 175 chairs spread across 10 centers and sees double-digit growth in treatment volumes every year.

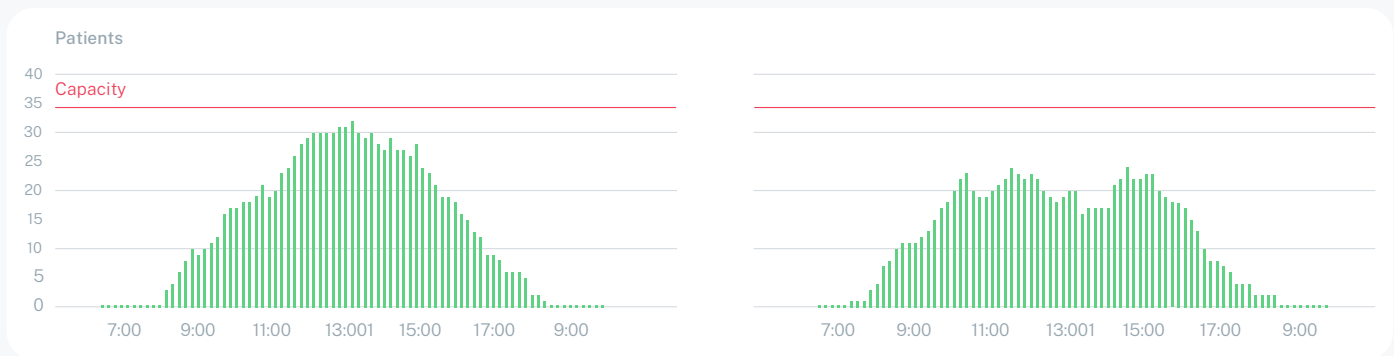
## Problem

- Consistently operating at capacity
- Frequent “mid-day” peaks and slow mornings and evenings
- Frequent overflow in waiting rooms-long patient waiting times
- Sometimes patients would wait hours for chairs to become available

## Solution

Leadership at UCHealth deployed iQueue for Infusion Centers at one of its centers with 28 chairs and 6 private rooms to create optimized infusion scheduling templates. After realizing significant results, iQueue for Infusion Centers was deployed at 6 additional centers that collectively added 104 more chairs.

iQueue for Infusion Centers uses data science and machine learning to create optimized scheduling templates in order to continuously maximize patient flow and chair usage.



Utilization curve **before**

Utilization curve **after**

## RESULTS

▼ **33%**

**LOWER**

Waiting times at peak hours

▼ **15%**

**LOWER**

Average waiting time

▲ **14%**

**HIGHER**

Patient volumes

▼ **28%**

**LOWER**

Overtime hours



## Overview

Texas Oncology was founded in 1986 and is one of the country's largest community-based cancer care practices. Texas Oncology's mission is to provide high-quality cancer care with leading-edge technology and advanced treatment and therapy options in local communities across Texas and southeastern Oklahoma. Care is delivered by more than 500 physicians at 210 locations across Texas and Oklahoma, and Texas Oncology has played a role in more than 100 FDA-approved cancer-fighting drugs.

## Problem

- Need to increase capacity for new patients without expanding physical footprint of clinics
- Uneven utilization of infusion chairs, leading to longer patient wait times and nurses missing breaks/lunches during peak hours
- Need to maximize both physical and staffing resources during the COVID-19 pandemic
- Need a solution that was easily scalable for the statewide network of clinics of various sizes

## Solution

Texas Oncology deployed iQueue for Infusion Centers to increase their capacity without expanding the physical footprint of their clinics, increase their chair utilization during afternoon hours that were historically less busy, and provide visibility into the overall scheduling decisions. As a result of the iQueue for Infusion Centers implementation in the first 14 clinics to go live, Texas Oncology achieved an increase in average scheduled appointment volume while utilizing existing resources, more level-loaded chair utilization during peak hours, and increased chair utilization during those key afternoon hours.

## RESULTS

### Results for the first 14 clinics to go live on iQueue:

▲ 12 OUT OF 14  
**(86%)**

Locations had an increase in average scheduled appointments

▲ 9 OUT OF 14  
**(64%)**

Locations had an increase in average daily scheduled patient hours

▲ 11 OUT OF 14  
**(79%)**

Locations had a more level-loaded chair utilization through peak hours

“It’s quite miraculous to me that we had this increase in patient volume at a time when we were having to go through all of the COVID restrictions.”



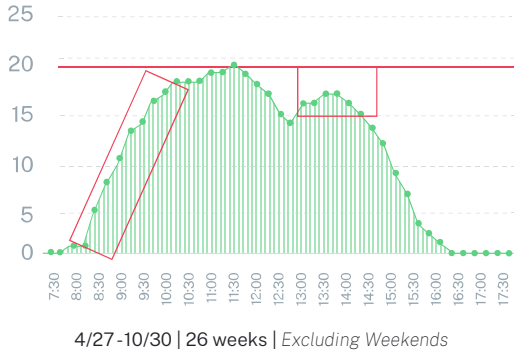
Tammy Sayers,  
Chief of Operations,  
Texas Oncology



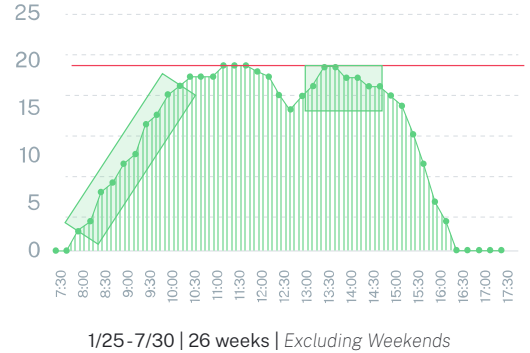
**RESULTS:**

**Texas Oncology–Amarillo Cancer Center**

- Increased average daily scheduled appointment volume by ~20%
- Smoother “ramp-up” in the a.m. to support RN & pharmacy capacity and more fully utilized afternoon hours



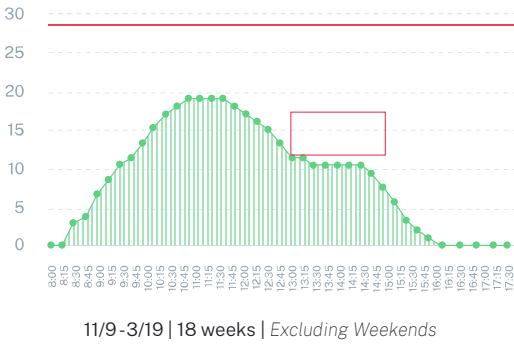
Scheduled Median Chair Utilization



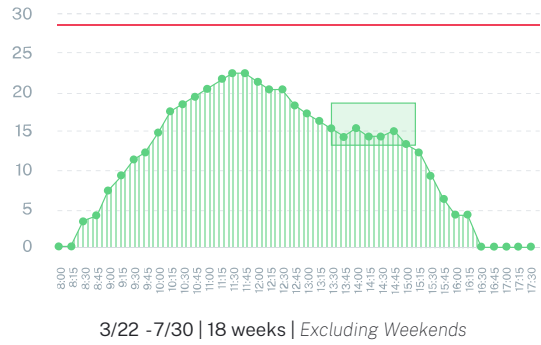
**RESULTS:**

**Texas Oncology–Odessa West Texas Cancer Center**

- Increased average daily scheduled patient hours by ~17%
- Increased median chair utilization in the afternoon



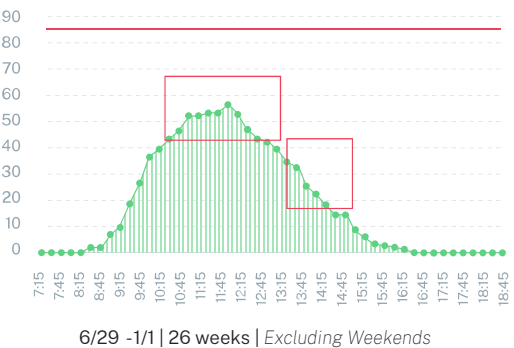
Scheduled Median Chair Utilization



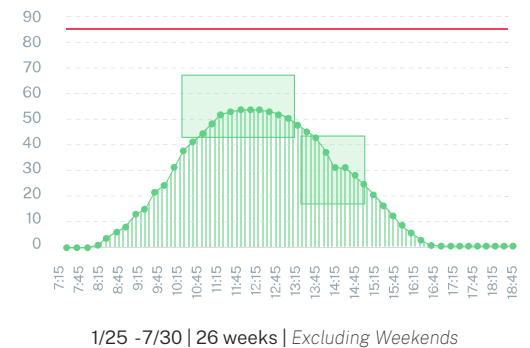
**RESULTS:**

**Texas Oncology–Baylor Charles A. Sammons Cancer Center, Medical Oncology**

- Increased average daily scheduled patient hours by ~25%
- Increased chair utilization in the afternoon, achieving the location’s main goal of growing volume



Scheduled Median Chair Utilization







## Overview

The Hartford HealthCare Cancer Institute provides access to care at seven hospitals, nine medical oncology practices and 13 infusion centers in communities throughout Connecticut. Hartford HealthCare diagnoses and/or treats nearly 8,000 new cancer cases each year.

## Solution

Over the span of 18 months, iQueue was implemented at HHC's 180 infusion center beds. As a result of iQueue for Infusion Centers, HHC achieved an increase in average completed volume while utilizing existing resources, a decrease in both drug and infusion wait times, and an overall positive impact on nursing workflows.

## Problem

- Appointments were not appropriately load-leveled throughout the day, especially during the midday peak hours
- Coordinating infusion visits with clinics were challenging to schedule
- Add-on patients are difficult to schedule
- At times there were long patient wait times in infusion centers
- Nurse workload not balanced

**“I don't think I've done an overbook so far  
This has had a very positive impact on our  
infusion centers, our staff and our patients.”**

Sydney Wasterman,  
Hartford HealthCare Cancer Institute Lead Scheduler,  
1 week into the iQueue implementation

## RESULTS

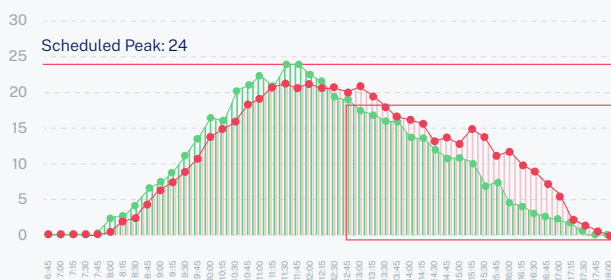
▼ **27%**  
**DECREASE IN**  
Average wait time

▲ **10%**  
**INCREASE IN**  
Average daily  
completed volumes

▼ **14%**  
**DECREASE IN**  
Average scheduling  
lead days

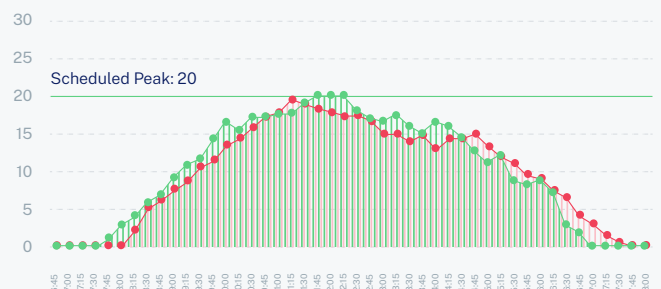
### PRE-iQUEUE

<b>59</b> Med Sched Volume	<b>55</b> Med Completed Volume	<b>131</b> Med Sched Patient Hours	<b>128</b> Med Completed Patient Hours
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### POST-iQUEUE

<b>61</b> Med Sched Volume	<b>58</b> Med Completed Volume	<b>121</b> Med Sched Patient Hours	<b>114</b> Med Completed Patient Hours
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# Memorial Sloan Kettering Cancer Center



## Overview

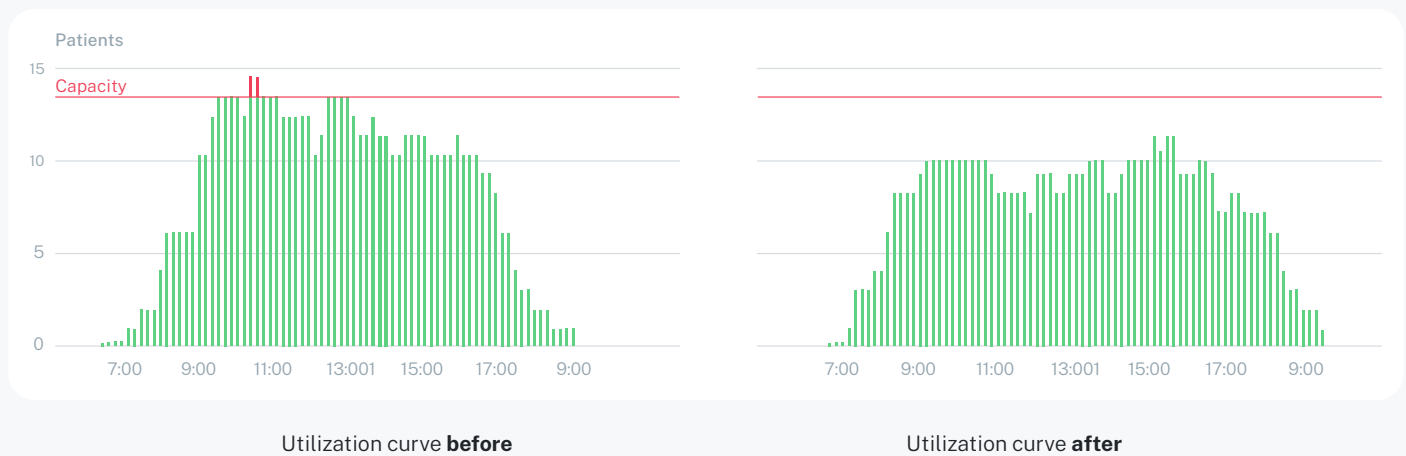
Memorial Sloan Kettering Cancer Center — the world's oldest and largest private cancer center — has devoted more than 130 years to exceptional patient care, innovative research, and outstanding educational programs. Today, MSKCC is one of 72 elite NCI-designated Cancer Centers in the entire country and one of 33 NCCN Member Institutions.

## Problem

- Improving patient wait times
- Extreme variability in operational workflows at high volume infusion units
- Plan for volume, visit distribution and resource utilization across their infusion units

## Solution

MSKCC leaders tested iQueue for Infusion Centers at its 13-chair Gynecologic Oncology Infusion unit in midtown Manhattan with the goal of optimizing their templates, providing daily management guidance about what to expect each day, understanding what went wrong and — most importantly — using schedule alert tools that help staff react to changing conditions.



## RESULTS

▼ **31%**

**DECREASE IN**  
Overall average  
wait times

▼ **26%**

**DECREASE IN**  
Average wait times  
during peak hours

▼ **32%**

**DECREASE IN**  
Average wait times  
on peak days

▲ **22%**

**INCREASE IN**  
Average volumes on  
slowest day of the week



## Overview

The UCSF Helen Diller Family Comprehensive Cancer Center is one of 72 elite NCI-designated Cancer Centers in the country, and is one of only two centers in the Bay Area to receive the prestigious designation of “comprehensive” from the National Cancer Institute as well as one of 33 NCCN Member Institutions.

## Problem

- Consistently operating over capacity
- A peaky utilization profile leading to extended wait times in the middle of the day
- Strained resources, resulting in decreasing staff and patient satisfaction

## Solution

Leadership at the Helen Diller Family Comprehensive Cancer Center deployed iQueue for Infusion Centers at one of its centers with 12 chairs and 3 beds to create optimized infusion scheduling templates. After realizing significant results, iQueue for Infusion Centers was deployed at 4 additional centers that collectively added 82 more chairs.

iQueue for Infusion Centers uses data science and machine learning to create optimized scheduling templates in order to continuously maximize patient flow and chair usage.



## RESULTS

▼ **31%**  
**LOWER**  
 Waiting times at peak hours

▼ **26%**  
**LOWER**  
 Average waiting time

▼ **42%**  
**LOWER**  
 Average hours over capacity

▼ **8%**  
**LOWER**  
 Overall average daily peak



## Overview

The Hopkins Kimmel Comprehensive Cancer Center is one of 72 elite NCI-designated Cancer Centers in the entire country and one of 33 NCCN Member Institutions and is comprised of 195 chairs across 5 centers. It performs ~48,000 treatments annually across locations throughout the Baltimore and Washington, DC metro areas.

## Problem

- Long patient wait times during the middle of the day, 63 minutes on average at Center #1
- Running out of chairs 37% of days at Center #2
- Closing late by 2 hours or more 69% of days at Center #3
- Multiple Centers spent entire days creating nurse assignments

## Solution

Leadership at Hopkins initially deployed iQueue at three sites to address the issues. Based on the success, iQueue was deployed to the remaining sites across the health system with similar success. The team was able to improve the patient experience by decreasing drug and wait times. In addition, they were able to reduce the number of days running past close-which happened more often than not.

### RESULTS OVER 4 YEARS

▲ **42%**

**INCREASE IN**

Average daily completed volumes at Center #3

▼ **22%**

**DECREASE IN**

Days running past close at Center #3

▼ **30%**

**DECREASE IN**

Average drug wait time at Center #1





## Overview

The Fred & Pamela Buffett Cancer Center opened in July 2017. This state-of-the-art facility consists of the Suzanne and Walter Scott Research Tower, where researchers have received more than \$185 million in grant funding; the C.L. Werner Cancer Hospital, an 108-bed inpatient treatment center and a multidisciplinary outpatient center which includes clinics, radiation oncology, surgery, radiology, a 24/7 treatment center and lab. Located in Omaha, Nebraska, it is the only NCI-designated cancer center and NCCN Member Institution in the state and treats more than 60,000 patients each year.

## Problem

- Nurses missing breaks/lunch
- Too heavy of a patient load in the morning/midday
- Need to accommodate add-ons/unlinked and linked appointments
- Need to increase capacity without adding FTEs
- Want to increase patient access
- Too much overbooking

## Solution

Leadership at the cancer center deployed iQueue for Infusion Centers to optimize their infusion workload throughout the day, provide visibility into the overall scheduling decisions, and understand why days did not go as planned. As a result of the iQueue for Infusion Centers implementation, Nebraska Medicine achieved an increase in average completed volumes while utilizing existing resources, a decrease in infusion wait times and an overall positive impact on nursing workflows.

## RESULTS

- ▼ **WAIT TIMES, Infusion Center at Village Pointe Cancer Center**
  - Wait time decreased by 28% while volumes remained flat
  - Average wait time only ~8 minutes

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- ▼ **WAIT TIMES, Infusion Center at Fred & Pamela Buffett Cancer Center**
  - Wait times decreased by 20% while volume grew
  - Average wait time only ~7 minutes

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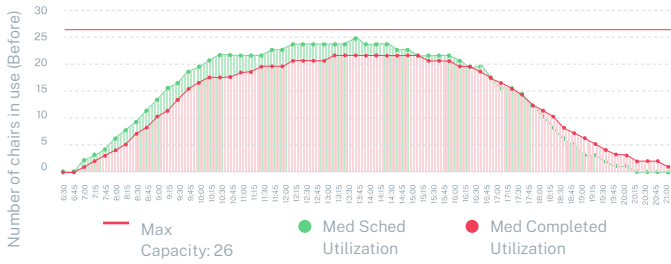
- ▲ **VOLUME GROWTH, Infusion Center at Fred & Pamela Buffett Cancer Center**
  - Successfully increased patient volume without adding chairs, by more efficiently utilizing existing chair resources
  - Scheduled patient volume growth: 12%
  - Completed patient volume growth: 8%

“We’ve seen tremendous success and kept our wait times under 10 minutes while increasing patient volumes by using iQueue for Infusion Centers, including the executive summary feature.”

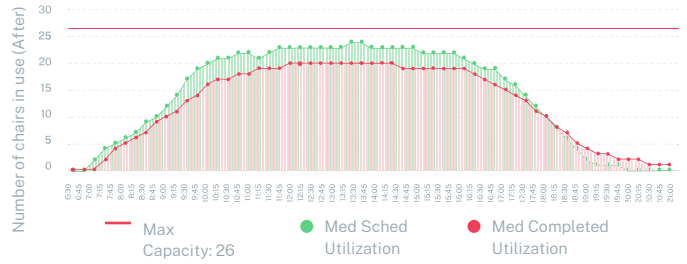


Becky Duchman,  
MSN, MA, RN, NEA-BC, Director  
Ambulatory Infusion/Treatment  
Services, Heartland Oncology Clinic  
& Infusion, Kearney, Nebraska,  
Cancer Resource Centers

## CHAIR UTILIZATION - INFUSION CENTER AT FRED & PAMELA BUFFETT CANCER CENTER



Utilization curve **before**



Utilization curve **after**

## WAIT TIMES - INFUSION CENTER AT VILLAGE POINTE CANCER CENTER

15.4% ▼ -5.5%

Waited > 15min

18.2% ▼ -6.9%

Waited > 15min  
During Peak Hrs

8 mins ▼ -28.2%

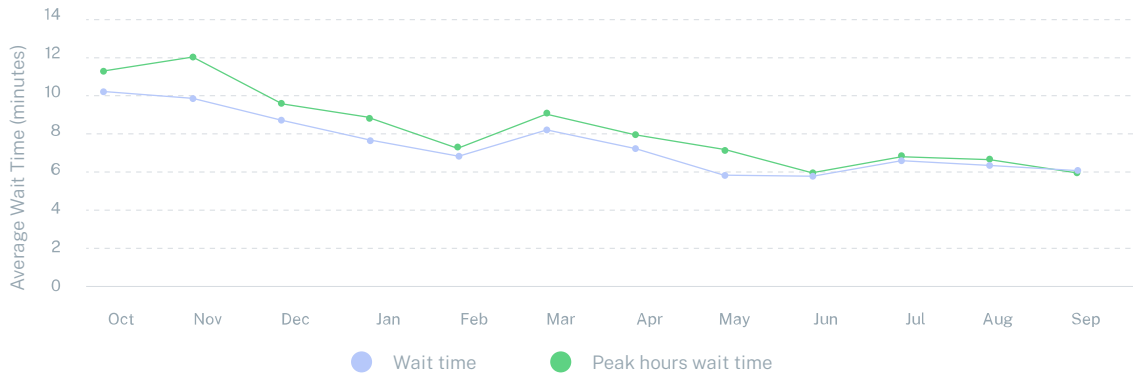
Avg Wait Time

8 mins ▼ -27.2%

Avg Wait Time  
During Peak Hrs

3.6% ▼ -1.2%

Unable to Calculate  
Wait Time



## WAIT TIMES - INFUSION CENTER AT FRED & PAMELA BUFFETT CANCER CENTER

14.4% ▼ -2.8%

Waited > 15min

20.4% ▼ -3.2%

Waited > 15min  
During Peak Hrs

7 mins ▼ -19.8%

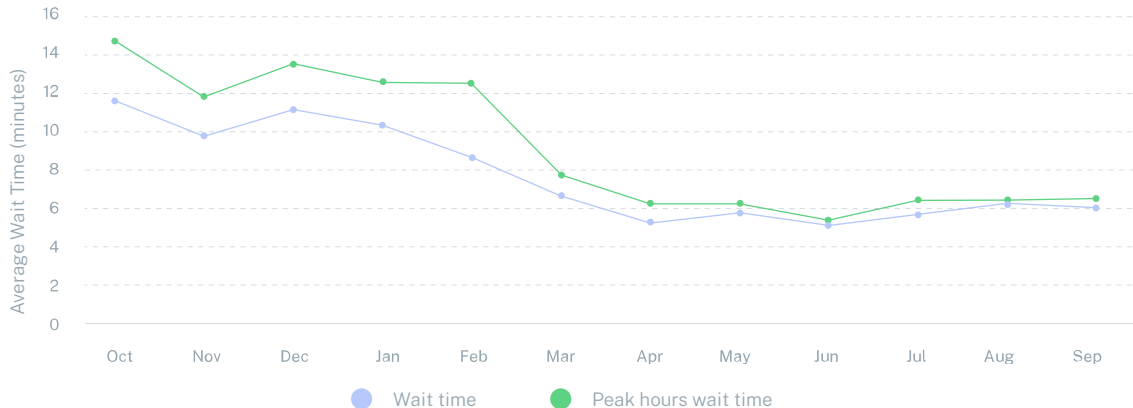
Avg Wait Time

9 mins ▼ -19.9%

Avg Wait Time  
During Peak Hrs

1.6% ▼ -0.4%

Unable to Calculate  
Wait Time





## Overview

Huntsman Cancer Institute (HCI) is part of the University of Utah Health Care system. HCI is one of 72 elite NCI-designated Cancer Centers in the entire country and one of 33 NCCN Member Institutions, which means it meets the highest standards for cancer care and research and receives support for its scientific endeavors.

HCI is also a member of the National Comprehensive Cancer Network (NCCN), a not-for-profit alliance of the world's leading cancer centers.

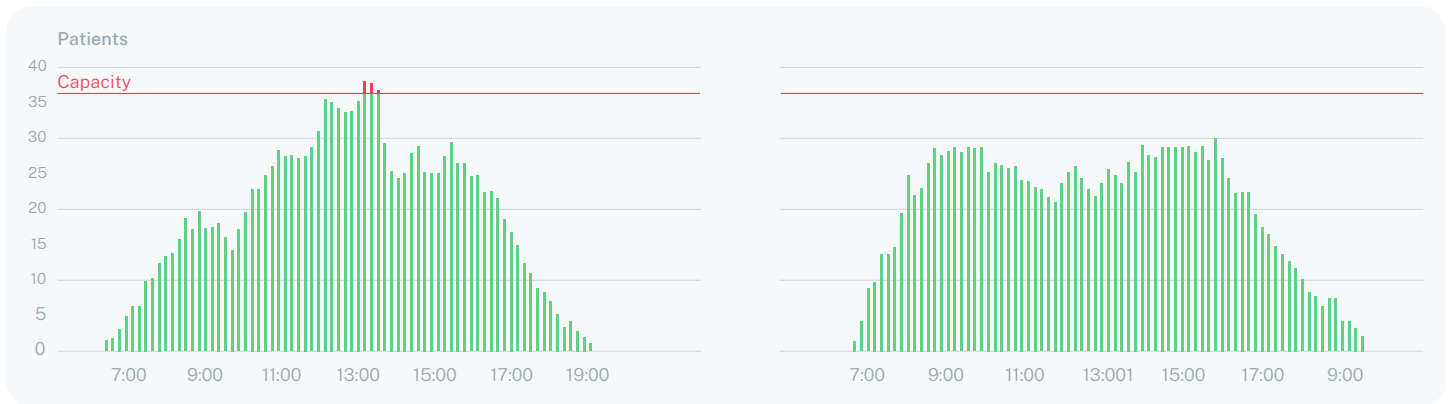
## Problem

- Increasing volume was making it hard to find slots for longer treatments
- Exceeding capacity in peak hours and peak days was impacting patient wait times
- Exceeding capacity in peak hours was affecting nurse satisfaction

## Solution

HCI deployed iQueue for Infusion Centers at its 36-chair center to create optimized infusion scheduling templates.

iQueue for Infusion Centers uses data science and machine learning to create optimized scheduling templates in order to continuously maximize patient flow and chair usage.



Utilization curve **before**

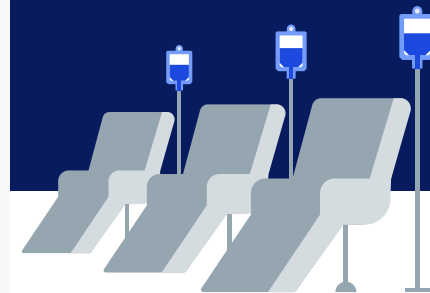
Utilization curve **after**

## RESULTS

▼ **16%**  
DECREASE IN  
Average wait times  
on peak day

▼ **26%**  
DECREASE IN  
Average wait time  
during peak hours

▼ **0** days  
ABOVE  
Capacity since  
implementation







## Overview

Vanderbilt-Ingram Cancer Center is one of 72 elite NCI-designated Cancer Centers in the entire country and the only adult center designation in Tennessee and one of 33 NCCN Member Institutions. VICC is dispersed between 11 cancer locations in the middle TN region consisting of 126 total infusion chairs and serviced by 180 physician providers with a comprehensive representation of hematology and oncology subspecialties.

## Problem

- High patient wait times
- Nurses frequently missing lunches
- Desire to increase capacity but unable to do so pre-iQueue
- Unable to balance capacity between oncology and non-oncology infusions

## Solution

Prior to implementation, Vanderbilt-Ingram Cancer Center had a desire and need to increase capacity with the inability to do so on their own. With the implementation of iQueue for Infusion Centers, they were able to unlock additional capacity utilizing the same number of chairs. Scheduling leaders are able to strategically steer add-ons to levelload the day and leadership analyze data in the tools to see how the month will unfold in order to balance capacity.

## RESULTS

### Results at Largest Center:

▼ **30%**  
DECREASE IN  
Chair wait time

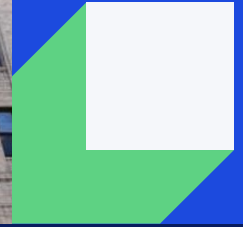
▼ **27%**  
DECREASE IN  
Drug wait times

▲ **8%**  
INCREASE IN  
Volumes utilizing the  
same number of chairs

“It’s a very impressive amount of growth, and amount of volume we’ve added at this one infusion center, thanks to having the iQueue system in place.”



Cody Stansel,  
Administrative Director –  
Nursing, Vanderbilt-Ingram  
Cancer Center



## Overview

NewYork-Presbyterian is home to two of the nation’s leading cancer centers – the Herbert Irving Comprehensive Cancer Center of NYP/Columbia University Medical Center and the NYP/Weill Cornell Ronald P. Stanton Clinical Cancer Program and the Weill Cornell Medicine Sandra and Edward Meyer Cancer Center.

As a leading cancer center, NYP treats ~7,500 adult and pediatric patients newly diagnosed with cancer each year and is one of 72 elite NCI-designated Cancer Centers in the entire country.

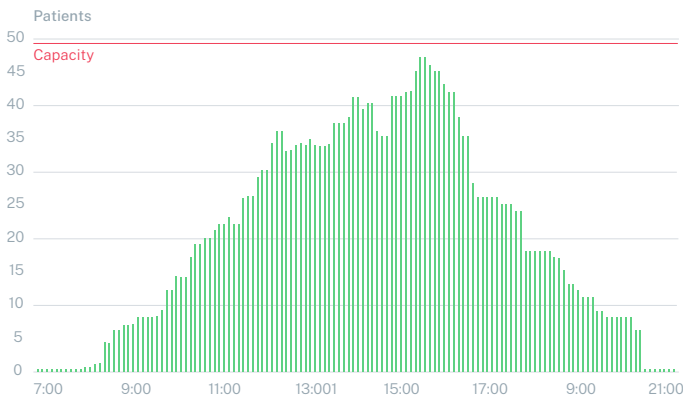
## Problem

- Consistently operating at capacity
- A peaky utilization profile leading to extended wait times in the middle of the day

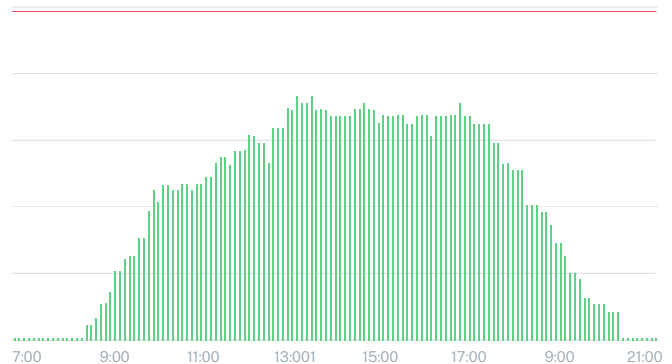
## Solution

Leadership at NYP deployed iQueue for Infusion Centers at one of its centers with 49 chairs to create optimized infusion scheduling templates.

iQueue for Infusion Centers uses data science and machine learning to create optimized scheduling templates in order to continuously maximize patient flow and chair usage.



Utilization curve **before**



Utilization curve **after**

### RESULTS

▼ **55%**

**LOWER**

Waiting times at peak hours

▼ **40%**

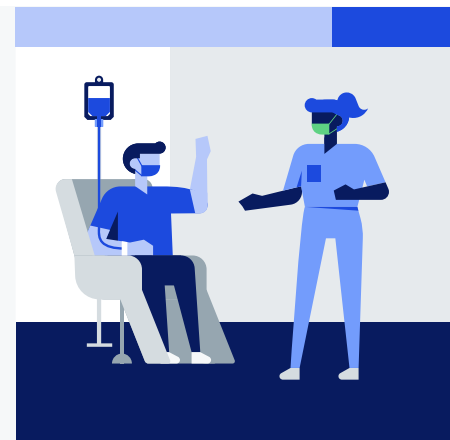
**LOWER**

Average waiting time

▲ **17%**

**HIGHER**

Patient volumes





## Overview

SSM Health is a Catholic, not-for-profit health system serving the comprehensive health needs of communities across the Midwest through a robust and fully integrated health care delivery system. With care delivery sites in Illinois, Missouri, Oklahoma and Wisconsin, SSM Health includes 23 hospitals, more than 290 physician offices and other outpatient and virtual care services, and 12 post-acute facilities. It is one of the largest employers in every community it serves. In 2021, our community oncology sites served approximately 3,000 patients with over 38,700 visits in St. Louis alone.

## Problem

- Unpredictable patient volumes due to waves of COVID
- Major construction that constrained daily operations
- Extremely busy morning rushes followed by slow afternoons
- Imbalanced nurse workloads and nurses missing their breaks
- Major pharmacy bottlenecks

## Solution

iQueue for Infusion Centers was implemented at four SSM cancer centers during a difficult 2 years of COVID-19 surges, and as a result they saw significant improvement in their operational agility, patient volumes, wait times, afternoon appointment utilization and overall nurse satisfaction. SSM had to close several chairs at their Kisker clinic due to a construction project, and successfully shifted appointments to a nearby site using iQueue templates to maintain patient care.

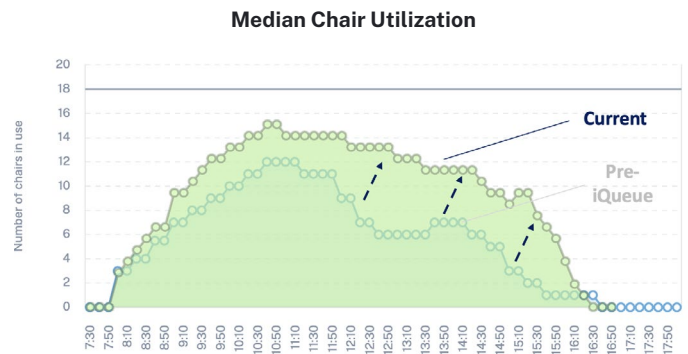
### RESULTS – LAKE ST. LOUIS

**▲ 18%**  
**INCREASE IN**  
 Patient volume  
 without adding chairs

**▼ 44%**  
**REDUCTION IN**  
 Infusion wait time

**▼ 25%**  
**REDUCTION IN**  
 Drug wait time

**▲ 30%**  
**INCREASE IN**  
 Afternoon median  
 chair utilization



Maintaining appointment availability across the community oncology sites despite closing several chairs for construction and social distancing



## Overview

The Comprehensive Cancer Center of Wake Forest Baptist Health in Winston-Salem, North Carolina has been one of 72 elite NCI-designated Cancer Centers for over 40 years.

Acknowledged as one of the nation's leaders in the fight against cancer, the Comprehensive Cancer Center has 35 infusion chairs & 8 private rooms.

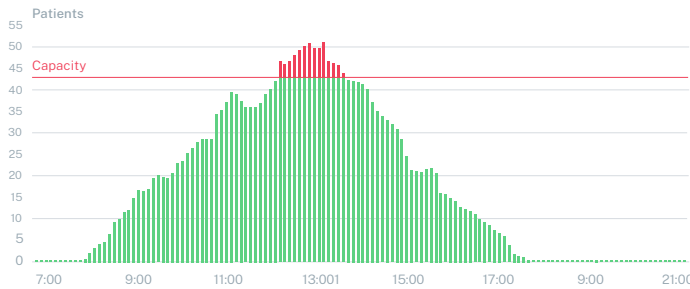
## Problem

- Consistently operating at capacity
- Peak periods of high utilization for treatment chairs between 10am and 2pm
- Strained resources, resulting in decreasing staff and patient satisfaction

## Solution

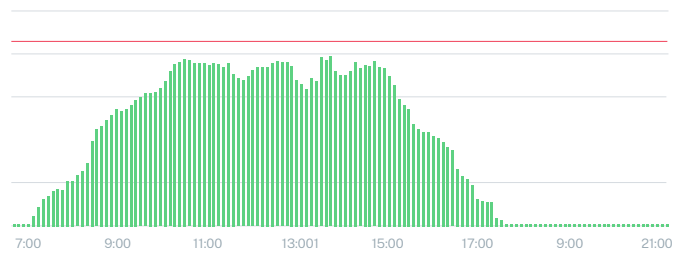
Leadership at the Cancer Center center deployed iQueue for Infusion Centers at one of its centers with 35 chairs and 8 beds to create optimized infusion scheduling templates.

iQueue for Infusion Centers uses data science and machine learning to create optimized scheduling templates in order to continuously maximize patient flow and chair usage.



Utilization curve **before**

- Frequent "mid-day" peaks and slow mornings and evenings
- Frequent overflow in waiting rooms-long patient waiting times



Utilization curve **after**

- Even workload throughout the day allows for more predictable schedules
- Unlock capacity to help deal with unexpected delays and add-ons

## RESULTS

▼ **25%**

**LOWER**

Waiting times at peak hours

▼ **25%**

**LOWER**

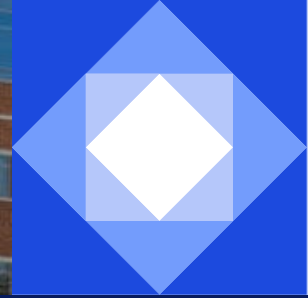
Days over capacity

▼ **74%**

**LOWER**

Days where hours of operation needed to be extended





## Overview

Novant Health is a non-profit integrated healthcare network with 15 hospitals and more than 350 physician practices offering advanced medical treatments across multiple states. Utilizing purposeful innovation is core to Novant Health's strategy for delivering an exceptional healthcare experience for patients.

## Problem

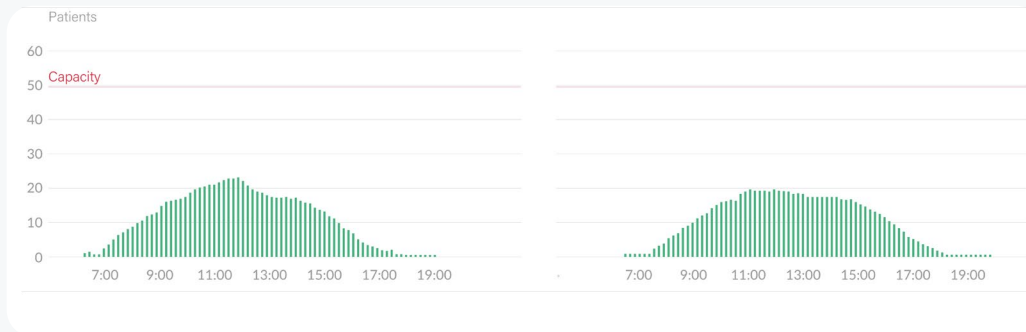
Like most health systems, Novant Health's branches struggled to align an unpredictable pattern of demand for appointments with a limited supply of physicians, staff, equipment, and infusion centers. The center was experiencing the following operational challenges:

- A daily "mid-day" crunch of high patient volume and lack of available resources
- Patient dissatisfaction due to high wait times and nurses overworked from patient bottlenecks

## Solution

iQueue for Infusion Centers was piloted at Novant Health's Presbyterian Medical Center in Charlotte, NC, helping to solve the mid-day spike in appointments and reduce patient wait times. The infusion center waiting room was intentionally designed to be small and iQueue streamlines how quickly a patient is seen.

Patients are now scheduled at a steadier pace throughout the day, creating less wait time and improving patient flow. The infusion center can now see additional patients throughout the day, and nurse burnout is now less likely.



Utilization curve **before**

Utilization curve **after**

## RESULTS

▼ **43%**

**DECREASE IN**  
Average wait time

▼ **40%**

**DECREASE IN**  
Average wait time  
during peak hours

▼ **18%**

**FEWER**  
Patients waiting  
> 15 minutes

▼ **17%**

**LOWER**  
Average daily peak



## Overview

Oklahoma Cancer Specialists and Research Institute (OCSRI) is a physician-owned group practice with more than 20 blood and cancer specialty physicians and 300 nurses and associates.

**OCSRI** is a leader and patient-centric oncology institute providing renowned multidisciplinary care empowered by progressive clinical research. We are a team of specialists who provide personalized treatment, transparent counsel and advanced technology to deliver the most effective care possible.

## Problem

- Midday patient volume surges
- Misaligned nurse staffing to daily patient appointment volume
- Uneven cadence of appointment starts, leading to peaky chair utilization

## Solution

iQueue for Infusion Centers was implemented at OCSRI's Tulsa location at the height of COVID-19, and as a result they saw significant improvement in their daily completed patient volumes, wait times during peak hours and chair utilization metrics. OCSRI has increased patient access to care and better aligned nurse staffing with patient demand. Nearly two years later, OCSRI has continued to sustain the gains made immediately post iQueue implementation. OCSRI has also gained additional capacity that has helped cope with increased patient demand without having to hire additional nursing staff. Level loading the schedule throughout the day has also resulted in improved patient and staff experience.

### RESULTS

**21%** ▲

**INCREASE IN**  
Average daily completed volume

**23%** ▲

**INCREASE IN**  
Average daily completed patient hours

**14%** ▼

**DECREASE IN**  
Average daily infusion wait time during 10am-2pm peak hours

**90%**

Of patients wait less than 15 minutes during peak hours

“Our infusion department experienced improvements in patient workflow with the initial implementation of our scheduling template. We were able to slow down midday volume peaks & uneven volume surges throughout the day. As a result, the steady flow of patient arrivals throughout the day has provided more opportunities to cultivate the nurse/patient relationship.”

**Donna D. Reeder,**  
Nurse Manager





## Overview

Enloe Regional Cancer Care serves the Northern California community in partnership with the UCSF Helen Diller Family Comprehensive Cancer Center, which is a National Cancer Institute-Designated Comprehensive Cancer Center. Enloe delivers the latest cancer treatment technologies to patients, while providing focused, compassionate care in a small community environment. Utilizing 28 infusion chairs, the center cares for patients with an array of cancer types.

## Problem

With the increasing patient volume and expected continued growth, the center was experiencing and looking for a solution to the following:

- Long patient wait times
- Bottlenecks in the middle of the day
- Scheduling inefficiencies
- Running past close occurrences

## Solution

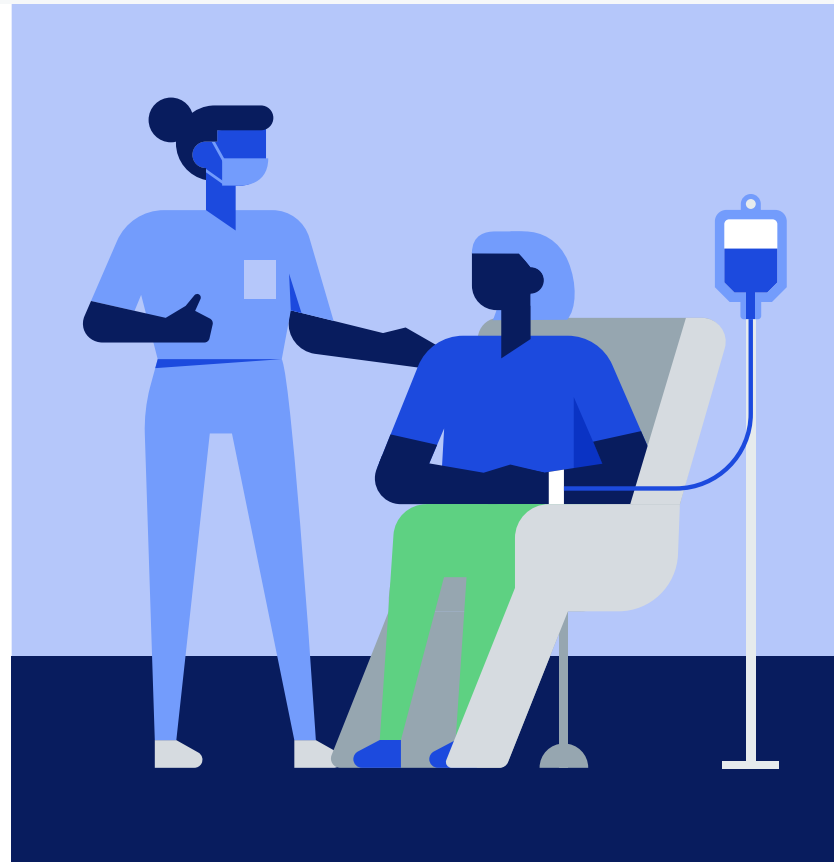
Leadership at the Cancer Center made the decision to deploy iQueue for Infusion Centers to optimize their infusion workload throughout the day, provide visibility into the overall scheduling decisions, and understand why days did not go as planned. As a result, the center's chair wait time decreased by 53% despite seeing an increase in volume — patients are now waiting less than 15 minutes before receiving treatment. In addition, nurse satisfaction has improved since iQueue go-live and nurses are able to leave on time due to a 44% reduction in days running past close.

## RESULTS

▼ **53%**  
DECREASE IN  
Average chair wait times

▼ **27%**  
DECREASE IN  
Average drug wait times

▼ **44%**  
DECREASE IN  
Running past close occurrences





# What Your Colleagues Are Saying



"iQueue uses data science and machine learning to create optimized scheduling templates in order to continuously maximize patient flow and chair usage. The results were dramatic."



**Jamie Bachman**

Former Executive Director, Oncology Services

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"We were very pleased with how fast we were able to implement iQueue for Infusion Centers and see a difference. We see lots of happier patients because things are happening on-time."



**Karen Craver**

Clinical Practice Administrator

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"Our nurses love using the huddle report every morning because it gives us a really good indication for if we can take patients back early who arrive early, and for knowing where the day's best opportunities are for handling add-ons. Our days run much smoother because we are really utilizing our time better."



**Joy Lombardi, RN, OCN**

Manager

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"We took two years of historical data and pumped that into the analytic engine as well as operating constraints, how many infusion chairs are available, the hours when the chairs are open and the staff that's available and that's translated into mathematical equations into iQueue and out comes as a production schedule."



**Sridhar Seshadri**

Vice President, Cancer Services

Contact us for a no obligation demo:

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[www.leantaas.com](http://www.leantaas.com)

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