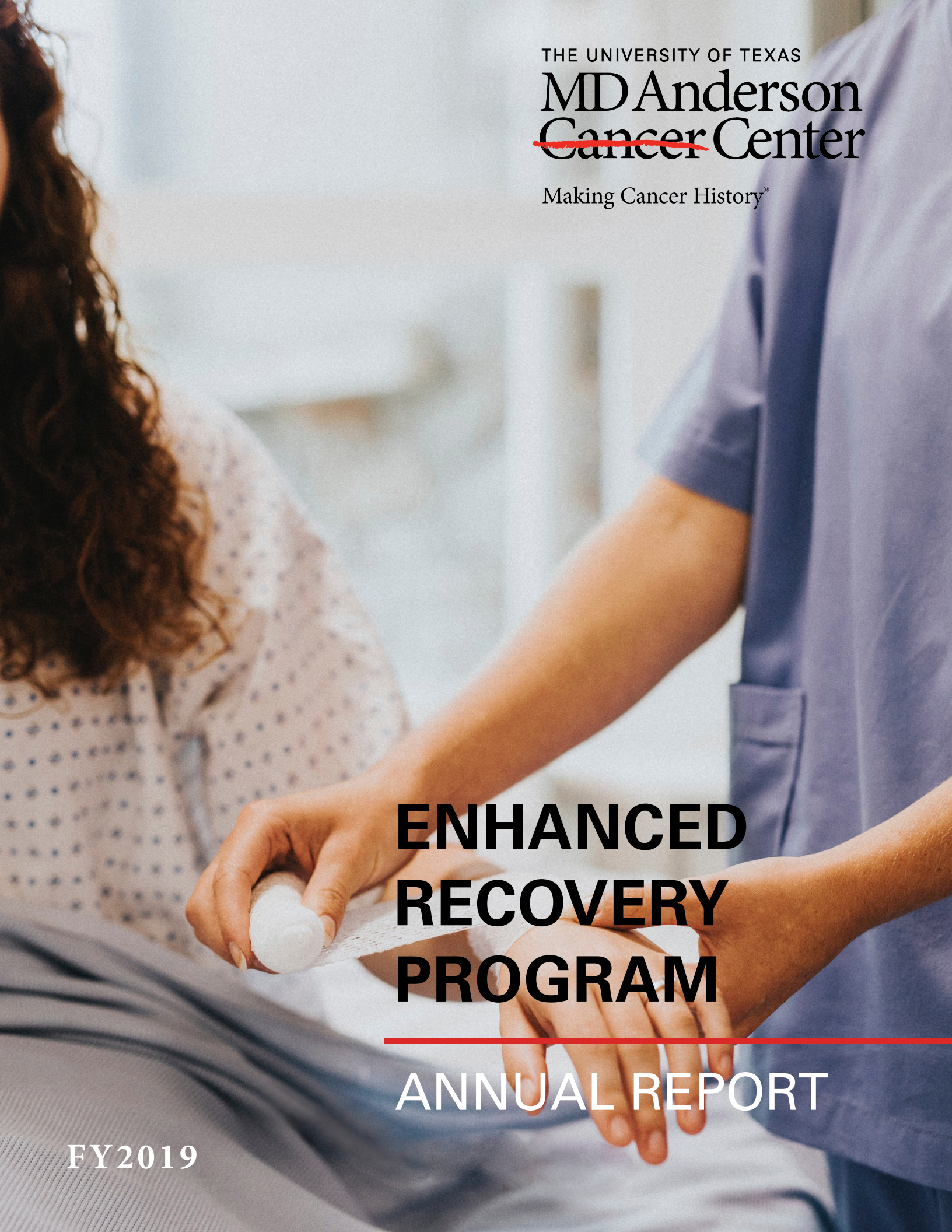

THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center
Making Cancer History®

ENHANCED RECOVERY PROGRAM

ANNUAL REPORT

FY2019

Enhanced Recovery Program

ANNUAL REPORT FY2019

MD Anderson's institution wide Enhanced Recovery Program (ERP) is a collaborative patient-centric, recovery focused, care transformation initiative led by our multidisciplinary team members actively engaging care givers and patients in their treatment planning and care delivery. The mission for our ERP teams is "implementation of proven and emerging innovations in cancer therapies to deliver safe, effective, and value-based cancer care programs for an increasing number of patients." The program's vision is to minimize treatment related complications by rapid rescue interventions, reduce patient's symptom burden, and enhance patient experience and functional recovery, thereby facilitating timely return to adjuvant oncologic therapies when indicated and improving cancer outcomes.

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Special acknowledgement of all Enhanced Recovery Program members who contributed time and effort to making the FY2019 annual report possible

Contents

Year in Review

From the desks of Dr. Thomas Aloia and Dr. Vijaya Gottumukkala

Vijaya Gottumukkala, M.D., M.B.B.S., F.R.C.A.

Associate Head, Institute for Cancer Care Innovation

Professor & Deputy Chair, Anesthesiology & Perioperative Medicine

Director, Program for Advancement of Perioperative Cancer Care

Thomas Aloia, M.D., M.H.C.M., F.A.C.S.

Head, Institute for Cancer Care Innovation

The letters "ERP" become more meaningful every day here at the University of Texas MD Anderson Cancer Center (UTMDACC), not only to our providers, but to our patients as well. These letters stand for the Enhanced Recovery Programs and represent the dedication and commitment our multidisciplinary teams provide as we work together with the patients to return them to their lives. Oncology therapies can be disruptive to the body and mind, but through our program, we have seen the positive impacts that can be achieved and improvements made to patients' functional recovery.

We are continuously asked, "What is the most important lesson you have learned about enhanced recovery?" Our answer: "The care we provide is patient-centric and recovery-focused." The goal of the ERP is to help patients recover faster. We have never wavered from our vision of helping patients return back to home, back to family, back to therapy, back to work, back to life, and back to self. Within the pages of this report you will read stories about innovative work generated through our multidisciplinary approaches to care, celebrate the outcomes and successes achieved by our teams, and most importantly, join in the journey of our patients treated on the enhanced recovery pathway. We hope that as you read these stories, you share in our pride of the value we can provide through the ERP.

Over 10,000 patients have been treated on an enhanced recovery pathway at UTMDACC to date. With the lessons learned and experience gained at UTMDACC, we are expanding our program within the University of Texas system of hospitals, our partners in the Cancer Network, and our Sister Institutions. We thank our patients for allowing us to be a part of their cancer journey, and for their support of the ERP. Together, we are Making Cancer History™.

About the ERP

What is an Enhanced Recovery Program?

By Cameron Keramati, B.S.

Since its inception in 2012, MD Anderson's Enhanced Recovery Program (ERP) has been dedicated to improving the standard of care for a wide-range of patients from various specialties. Through a set of guidelines and care pathways, patients are returning to home, life, and self quicker. Learn more about how ERPs come together to change common practice below.

The MD Anderson Story

An ERP, or Enhanced Recovery Program, is an interdisciplinary, patient-focused care pathway. At the heart of what motivates this philosophy of care is the desire to see patients return to a functional baseline safely and quickly.

At the core of ERP at MD Anderson is an interdisciplinary care approach utilizing patient education and engagement, nutritional optimization, multimodal opioid sparing analgesia, and appropriate fluid and blood management. At MD Anderson, these simple, but profound methods have repeatedly demonstrated the value of such a program by eliciting a standard of care that is efficient, cost-controlled, beneficial to patient outcomes, and applicable in a variety of settings.

Figure 2. Enhanced Recovery Program multidisciplinary team members

Interest in implementing an ERP at MD Anderson first began in 2012 in Hepatobiliary Surgery (Fig. 1). Since then, a total of 19 teams have launched, both in surgical and non-surgical fields. MD Anderson is one of the first oncology hospitals to expand enhanced recovery principles into non-surgical patient populations. Our work in enhanced recovery is of noted value, as it continues to demonstrate that this pathway is both applicable and beneficial, even in some of the most complex patients.

As the number 1 hospital in cancer care according to U.S. News & World Report, we are continuously seeking new and innovative methods to improve outcomes for our patients. However, the challenge does not always come from the lack of new knowledge, but rather the integration of that knowledge into practice.

The Super Team: How Integration Leads to Success

Our ultimate goal is to make the ERP a standard of care practice across the institution. However, with any change in practice, implementation and sustainability can present many challenges. Healthcare can often exist in a state of segmentation, with each service, each department, and at times, each provider, operating in silos within their respective areas. In order to overcome this challenge, the ERP team consistently seeks input from interdisciplinary professionals at every phase of care. The result is the development of the ERP "super team."

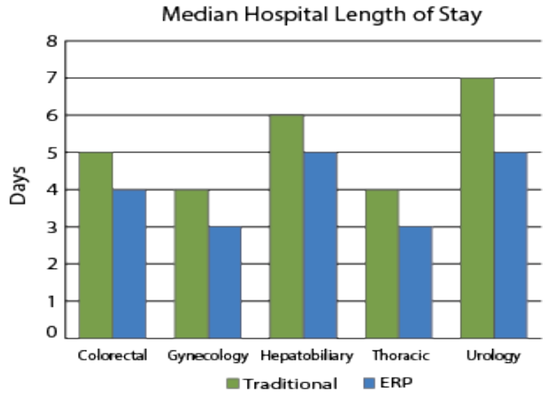

Figure 3. Median hospital length of stay in patients under traditional versus ERP protocols

Note: Adapted from "Determining the safety and efficacy of enhanced recovery protocols in major oncologic surgery: An institutional NSQIP analysis." by Marcus, R., Lillemoe et al. (2019). *Annals of Surgical Oncology, 26,* 782-790. Copyright Year by 2019 Society of Surgical Oncology.

This team encompasses all of the required stakeholders for an enhanced recovery pathway to be successful and includes professionals from Anesthesiology, Surgery, Nursing, Pharmacy, Nutrition, Physical and Occupational Therapy, Administration, and Information Technology (Fig. 2). Through the collaboration of these team members, a standardized clinical pathway can be established with the end goal of returning patients to their functional baseline. Since implementation, we have seen marked benefits such as reductions in the following: length of stay, complications, opioid consumption, and costs of care (Fig. 3.)

Some practitioners raise concerns that an ERP program will limit their ability to appropriately manage their patient's pain and symptoms. However, it is best to see enhanced recovery as not just a practice but a philosophy of care. Even if not all aspects are applicable to a patient, an ERP's individual components may improve that patient's outcome when guiding him/her through treatment, thereby mitigating downstream recovery obstacles.

The Future of ERP at MD Anderson and Beyond

Currently at MD Anderson, expansion of ERP protocols continues. MD Anderson is focused on collaborating with our Cancer Network Partners and allies within the University of Texas System to bring enhanced recovery throughout not only the state of Texas, but the nation as a whole. ■

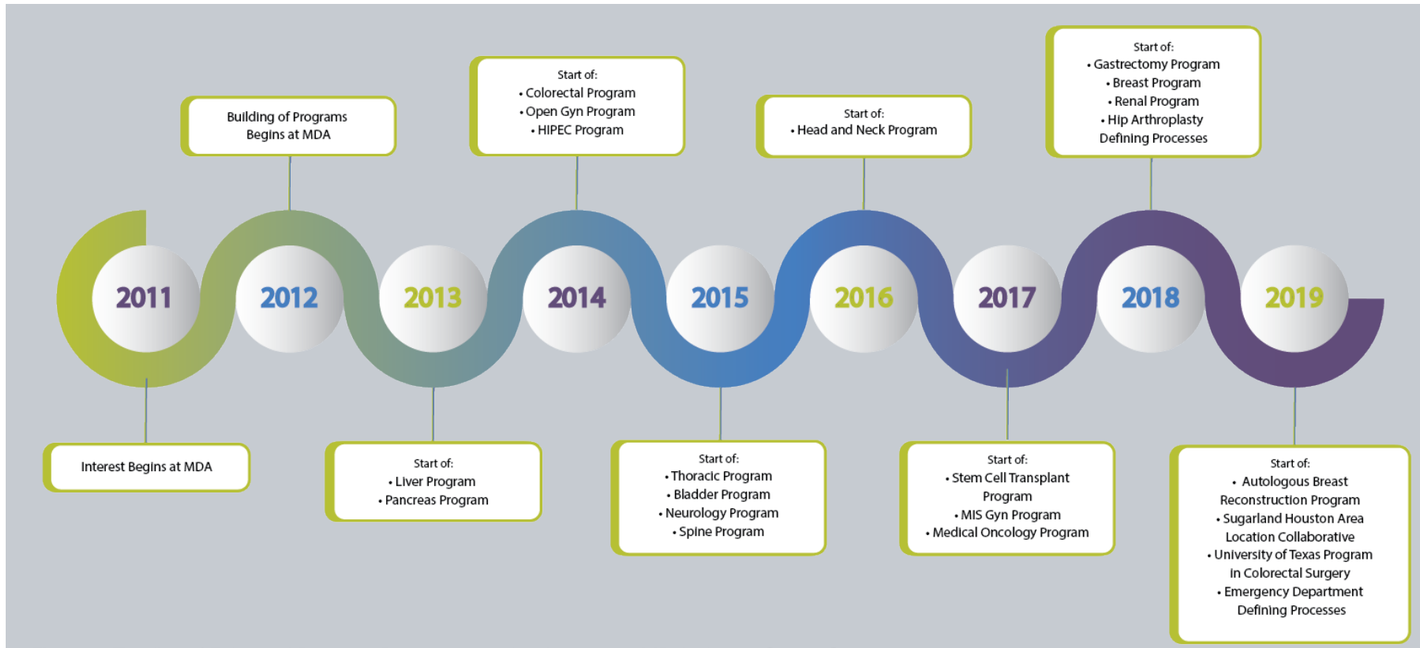

Figure 1. Timeline of Enhanced Recovery Program team development at MD Anderson Cancer Center

FY19 by the Numbers

3,650 PATIENTS

64 PRESENTATIONS

5 AWARDS

34 PUBLICATIONS

4 PATHWAYS ADDED

Hear from our INSTITUTIONAL **LEADERS**

PETER WT PISTERS, M.D.
President

"The MD Anderson Enhanced Recovery Program has greatly improved the care we provide to our patients across the enterprise. I am extremely proud of our multidisciplinary teams working together with our patients to deliver timely, efficient, effective and value-based care. While our enhanced recovery teams are involved in both quality and research initiatives, our focus remains on getting patients back to home, family, therapy, work, life, and eventually, back to self. This unwavering goal is the driver of our program. I look forward to the ongoing work of our teams as we continue to build patient-centric recovery-focused approaches into the core fabric of all the care that we provide here at MD Anderson."

"The Enhanced Recovery Program has a vital role in moving the institution to provide the highest quality of care in the safest and most effective way for our patients. The work this program is doing will significantly improve our outcomes and allow us to focus on implementing innovative treatments."

STEPHEN M. HAHN, M.D.
Chief Medical Executive

"Our Enhanced Recovery Program improves clinical outcomes, patient experience, and hospital flow, all of which are key strategic, operational, and ethical priorities for MD Anderson. The Institute for Cancer Care Innovation's leadership in this area is creating ripple effects in how we all think about patient care."

WELELA TEREFFE, M.D., M.P.H.
Chief Medical Officer

Beyond Enhanced Recovery:

One MD Anderson

By Jarrod Eska, M.A.

As the benefits to patient outcomes from enhanced recovery are more widely known, Enhanced Recovery Programs (ERP) are increasingly becoming part of routine clinical practice. Through effective multidisciplinary teamwork, ERP pathways at the University of Texas MD Anderson Cancer Center (UTMDACC) are currently available in 15 surgical service lines, three non-surgical lines and in development for three surgical service lines at the Sugarland Houston Area Location (Fig. 1).

Expanding any program across a large institution presents challenges such as differences in leadership styles, team cultures, and resource availability. Each ERP team has served as a valuable resource helping to improve and optimize pathways to eliminate barriers through best practice recommendations. Through shared experiences and lessons learned from implementation of the ERP at UTMDACC, our patients are afforded the benefits of enhanced recovery across multiple service lines and beyond.

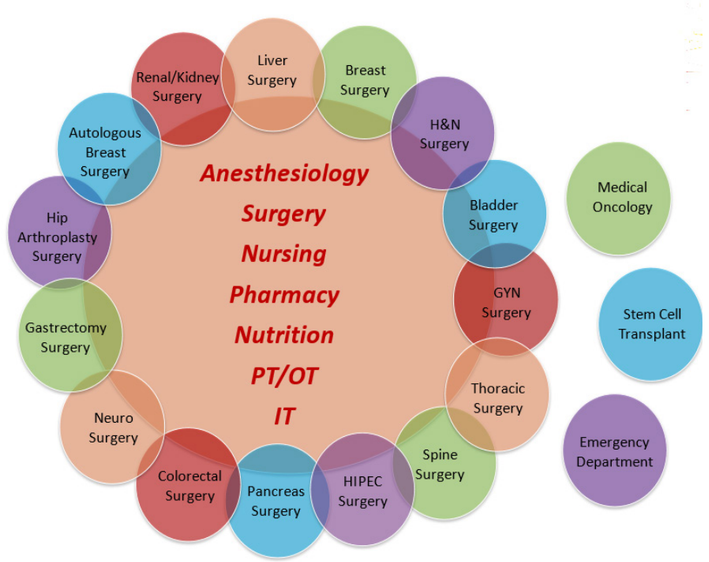

Figure 1. The service lines of the Enhanced Recovery Program at UTMDACC

Figure 3: Map of expansion of ERP into five external UT institutions and UTMDACC Partners

Expanding Beyond Surgery

Since initiation in 2013, UTMDACC's ERP has expanded across 15 surgical teams over a six-year period. The benefits of ERPs in surgery are well-established across various types of healthcare organizations, including UTMDACC. Instituting an ERP across a large healthcare institution is an important factor in driving sustainable change in patient-centric, value-based delivery of care.

In 2018, an internal analysis was conducted examining the extent to which ERPs have been implemented within the participating service lines. The analysis identified factors that facilitate or potentially hinder successful implementation using a strengths, weaknesses, opportunities, and threats methodology (SWOT) assessment.

Individual team progress was categorized into one of five phases; Define, Implement, Measure, Analyze, and Optimize (Fig 2).

The SWOT analysis revealed regular multidisciplinary meetings, identification of common goals, alignment of outcomes, standardized pathways, and executive stakeholders as drivers for successful implementation of an ERP. Optimization and sustainability was achieved with consistent use of established ERP pathways, patient-education documents, and data collection tools to record clinical outcomes.

Building on enhanced recovery's multimodal approaches and foundational elements to augment postoperative outcomes, UTMDACC has pioneered implementation of enhanced recovery pathways for medical oncology patients (ERMO), in stem cell transplant (ER-SCT), and in the emergency department (ED).

Modifying current process pathways, ERMO seeks to optimize functional recovery through pain and symptom management of hospitalized patients with the goal of expediting return to their intended oncologic therapy.

ER-SCT is a multidepartmental and multidisciplinary effort to evaluate and manage patients aged 65 and older undergoing allogeneic hematopoietic stem cell transplantation from developing frailty, cognitive impairment, fluid overload,

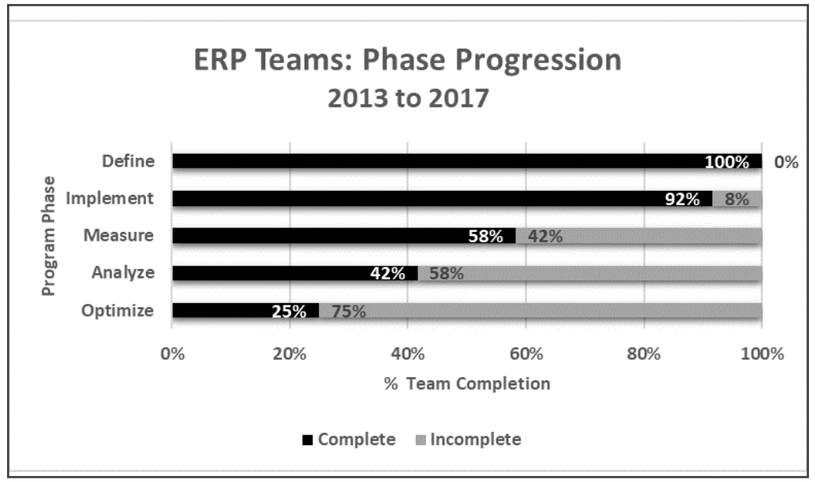

Figure 2: Categorization of individual team progress into one of five phases; Define, Implement, Measure, Analyze, and Optimize.

severe malnutrition, and risk for increased morbidity and mortality.

Following ERP guidelines, the ED undertook a quality improvement project to decrease the use of opioid analgesia by 10% in eligible patients. It was discovered that there were many more eligible patients than previously perceived. Providers, nurses, and patients were educated on these opportunities to increase safe prescription practices of non-opioids.

Expanding Beyond UTMDACC

While expansion within UTMDACC continues, the Institute for Cancer Care Innovation (ICCI) has begun forming collaborative relationships with external stakeholders including institutions within The University of Texas System and Cancer Network Partners with a shared vision to foster patient-centric, recovery-focused, value based care to wider patient populations (Fig. 3). This year, the ICCI spearheaded an initiative to implement ERP in five external UT institutions:

- The University of Texas Medical Branch at Galveston
- The University of Texas Health Science Center at Houston
- The University of Texas Health Science Center at Tyler
- The University of Texas at Austin Dell Medical School
- The University of Texas Health Science Center at San Antonio

In addition to expanding within the UT System, ICCI has established collaborations to assist with ERP implementation and sustainability with institutional partners, including Baptist in Jacksonville, Florida, Banner in Gilbert, Arizona, Cooper in Voorhees Township, New Jersey, and Scripps in San Diego, California.

Several years ago, Cooper began implementing enhanced recovery pathways. It has since developed a multispecialty, optimized ERP. Scripps has an internal Colorectal Power Pathway, placing its focus on ongoing implementation with other disease sites. Baptist's ERP began in 2017 and now includes pathways for colorectal, urology, gynecologic oncology, and thoracic surgery with plans for additional service lines. To date, there has been a 37% reduction in length of stay and a 21% reduction in opioid use (colorectal patients). Just this past April, Banner hosted an ERP kick-off event to officially announce implementation plans of an ERP within their institution. Currently, preparations are being made to implement enhanced recovery protocols across the surgical areas at Banner MD Anderson, with patients on protocol by Fall 2019. All sites are actively partnering with UTMDACC in Houston to share best practices and compare patient outcomes.

Implementing an ERP across an institution is possible. Large scale ERPs within health care systems provide benefits to both improving patient outcomes and experience, minimizing complications, reducing length of stay and readmission rates, and controlling costs. ■

Upcoming Event

Global ERP Symposium

Mark your calendar for the **Global Enhanced Recovery Symposium** sponsored by The University of Texas MD Anderson Cancer Center and the Institute for Cancer Care Innovation.

Join our experts to discuss change management and best practices for implementing, sustaining and scaling an enhanced recovery program as a model for patient-centric, outcome-based, efficiency-driven and value-based care delivery paradigm.

Engage with patients and clinical innovators, and learn future efforts to enhance patient experience and long-term outcomes beyond enhanced recovery. The event is open to the public and attendees are eligible to receive continuing education credits.

We Look Forward to Seeing You There!

#endcancer #enhancedrecovery2020

For additional information, visit **mdanderson.org/conferences** or email **EnhancedRecoverySymposium2020@mdanderson.org**

Interviews

ERP & EHR Analytics

An Interview with Associate Director of Electronic Health Records Analytics & Reporting, Janna Baganz, M.A.

Associate Director EHR Analytics & Reporting, **Janna Baganz, M.A.**

What is your role in the Enhanced Recovery Program (ERP)?

We are business partners on the multidisciplinary ERP team and serve as collaborators to ensure the Electronic Health Record (EHR) is built with the end user in mind. This means providing the ability to discretely capture critical data elements for tracking and monitoring, as well as transforming data into information for critical decision making in support of the best possible outcomes for our patients.

What is your key role at MD Anderson?

My role is to empower users through information accessibility, by leading a team of talented analysts in the building and delivery of a self-service analytics framework. This framework spans service lines and subject areas across MD Anderson. Our goal is to provide the right information to the right people at the right time with the right tools.

Tell us about your work in the ERP and your experiences.

The ERP is an exciting effort with excellent teamwork which directly impacts patient care. Rather than a one-time project, this is an ongoing relationship, connecting providers and data analysts for the purpose of developing an interactive and dynamic self-service platform for data analytics. While the EHR Analytics & Reporting team resides in Information Services (IS), as part of the integrated ERP team, we are focused on establishing the infrastructure so that data captured in clinical workflows can be leveraged seamlessly.

Our goal is to enable conversations with electronic data rather than requiring cumbersome and time-consuming manual data manipulation. With these efforts we are not only empowering users with the ability to leverage data directly through custom self-service analytics for monitoring outcomes but also refining processes and enabling innovation within the ERP.

What key concepts do you think are important to know when you are developing an ERP within your EHR platform?

Maintaining focus on building with the end in mind and ensuring that the end products are sustainable, flexible and standardized, making data collection easy and data delivery truly self-service. A key success factor is tying the analytics back to the clinicians' EHR workflow collection points. Once the data is captured discretely in the system, individuals outside of the IS area need straightforward access to the data to be able to bring it together with other information based on various business needs. This is an iterative process with enhancements made over time.

> *In Information Services, we think of ourselves as holding the spotlight for the stars: our clinicians. Knowing that we can be even a small part of that is really special.*
>
> - JANNA BAGANZ, M.A.
>
> *Associate Director of EHR Analytics & Reporting*

Why is it important and essential to have the EHR Analytics & Reporting team as we continue our work in the ERP?

By participating as part of the integrated ERP team, we are able to discuss and evaluate new business requirements as they come up. This interactive process allows for collaborative discussions to consider all options and determine the most effective solution. This results in a more efficient process and allows for quicker turnaround time for enhancements.

What is your favorite part of your collaboration and partnership with others in the ERP?

As ERP team members, we are an integral part of the process and understand the vision of caring for our patients. We can see that the team's hard work is making a difference and we can further enhance data analysis efficiencies to improve patient experience and outcomes. There is nothing more rewarding than seeing patients be more successful in their treatments.

How do you see your work positively impacting patients?

By connecting data from clinical workflows and enabling insights through active conversations with the data, enhancements in patient care can be implemented, resulting in better patient outcomes. Participating in the ERP the has given us the opportunity to hear firsthand how patients' lives are truly impacted; that alone has been extremely powerful. In IS, we think of ourselves as holding the spotlight for the stars: our clinicians. Knowing that we can be even a small part of that is really special.

What does enhanced recovery mean to you?

It means shorter hospital stays, fewer complications and a better patient experience. Getting each patient up and active, back home and to their families more quickly so they can just feel normal again. ■

Baganz discusses reporting metrics with **Karen Zhang,** Prinicpal EHR Applications Analyst, and **Randy DeCarlo,** IS Manager

ERP & POEM

An Interview with Associate Professor, Anesthesiology and Perioperative Medicine, **Katy French, M.D.**

Associate Professor, Anesthesiology and Perioperative Medicine, **Katy French, M.D.**

What is your role at MD Anderson?

I am an Anesthesiologist, Medical Director of the Perioperative Evaluation and Management Center (POEM), Assistant Medical Director of Perioperative Services, and a Physician Informatics Liaison.

What is your role in the Enhanced Recovery Program (ERP)?

My role is to connect with all patients prior to their arrival to the operating room (OR) on the planned day of surgery. I help to reinforce Surgery/Anesthesia dyad led ERP instructions for patients and stress the importance of following this pathway. I also answer any questions they may have regarding ERP and its benefits.

Tell us about your work in the ERP.

My work involves many aspects of enhanced recovery including process improvement, streamlining and standardization for patients en route to the OR. Additionally, I support and reinforce much of the information provided by the various ERP teams.

Through my informatics role, I assisted in building a process for minimizing patient pain medication utilization across the intraoperative and in-hospital stays. Patient assessment and treatment of patients' pain management throughout their postoperative stay were improved. This tool is used for real-time and retrospective research analysis, especially regarding opioid utilization and realized decreases in opioid use.

Tell us about the process changes to the ERP over the years.

The ERP has been an evolution over the last seven years as many services have joined the efforts. The most impressive process changes have been to the organization of each service team, the collaboration of the anesthesia and surgery dyads, and the standardization and commitment to specific outcomes across teams.

What have you seen improve for our ERP patients since the opening of POEM?

There has been continual improvement with coordination of care in the perioperative period for our patients. Through the development of an Integrated Practice Unit we've achieved our goal of providing needed services to

> *"The ERP has been an evolution over the last seven years as many services have joined the efforts. The most impressive process changes have been to the organization of each service team, the collaboration of the anesthesia and surgery dyads, and the standardization and commitment to specific outcomes across teams."*
>
> - KATY FRENCH, M.D.
>
> *Associate Professor, Department of Anesthesiology and Perioperative Medicine*

the patient in one location, leading to increases in patient-centered care and efficiency of care delivery. We have also improved communication between all care teams for our patients.

What keeps you passionate about the work you do on a daily basis with the ERP?

My passion stems from coordinating care for our patients and hearing positive stories regarding their experiences, especially from our patients who have to undergo multiple surgeries. I enjoy learning about the patient experience at MD Anderson versus the experiences they have had at other institutions.

Where do you see the ERP in the future?

Increased improvements in outcomes for our patients, especially in areas surrounding coordination of care, early ambulation and innovative multimodal approaches to pain management including opioid-sparing techniques and regional anesthesia.

Tell us what enhanced recovery means to you.

Assisting patients on the road to recovery after treatment at MD Anderson. ■

Dr. French is all smiles standing for the ERP motto.

ERP in Medical Oncology

An Interview with Vice President of Inpatient Medical Practice, **Marina George, M.D.**

What was your inspiration for taking the foundation of enhanced recovery outside of surgery? What made you say, "I can apply enhanced recovery into new a population that has never been done before?"

I believe my personal experience plays a role. I am a hospital medical physician by training and specialize in internal medicine. When you look at an Enhanced Recovery Program (ERP) it is about getting the patient better and getting them back home or to their original treatment.

With my experience caring for cancer patients, I am confident that I can do this by finding methods to make them better. I know what the ERP pillars are and I use my knowledge of them to assist hospitalized patients as they work to accomplish enhanced recovery goals. I found that my capability matched the vision for enhanced recovery. Therefore, we were able to get the project off the ground.

What do you think the medical team does that is completely different than surgery teams regarding enhanced recovery?

The starkest difference between enhanced recovery in medical oncology (ERMO) versus surgery is planned versus unplanned hospital admissions. Patients going into surgery know they going through the enhanced recovery process and have time to adapt to protocol expectations. They have more time to mentally prepare for surgery with the enhanced recovery foundational pillars that we define.

EMRO is different because patients begin the protocol after experiencing an unplanned hospitalization. They do not have time to adapt to protocol expectations and prepare.

Enhanced recovery for these patients begins at a time when they are emotionally and physically drained. We work with them to focus our efforts on functional recovery, return them to intended oncologic treatments, and improve their quality of life. Beginning enhanced recovery after admission has proven more difficult compared to pre-admission, as it is a process in elevation. We have many opportunities to evolve ERMO to improve patients recovery.

Vice President, Inpatient Medical Practice, **Marina George, M.D.**

What do you think is the most important outcome of your work?

The most important outcome is proof of concept. We were able to do something that surgery has done for years and extrapolate the successful aspects into medical oncology. When we were establishing proof of concept of ERMO, the team made a leap to determine the feasibility of implementation and if we could improve patients' recovery. This was the most significant step in medical oncology. We took that step and found that it is possible to deliver elements of enhanced recovery in medical oncology.

> *Patients felt more engaged in their recovery plan. They felt that the providers, nursing teams, physical therapists, and nutritionist, that they were all rooting for them. That is a concept. That is something we should continue following.*
>
> - MARINA GEORGE, M.D.
> *Vice President of Inpatient Medical Practice*

The process may have to be modified and studied further, but we did learn that we can help our patients with this protocol. Although it may require a more intense approach and involve modifications, the foundation will remain the same. That will carry us to the next step as we move forward, and will be very important in the success of this program.

What do you tell other providers that are interested in implementing enhanced recovery in their area? What is the feedback?

Keep going at it. There is no way around it. You only achieve success if you identify barriers and ways to mitigate them. Patients never tell us that this is not important for them, as they felt more engaged in their recovery plan. They felt that the providers, nursing teams, physical therapists and nutritionists were all rooting for them. That is a concept and something we should continue to practice. So, keep going, continue to ensure that success is built on patient engagement, and take that forward.

When you hear the words enhanced recovery, what does it mean to you?

Excitement! This is a project that began with a team of people, and I learned so much from them during the process. It was exciting to take an idea, put a group of energetic and driven people together and build upon that concept. I learned that a unifying element of a concept is necessary and that, in patient care, we can all build on current best practices to achieve improved outcomes. The team element and energy that came from building and implementing enhanced recovery excited me personally as a provider.

For the patient, enhanced recovery was something that they felt they could work towards. When we looked at all the different teams that worked with us, they also felt energetic about collaborating towards a mission of returning patients to functional recovery.

In cancer care, we are mission-driven. ERP aligns with mission-driven patient care, and an oriented approach towards doing things right. You define cancer care not as only curing cancer, but helping patients process their cancer treatment and journey. That statement alone brought about the excitement of carrying out this project. ■

Getting to Know **Brooke Husid**

An Interview with Gynecology Oncology ERP Patient, Brooke Husid

Here to give an experience of the Enhanced Recovery Program (ERP) from a patient's perspective is Brooke Husid. The Texas native enjoys spending time with her husband, traveling to scenic parks and historical locations across the country, and sight-seeing.

What do you enjoy doing? How often do you get to do this?

I love traveling with my husband. We are typically gone at least 10 days or so a month. We visit our grandchildren about every six weeks and visit my father periodically. We also visit my mother, sister, and brother regularly. We've had an airlines companion pass for a few years now so we're systematically working through all of their destinations. One of my favorites thus far is St. Augustine, Florida, which I believe is the oldest continuously inhabited city in the United States. They have a fort there, dating back to the 1500s, which is very interesting. We also love cruising and exploring on foot.

Why did you choose MD Anderson's Gynecology Oncology team for your care?

MD Anderson was the only consideration. In concert with my family doctor, my husband and I easily decided that the best option for treatment was here. It really mattered to have MD Anderson's extensive cancer experience on our side.

What were your expectations of surgery before learning about the ERP?

Seven years ago, I had abdominal surgery and underwent laparoscopic surgery for a perforated appendix. I felt absolutely horrible following this for quite some time. So that was my expectation for this procedure and the recovery itself. I similarly had a three-night hospital stay but while in the hospital I was filled with so much fluid that despite eating almost nothing during my stay, I could barely put on the clothes that I wore into the hospital the day I was discharged.

Without a postoperative dietary plan, I was left to my own devices and lost weight rapidly, I had only one craving - fried chicken tenders. So that was a big part of the diet. In the mornings I would usually have a small Cola drink and a granola bar. Mom always said Cola settles your stomach, right? It didn't work. With that diet, it's no wonder it took a long time before my gastrointestinal track was functioning. Also, with a lack of any postoperative expectations or guidance, I had another trip to the emergency room during that time. That was my background coming into MD Anderson.

Who informed you about the ERP? Tell me about how you felt upon learning this program was available during your care.

During my second appointment, my husband and I met with Dr. Larissa Meyer, Dr. Emily Hinchcliff, and various members of the team to review some of the preoperative steps that we needed to take. We went through some of the postoperative literature as well. That was when we learned about the process and basically trusted the process 100% from the very beginning.

My husband and I quickly launched our own action plan. That kept us busy because we had to quickly get provisions we needed for the preoperative part of the procedure, and also following surgery.

Can you tell me some of your experiences while in the ERP?

It turns out that I can, in fact, live without Mexican and Asian food. The dietary guidelines were not a problem for me. The written materials were very clear and helpful. Since I'm a reader, I like those resources and referred back to the materials for guidance many times. The medication schedule was extremely easy to follow. Taking the Acetaminophen and Ibuprofen worked for my pain management at home. Although I was prescribed some opioids, I never took any of those while I was at home.

It was like I had a roadmap while going through the ERP and I liked that. For me, that was very a big part of the success of my surgery.

Husid and Maria Iniesta-Donate, Clinical Program Manager for Gynecology Oncology & Reproductive Medicine, share a friendly conversation

> *The overriding feeling was that I was part of a team and that automatically made me feel better as opposed to just being alone in something like this. I felt like I was part of a team from the get-go and had so many people trying to help me and pulling for me.*
>
> - BROOKE HUSID

Tell me how surgery impacted your day to day functions.

For abdominal surgery when you're not moving, you're not in any pain. Getting up and down, out of bed in a chair was somewhat difficult but it got easier day by day. What I think, which is nothing but a strong testimonial for the ERP, is that some of the things that bothered me had nothing to do with soreness or my incision. The hysterectomy was accompanied by a sudden onset of menopause, the symptoms associated with this side effect were more bothersome than the actual soreness from the incision of major surgery. To me, that is just such a huge endorsement of enhanced recovery that those were my issues bothering me and not other things resulting from the surgery or how I felt.

Were there any staff members whom you remember who made an impact during your time in the ERP? What was their role in your care?

First and foremost, I'm forever thankful to my brilliant doctors, Dr. Larissa Meyer and Dr. Emily Hinchcliff. I feel like I hit the lottery having them as my doctors. They are such dedicated professionals. They gave me a lot of confidence, hope and a strong belief that they were doing their absolute best to help me. They communicated clearly and candidly, which is appreciated. I couldn't ask for better.

While I was in the hospital, I absolutely loved my care team. I felt the entire staff helping me while I was on the nursing unit were angels. Everyone was so kind, positive and loving. Some first names I remember are Monica Lucelle, Jasmine Triny, Shejo Whachandra, Dominique, and Justine in the hair salon. I just love these people.

How did it feel being a part of your care team?

The overriding feeling was that I was part of a team and that automatically made me feel better as opposed to just being alone in something like this. I felt this way from the get-go because of all the people helping me and pulling for me.

What is your advice to other enhanced recovery patients at MD Anderson?

It's an easy one. My advice to anyone about the ERP is to trust the program completely and follow the guide to the letter. ■

Celebrate Our Work

DREAMS

By Ruth Amaku, M.P.H.

When a patient is on an Enhanced Recovery Program (ERP) pathway, the objective is to minimize the impact of acute care interventions on functional status, and safely and efficiently return patients to their state of self. However, how to measure this "back to self" is a pressing challenge to the medical community.

If you were to ask the MD Anderson ERP team members, they would say that "back to self" for patients means fulfilling DREAMS. DREAMS is not the succession of sounds and images that occur during sleep, but rather an acronym which stands for DRinking, Eating, Analgesia, Mobilization, and Sleep (Fig.1). DREAMS can serve as a tool for measuring a patient's post-surgical recovery. Recovery after surgery means patients should return to a regular diet without experiencing nausea and vomiting, have optimal pain control with oral medications, ambulate frequently without assistance, and experience quality sleep during the postoperative period in their journey towards functional recovery.

Leading the charge on this DREAMS initiative is Dr. Vijaya Gottumukkala, a Professor in the Department of Anesthesiology and Perioperative Medicine. Dr. Gottumukkala considers the measurement of the elements of DREAMS to be a key determinant for assessing physiologic recovery and path to normalcy for our surgical patients. "Our ERP teams are not only enhancing DREAMS for our patients on their road to recovery," Dr. Gottumukkala states," but they are also engaged in research activities on its individual components."

Sleep quality may be one of the most challenging symptom burdens for hospitalized patients, yet one of the most rewarding aspects of the DREAMS tool to examine. Brianna Salinas, a Clinical Nurse Leader who participates in various research efforts in this realm, is well aware of the challenges in assessing sleep and quantifying sleep disturbances. "The sleep experience can be objective and measurable but cost, access, and a limited number of validated tools pose a barrier. MD Anderson can be a leader in holistic cancer care if institutional support, collaboration, and innovation fosters restorative sleep to promote healing and recovery."

One of the initiatives being implemented by the Division of Nursing to enhance sleep quality in patients is adoption of the principles of cluster care into routine nursing practice. Qi Wu, a Clinical Nurse, participates in these efforts and is mindful of the impact it has on patients. "Patients, just like any of us, when sleep-deprived can develop cognitive, physical and functional decline. This can increase the risk for falls and alterations in attention, cognition and thought processes leading to in-hospital or postoperative delirium. Clustering nursing care reduces the number of unnecessary interruptions to patient's sleep,

Figure 1: The five elements that compose DREAMS

and thereby helps in restoration of sleep quality, while enhancing patient outcomes and improving patient experience and satisfaction."

Currently, the departments of Nursing, Anesthesiology, Surgical Oncology, and Palliative Care along with the Institute for Cancer Care Innovation are teaming up to assess the impact of sleep disturbances in a population of patients undergoing major gastrointestinal surgery. The DREAMS observational study is focused on determining the frequency and types of sleep disturbances affecting patients during the perioperative period. In addition, researchers are seeking to identify the association between sleep disturbances and quality of recovery, symptom distress, and patient experience. The study is set to begin patient accrual in the coming year. ■

ERP Universe

By Rose Erfe, B.S.

A majority of Enhanced Recovery Programs (ERP) record patient outcome and compliance data through resource-intensive methods such as chart reviews, accessing multiple information technology (IT) platforms for data abstraction and merges, and manual data entry to third party information systems. As the ERP continued to expand, these manual data processing methodologies became increasingly unsustainable. A need existed to standardize data collection and reporting to address the heterogeneity in metrics that may impact reported outcomes. An opportunity presented itself to leverage IT platforms for ERP data collection, analysis, and management; and provide accurate means for capturing perioperative clinical, financial, and patient-reported outcomes.

Using a strengths, weaknesses, opportunities, and threats (SWOT) analysis, the Institute for Cancer Care Innovation (ICCI) performed a critical assessment of existing ERP data practices on 12 surgical subspecialty ERP to identify limitations and determine key areas for operational improvement. Each team reported a lack of data collection resources and a standard data dictionary as limitations and opportunities for development. Furthermore, lack of an automated data reporting mechanism was perceived as a weakness, and/or a threat to sustaining an ERP. Subsequently, a workgroup was established to review current processes to address barriers to data collection and reporting. The workgroup sought to better harness the IT applications available from the Electronic Health Record (EHR) in order to meet the growing needs of the ERP.

The EHR utilizes a database management system where information (i.e. flowsheets, orders, and medication administration records) is stored in a relational format organized as tables, columns, and rows. The universe is an additional tool that provides the logical layer between this system and the end-user creating a data query. Because of the complexity and staggering amount of data, multiple universes were developed to allow the end-user to build queries based on topic related variables. For example, the Hospital Admission Universe contains data pertaining to hospital admission dates and admitting services. Whereas the Anesthesia Universe contains data regarding type of procedure performed and American Society of Anesthesiologists scoring.

In the early summer of 2019, the workgroup convened as part of the Clinical Safety & Effectiveness Program with the aim of optimizing institutional systems to standardize ERP metrics with a goal of reducing workload by 10% by July 31, 2019. After the review of nine established ERP teams, it was determined that each group utilized at minimum five different universes to query ERP-related variables. The workgroup identified essential variables applicable across all service lines to create one standard data dictionary. In collaboration with the EHR Analytics & Reporting team, these identified ERP-related variables were consolidated from five different data warehouses into one single warehouse called the ERP Universe. This ERP Universe would serve as a one-stop-shop for all enhanced recovery data needs.

Post-implementation of the ERP Universe resulted in a 32% reduction of data abstraction and processing length of time when comparing a five universe data query process versus the one ERP Universe. With these promising results, it is the ERP data team's vision to continue expanding the ERP Universe and utilize existing IT infrastructures during Phase II of this project. This will involve standardizing database development with data dictionary enhanced dynamic data pulls, creating standard automated ERP reports, building dashboards within the EHR for institutional and service line reporting, and enhancing data accessibility to all ERP stakeholders.

A special thank you to the ERP Data Workgroup and the entire ERP for their feedback and input. Together we discovered innovative approaches to data processes and created a fully functioning data platform which will help our ERP team members deliver high-quality, value-based care to patients. ■

Members of the ERP Universe Work Group
From left: Mohamed Seif, Maria Iniesta-Donate, Jarrod Eska, Ruth Amaku, Laura Prakash, Rose Erfe

The Talk Around ERP

Hear from our multidisciplinary team members about what drives them to participate in Enhanced Recovery Programs

"I participate in Enhanced Recovery Programs because individualized patient care is vital to ensuring the best outcomes. Engaging multiple disciplines to streamline care and minimize complications is unique, but improves collegiality and knowledge. Recoveries are made easier, difficult recoveries are made easy, and hard recoveries are light years better than the alternative."

CRAIG MESSICK
Asst. Prof. Colorectal Surgery

"Enhanced recovery is catalyzed through vigilant proactive evidence-based care processes implemented by a dedicated patient care team. I have seen this program positively impact patients through an increased level of clinical performance by our professionals that participate on these interdisciplinary teams and the continual improvement in patient outcomes."

ANNE-MARIE HEDBERG
Assoc. Dir., Clin. Nutrition

"Enhanced recovery involves both quality improvement and research components to optimize perioperative patient outcomes through promotion of safety, effectiveness and efficiency within a multidisciplinary team. I strongly believe that the key to success within enhanced recovery lies within the development of a well-balanced team where the members are equally dedicated to improvement."

KATHERINE CAIN
Clin. Pharm. Spc., Pharmacy Clin. Programs

"It's not a secret formula to success but a philosophy of care, where all members have one common goal- improving patient outcomes. I love the collaborative multidisciplinary model called enhanced recovery because I constantly learn from others and the collective thinking and planning keeps everyone engaged and enthusiastic!"

KEYURI POPAT
Prof., Anesthesiology & PeriOp Med.

"Our work in the Multidisciplinary Spine Program using the enhanced recovery concept can provide the necessary vehicle that will deliver a one-stop shop for our patients. Instead of going from one doctor's office to another, patients receive the necessary treatment plan in one place. This way we can provide an economical, safe and effective plan for our patients."

MARILOU ORO
Adv. Prac. RN, Neurosurgery

"Enhanced recovery means partnering and supporting patients with education that will help them take an active role in their health, surgical recovery and get them back to their regular life as soon as possible. Integration and standardization of patient education increases the likelihood that patients will receive the information they need, at the time they need it, and in a format that encompasses best practices of adult education and health literacy."

DESIREE PHILLIPS
Sr. Hlth. Edu. Spc., Patient Education Office

"I participate in the Enhanced Recovery Program because I have seen the improvements in how our patients recover both through my own eyes and through the data we have collected. Our patients are feeling better faster, and are more empowered to participate actively in the recovery process. I have enjoyed how implementation of enhanced recovery has broken down silos, increased the value and quality of care we can provide."

LARISSA MEYER
Assoc. Prof., Gyn Onc & Reproductive Med

"ERP fosters a true multidisciplinary team approach and reminds us why we come to work everyday. Every patient we encounter in their surgical journey offers some lessons for everybody. We just have to ask, listen and respond appropriately. It is gratifying to me to see patients being empowered to be an active partner in their journey to recovery."

VIJAYA GOTTUMUKKALA
Prof., Anesthesiology & PeriOper Med

"I participate in the Enhanced Recovery Program because I realize that my care of the patient in the operating room makes a difference in the overall outcome and survival. The impact of my care affects patients not only in the few moments around the time of surgery but extends throughout their entire cancer care journey."

SHEREYAS BHAVSAR
Assoc. Prof., Anesthesiology & PeriOp Med.

"I participate in enhanced recovery because it is the gold standard for our patients. The education we provide to them encourages our patients to eat sooner, and gives them nutritional goals to help them recover faster. Through Enhanced Recovery Programs dietitians hope to reduce the rate of malnutrition in our patient population and optimize their nutrition for faster wound healing and muscle mass preservation."

HALEY GALE
Clin. Dietitian, Stem Cell Transplant

"Enhanced recovery brings our team a sense of satisfaction when we see our patients opening up to strategies such as integrative medicine and opioid sparing alternatives to manage their symptoms, thus enhancing functional mobility."

YVETTE ONG
Assoc. Dir., Nursing G10 West

"Enhanced recovery means getting patients back to their normal lives as soon as possible. I want the best for my patients. The sooner patients recover after surgery, the sooner they get back to living and enjoying their lives."

SARAH DESNYDER
Assoc. Prof., Breast Surg. Onc.

"Prehabilitation and rehabilitation are important components in the care of many of our patients. Patients and caregivers are very appreciative of the care they receive from their clinical teams and tell us all of the time they feel more prepared and confident."

AN THUY NGO-HUANG
Asst. Prof., Rehabilitation Medicine

"I am pleased to say that in last year or so, we have significantly improved our outcomes including survival after transplant. We instituted changes like allowing regular diet instead of previous practices of neutropenic diet. We reduced fluid intake and opioid usage significantly. We are now piloting more outpatient transplants, which will significantly impact our resource usage and allow us to reduce length of stay."

UDAY POPAT
Prof., Stem Cell Transplant

Team Leads

Autologous Breast
Rene Largo, M.D.
Jesse Selber, M.D.
Gabriel Mena, M.D.

Bladder Surgery
Neema Navai, M.D.
Wendell Williams III, M.D.

Breast Surgery
Sarah DeSnyder, M.D.
Gabriel Mena, M.D.

Colorectal Surgery
Brian Bednarski, M.D.
Barbra Bryce Speer, M.D.

Emergency Center
Adriana Wechsler, M.D.

Gastrectomy Surgery
Brian Badgwell, M.D.
Ravish Kapoor, M.D.

Gynecology Surgery
Pedro Ramirez, M.D.
Larissa Meyer, M.D.
Javier Lasala, M.D.

Head and Neck Surgery
Carol Lewis, M.D.
Gang Zheng, M.D.

Hip and Knee Arthroplasty
Spencer Frink, M.D.
Thomas McHugh, M.D.

HIPEC Surgery
Keith Fournier, M.D.
Pascal Owusu- Agyemang, M.D.

Liver Surgery
Thomas Aloia, M.D.
Vijaya Gottumukkala, M.D.

Medical Oncology
Marina George, M.D.

Neurosurgery
David Ferson, M.D.
Shaan Raza, M.D.

Pancreas Surgery
Matthew Katz, M.D.
Jose Soliz, M.D.

Renal Surgery
Christopher Wood, M.D.
Jose Karam, M.D.
Surena Matin, M.D.
Timothy Jackson, M.D.

Thoracic Surgery
David Rice, M.D.
Gabriel Mena, M.D.

Spine Surgery
Claudio Tatsui, M.D.
Keyuri Popat, M.D.

Stem Cell Transplantation
Uday Popat, M.D.

Sugar Land
Nicole Fleming, M.D.
Craig Messick, M.D.
Makesha Miggins, M.D.

Meet Our Team

Pictured from left: (Back) Cameron Keramati, Lee Chang, Thomas Aloia, Vijaya Gottumukkala, Micheal Philip, Jarrod Eska (Front) Minh Mosely, Falana Adams, Brittany Kruse, Ruth Amaku, Utpala Dafttary

Since it's establishment, the Institute for Cancer Care Innovation (ICCI) has been working hand in hand with institutional providers and programs to develop and implement innovative value-based cancer care programs. The ICCI focuses on the principles of value-based health care delivery by implementing patient and provider outcome measures, measuring the cost of cancer care, and enabling programs that increase the value of care delivery.
The ICCI also includes the Department of Tumor Registry.

Thomas Aloia | Head
Vijaya Gottumukkala | Associate Head
Ronald Walters | Associate Head
John Frenzel | Director, Learning Health Systems
Minh-Hue Mosley | Administrative Director
Falana Adams | Senior Administrative Assistant
Lee Cheng | Principal Statistical Analyst
Jarrod Eska | Data Analyst
Wendi Martinez | Clinical Quality Improvement Consultant
Brittany Kruse | Program Manager
Utpala Daftary | Project Consultant
Iris Recinos | Clinical Value Improvement Coordinator
Ryan Huey | ICCI Scholar
Shane Mesko | ICCI Scholar
Ruth Amaku | Research Intern
Cameron Keramati | Research Intern

Appendix

AUTOLOGOUS BREAST

Quality Improvement Activities:

Enhanced Recovery for Autologous Breast Surgical Patients

BLADDER

Publications:

Li, R., Kukreja, J., Seif, M., Petros, F., Campbell, M., Nguyen, J., . . . Dinney, C. (2019). The role of metastatic burden in cytoreductive/consolidative radical cystectomy. World Journal of Urology, 1-8. doi:https://doi.org/10.1007/s00345-019-02693-y.

Presentations:

Li, R. Complications s/p neoadjuvant IO. Oral and poster presentation at: International Bladder Cancer Network; October, 2018; Rotterdam, Netherlands.

Quality Improvement Activities:

Enhanced Recovery for Cystectomy Patients Pocket Guide Mobile Application

COLORECTAL

Publications:

Bednarski, B., Nickerson, T., You, Y., Messick, C., Speer, B., Gottumukkala, V., . . . Qiao, W. (2019). Randomized clinical trial of accelerated enhanced recovery after minimally invasive colorectal cancer surgery (RecoverMI trial). British Journal of Surgery. doi:10.1002/bjs.11223.

Marcus, R., Lillemoe, H., Rice, D., Mena, G., Bednarski, B., Speer, B., . . . Kim, B.(2019). Determining the safety and efficacy of enhanced recovery protocols in major oncologic surgery: An institutional NSQIP analysis. Annals of Surgical Oncology, 26(3), 782-790. doi:https://doi.org/10.1245/s10434-018-07150-5.

Presentations:

Speer, B. Goal directed fluid therapy in patients undergoing major non-cardiac surgery. Texas Society of Anesthesiologists; September, 2018; Bastrop, TX.

Speer, B. Enhanced Recovery Program: Transforming oncologic patient care. Oral presentation at: Innovative Strategies for Improved Cancer Outcomes Symposium; November, 2018; Houston, TX.

Speer, B. Enhanced recovery, spotlight on stomach cancer. The University of Texas MD Anderson Cancer Center, Department of Gastroenterology and Surgery; November, 2018; Houston, TX.

Speer, B. & Aloia, T. Colorectal enhanced recovery strategies and tactics. WebEx presentation at: The University of Texas Quality Improvement Initiative; January 2019; Houston, TX.

Quality Improvement Activities:

Collaborating with Memorial Hermann to implement enhanced recovery in colorectal surgery at the Sugarland Houston area location

Partnering with the University of Texas System to participate in the Enhanced Recovery at the University of Texas (ERUT) quality improvement initiative

EMERGENCY MEDICINE

Presentations:

Wechsler, A. Barriers to non-opioid pain management in the cancer patient presenting to the emergency department. Poster presentation at: Department of Internal Medicine Research Conference; June, 2019; Houston, TX.

Curtis, C., Griffin, N., Milling, D., Vu, N. Non-opioid multi-modal pain and symptom management in the emergency department. Oral presentation at: The University of Texas MD Anderson Cancer Center Clinical Safety and Effectiveness Program; July 2019; Houston, TX.

ENHANCED RECOVERY PROGRAM

Publications:

Aloia, T. (2019). Should zero harm be our goal? Annals of Surgery. doi:10.1097/SLA.0000000000003316.

French, K., Recinos, I., Guzman, A., Aloia, T., Hernandez, M., Kee, S., . . . Cleckler-Hughes, K. V. (2019). Continuous quality improvement measured with time-driven activity-based costing in an outpatient cancer surgery center. Journal of Oncology Practice, 15(2), e162-e168. doi:10.1200/JOP.

Lillemoe, H., Newhook, T., Vreeland, T., Arvide, E., Dewhurst, W., Grubbs, E., . . . Tzeng, C. (2019). Educating surgical oncology providers on perioperative opioid use: Results of a departmental survey on perceptions of opioid needs and prescribing habits. Annals of Surgical Oncology, 26(7), 2011-2018. doi:10.1245/s10434-019-07321-y.

Luciano, M., Aloia. T., & Brett, J. (August, 2019). 4 ways to make evidence-based practice the norm in health care. Harvard Business Review.

Marcus, R., Lillemoe, H., Rice, D., Mena, G., Bednarski, B., Speer, B., . . . Williams, W. (2019). Determining the safety and efficacy of enhanced recovery protocols in major oncologic surgery: An institutional NSQIP analysis. Annals of Surgical Oncology, 26(3), 782-790. doi:10.1245/s10434-018-07150-5.

Queiroz, V., da Costa, L., Barbosa, R., Takaoka, F., De Baerdemaeker, L., Cesar, D., . . . Cata, J. P. (2018). International multicenter observational study on assessment of ventilatory management during general anaesthesia for robotic surgery and its effects on postoperative pulmonary complication (AVATaR): Study protocol and statistical analysis plan. BMJ Open, 8(8), e021643. doi:http://dx.doi.org/10.1136/bmjopen-2018-021643.

Romanelli, J., Fuchshuber, P., Stulberg, J., Kowalski, R., Sinha, P., Aloia, T., & Orlando, R. (2019). Public reporting and transparency: A primer on public outcomes reporting. Surgical Endoscopy, 1-7. doi:10.1007/s00464-019-06756-4.

Presentations:

Baganz, J. & DeCarlo, R. ERP data journey. Oral presentation at: The University of Texas MD Anderson Cancer Center, Enhanced Recovery Program Internal Retreat; December, 2018; Houston, TX.

Gottumukkala, V. MDACC Enhanced Recovery Program: Our journey for patient centric value based care. Oral presentation at: The University of Texas MD Anderson Cancer Center, Enhanced Recovery Program Internal Retreat; December, 2018; Houston, TX.

Luciano, M. Leading change workshop. Oral presentation at: The University of Texas MD Anderson Cancer Center, Enhanced Recovery Program Internal Retreat; December, 2018; Houston, TX.

Tzeng, C., Lewis, C., George, M., Popat, K., & Cain, K. ERP transformation-Perspectives panel. Oral panel presentation at: The University of Texas MD Anderson Cancer Center, Enhanced Recovery Program Internal Retreat; December, 2018; Houston, TX.

Luciano, M. ERUT-Managing the change process: Tips for successful Enhanced Recovery Program implementation. WebEx presentation at: The University of Texas Quality Improvement Initiative; March 2019; Houston, TX.

Gottumukkala, V. Enhanced recovery for oncology care. Oral presentation at: American Society for Enhanced Recovery Conference; April, 2019; Scottsdale, AZ.

Aloia, T. Enhanced surgical recovery: Building the team. Oral presentation at: The University of Texas MD Anderson Cancer Center, Global Academic Programs Conference; May, 2019; Houston, TX.

Campbell, A., Mathai, S., and Kruse, B. Innovation & collaboration to transform patient care. Oral presentation at: The University of Texas MD Anderson Cancer Center, Global Academic Programs Conference; May, 2019; Houston, TX.

Gottumukkala, V. Enhancing surgical recovery: A model for value based care. Oral presentation at: Banner MD Anderson Cancer Center, Banner Gateway; May, 2019; Gilbert, AZ.

Luciano, M., Gottumukkala, V., & Choti, M. Enhancing inter-professional collaboration to enhance patient recovery. Oral presentation at: Banner MD Anderson Cancer Center, Banner Gateway; May, 2019; Gilbert, AZ.

Luciano, M. ERUT-Teamwork perceptions in the University of Texas System: Where are we and why does it matter? WebEx presentation at: The University of Texas Quality Improvement Initiative; August 2019; Houston, TX.

Research Activities:

Sleep disturbances in surgical patients with GI cancers: A quantitative analysis. Protocol 2019-0682.

Quality Improvement Activities:

Clinical Safety & Effectiveness Session #28: Enhanced Recovery Program (ERP) Universe Build

GASTRECTOMY

Quality Improvement Activities:

Enhanced Recovery Program in Gastrectomy Surgery

GYN ONCOLOGY

Publications:

Harrison, R., Li, Y., Guzman, A., Pitcher, B., Rodriguez-Restrepo, A., Cain, K., . . . Meyer, L. (2019). Impact of implementation of an Enhanced Recovery Program in gynecologic surgery on healthcare costs. American Journal of Obstetrics & Gynecology. doi:https://doi.org/10.1016/j.ajog.2019.07.039.

Hillman, R., Sanchez-Migallon, A., Meyer, L., Iniesta, M., Cain, K., Siverand, A., . . . Ramirez, P. (2019). Patient characteristics and opioid use prior to discharge after open gynecologic surgery in an Enhanced Recovery after Surgery (ERAS) program. Gynecol Oncol, 153(3), 604-609. doi:10.1016/j.ygyno.2019.03.101.

Mason, J. (2018, November). Turning a hypothesis on its head. Messenger. 9-11.

Meyer, L., Shi, Q., Lasala, J., Iniesta, M., Lin, H., Nick, A., . . . Ramirez, P. (2019). Comparison of patient reported symptom burden on an Enhanced Recovery after Surgery (ERAS) care pathway in patients with ovarian cancer undergoing primary vs. interval tumor reductive surgery. Gynecol Oncol, 152(3), 501-508. doi:10.1016/j.ygyno.2018.10.044.

Presentations:

Sanchez-Migallon, A. Opioid consumption day prior to discharge in an Enhanced Recovery after Surgery (ERAS) program: A model for narcotic discharge prescription reduction. Oral presentation at: 17th Biennial Meeting of the International Gynecologic Cancer Society; September, 2018; Kyoto, Japan.

Cata, J. Animal models in ERAS: How to study ERAS elements in-vivo? Oral presentation at: ERAS Society - 7th ERAS World Congress; May 2019; Liverpool, England.

Lasala, J. Does anesthesia technique have an effect on patient reported outcomes (PROs) in patients on an Enhanced Recovery after Surgery (ERAS) program? Poster presentation at: ERAS Society - 7th ERAS World Congress; May, 2019; Liverpool, England.

Lasala, J. & Mena, G. Effect of anesthesia technique on intra-operative and post-operative morphine equivalent daily dose (MEDD) in open gynecologic surgery in an ERAS pathway. Abstract presentation at: ERAS Society - 7th ERAS World Congress; May, 2019; Liverpool, England.

Mena, G. Acute kidney injury following ERAS implementation. Oral presentation at: ERAS Society - 7th ERAS World Congress; May, 2019; Liverpool, England.

Meyer, L. Minimally invasive surgery and patient reported outcomes: Is implementation in MIS truly worth it? Oral presentation at: ERAS Society - 7th ERAS World Congress; May, 2019; Liverpool, England.

Taylor, J. Integration of a standardized diabetic management protocol into an ERAS program. Poster presentation at: ERAS Society - 7th ERAS World Congress; May, 2019; Liverpool, England.

Wang, S. Measuring functional impairment status with objective and subjective methods for perioperative care post GYN surgery. Abstract presentation at: ERAS Society - 7th ERAS World Congress; May, 2019; Liverpool, England.

Research Activities:

Age (PA16-0076)

Anesthesia and PROs (BS99-094)

BMI (PA16-0077)

Compliance (PA16-0939)

DVT/PE (PA19-0325)

ERAS Cost (PA18-1136)

HERO (2018-0143)

PACIRA (2015-0119)

PROs comparison ERAS/ Pre-ERAS and Open/ MIS (BS99-094)

Renal/fluid balance (PA16-0078)

Tylenol po/iv (PA18-0677)

Quality Improvement Activities:

SUGAR

Tailored Discharge Opioid Prescriptions

HEAD AND NECK

Research Activities:

The effect of preemptive analgesia on perioperative narcotic usage in head and neck surgery with free flap reconstruction: A retrospective data review. Protocol PA17-1001

Quality Improvement Activities:

Feasibility of Implementing Enhanced Recovery in Head and Neck Surgery

INSTITUTE FOR CANCER CARE INNOVATION

Publications:

Aloia, T., Jackson, T., Ghaferi, A., Dort, J., Schwarz, E., & Romanelli, J. (2019). Developing minimally invasive procedure quality metrics: One step at a time. Surgical Endoscopy, 33(3), 679-683. doi:10.1007/s00464-019-06661-w.

Marcus, R., Lillemoe, H., Caudle, A., Weinberg, J., Gidley, P., Skibber, J., . . . Aloia, A. (2019). Facilitation of surgical innovation: Is it possible to speed the introduction of new technology while simultaneously improving patient safety? Annals of Surgery. doi:10.1097/SLA.0000000000003290.

Narula, N., Lillemoe, H., Caudle, A., Chemaly, R., Anderson, J., Segal, C., . . . Aloia, T. (2019). Postoperative urinary tract infection quality assessment and improvement: The STOP UTI program and its impact on hospitalwide CAUTI rates. The Joint Commission Journal on Quality and Patient Safety. doi:10.1016/j.jcjq.2019.06.001.

Presentations:

Gottumukkala, V. Beyond Enhanced Recovery Programs. Role of anesthesiologists in safer surgery 2030. Oral presentation at: Taiwan Society of Anesthesiologists Annual Meeting; September, 2018; Taipei, Taiwan.

Gottumukkala, V. Enhanced recovery in major surgery. You too can make a difference. Oral presentation at: Taiwan Society of Anesthesiologists Annual Meeting; September, 2018; Taipei, Taiwan.

Gottumukkala, V. Improving perioperative outcomes. Quantum leaps or bridging the quality chasm. Oral Presentation at: Annual Meeting of the American Association of Nurse Anesthetists; September, 2018; Boston, MA.

Gottumukkala, V. Enhanced Recovery Programs and beyond. Role of anesthesiologists in improving perioperative outcomes. Invited by the Japanese Society of Anesthesiologists delegation to the Annual Meeting of the American Society of Anesthesiologists; October, 2018; San Francisco, CA.

Gottumukkala, V. Beyond Enhanced Recovery after Surgery. Improving brain health. Oral presentation at: Korean Society of Anesthesiologists Annual Meeting; November, 2018; Seoul, South Korea.

Gottumukkala, V. Enhanced recovery in major surgery. You too can make a difference. Oral presentation at: Shaukat Khanum Cancer Center; November, 2018; Lahore, Pakistan.

Kruse, B., Recinos, I., Eska, A., Aloia, T. & Gottumukkala, V. Scaling an Enhanced Recovery Program to an institution wide initiative: It takes a village. Oral presentation at: ERAS USA Annual Conference; November, 2018; New Orleans, LA.

Gottumukkala, V. Global impact of cancer. Oral presentation at: The PostGraduate Assembly in Anesthesiology. Annual Meeting of the New York Society of Anesthesiologists; December, 2018; New York, NY.

Gottumukkala, V. ERUT-Opioid sparing strategies: From concepts to implementation and sustainability. WebEx presentation at: the University of Texas Quality Improvement Initiative; February 2019; Houston, TX.

Frenzel, J. & Seif, M. ERUT data capture and analysis. WebEx presentation at: The University of Texas Quality Improvement Initiative; April 2019; Houston, TX.

Gottumukkala, V. Enhanced Recovery Programs in oncological surgeries. Oral presentation at: American Society of Enhanced Recovery Annual Meeting; April, 2019; Washington, DC.

Kruse, B., Recinos, I., Eska, A., Amaku, R., Gottumukkala, V. & Aloia, T. Scaling an Enhanced Recovery Program to an institution wide initiative: It takes a village. Poster presentation at: Global Academic Programs Conference; April 2019; Houston, TX.

Aloia, T. ERUT-How to build and lead the team. WebEx presentation at: The University of Texas Quality Improvement Initiative; May 2019; Houston, TX.

Aloia, T. & Kruse, B. ERUT: What, why and how? Oral presentation at: The University of Texas Health Science Center Houston; May, 2019; Houston, TX.

Gottumukkala, V. Anesthetic techniques and cancer recurrence: Is there a role or just a wishful thinking? Oral presentation at: St. Lukes' International University Hospital; May, 2019; Tokyo, Japan.

Gottumukkala, V. Beyond enhanced recovery: Improving brain health. Special Lecture. Oral presentation at: 66th Annual Meeting of the Japanese Society of Anesthesiology; May 2019; Kobe, Japan.

Gottumukkala, V. Enhanced Recovery in major surgery: You too can make a difference. Oral presentation at: Hunan Cancer Hospital, Xlangya School of Medicine Central South University, Changsha; May, 2019; Hunan, China.

Gottumukkala, V. & Kruse, B. ERUT: What, why and how? Oral presentation at: The University of Texas Health Science Center San Antonio; May, 2019; San Antonio, TX.

Gottumukkala, V. Onco-Anesthesiology: Our collective responsibility. 8th Oriental Congress of Anesthesiology & Perioperative Medicine; June 2019; Shanghai, China.

Gottumukkala, V. Onco-Anesthesiology: Our collective responsibility. 7th Global Conference on Perioperative Care of the Cancer Patient; June, 2019; Shanghai, China.

Gottumukkala, V. Improving outcomes for patients with cancer: Further, together. Oral presentation at: Kyoto University Hospital; June, 2019; Kyoto, Japan.

Gottumukkala, V. & Kruse, B. ERUT: What, why and how? Oral presentation at: The University of Texas Dell Medical School; June, 2019; Austin, TX.

Gottumukkala, V. & Kruse, B. ERUT: What, why and how? Oral presentation at: The University of Texas Medical Branch; June, 2019; Galveston, TX.

Aloia, T. & Kruse, B. ERUT: What, why and how? Oral presentation at: The University of Texas Health Science Center Tyler; June, 2019; Tyler, TX.

Eska, J. ERUT-Baseline data and dashboards. WebEx presentation at: The University of Texas Quality Improvement Initiative; July 2019; Houston, TX.

Gottumukkala, V. Enhanced Recovery Program. MD Anderson Volunteer Services Lunch & Learn; August, 2019; Houston, TX.

Research Activities:

Feasibility study of electronic neurocognitive screening tools in surgery. Protocol 2018-0093.

Four quadrant transverse abdominus plane (4Q-TAP) block with plain and liposomal bupivacaine vs. thoracic epidural analgesia (TEA) in patient's undergoing cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (CRS-HIPEC) on an enhanced recovery pathway: A single-blinded, randomized, non-inferiority study. Protocol 2017-0492

Improving recovery after major cancer surgery using patient-reported outcomes. Protocol 2017-0412

LIVER

Publications:

Day, R. & Aloia, T. (2019). Enhanced recovery in liver surgery. Journal of Surgical Oncology, 119(5), 660-666. doi:10.1002/jso.25420.

Lillemoe, H., Marcus, R., Day, R., Kim, B., Narula, N., Davis, C., . . . Aloia, T. (2019). Enhanced recovery in liver surgery decreases postoperative outpatient use of opioids. Surgery, 166(1), 22-27. doi:10.1016/j.surg.2019.02.008.

Lillemoe, H., Marcus, R., Kim, B., Narula, N., Davis, C., & Aloia, T. (2019). Detours on the road to recovery: What factors delay readiness to return to intended oncologic therapy (RIOT) after liver resection for malignancy? Journal of Gastrointestinal Surgery, 1-10. doi:10.1007/s11605-019-04165-5.

Lillemoe, H., Marcus, R., Kim, B., Narula, N., Davis, C., Shi, Q., . . . Aloia, T. (2019). Severe preoperative symptoms delay readiness to return to intended oncologic therapy (RIOT) after liver resection. Annals of Surgical Oncology, 1-8.

Okuno, M., Goumard, C., Kopetz, S., Vega, E., Joechle, K., Mizuno, T., . . . Vauthey, J. (2019). Loss of muscle mass during preoperative chemotherapy as a prognosticator for poor survival in patients with colorectal liver metastases. Surgery, 165(2), 329-336. doi:10.1016/j.surg.2018.07.031.

Vicente, D., Patino, M., Marcus, R., Lillmoe, H., Limani, P., Newhook, T., . . . Tweardy, D. (2019). Impact of epidural analgesia on the systemic biomarker response after hepatic resection. Oncotarget, 10(5), 584. doi:10.18632/oncotarget.26549.

Research Activities:

Randomized, unblinded, phase III trial of thoracic epidural analgesia versus four-quadrant transversus abdominus plane block in oncologic open- incision liver surgery. Protocol 2016-1111.

MEDICAL ONCOLOGY

Quality Improvement Activities:

Implementation of an Enhanced Recovery Program in Medical Oncology

NEUROLOGY

Publications:

Banerjee, U., Hagan, K., Bhavsar, S., Grasu, R., Dang, A., McCutcheon, I., . . . Cata, J. (2018). Association between intravenous acetaminophen and reduction in intraoperative opioid consumption during transsphenoidal surgery for pituitary tumors. Journal of Anaesthesiology, Clinical Pharmacology, 34(4), 465. doi: 10.4103/joacp.JOACP_276_17.

NURSING

Presentations:

Campbell, A. & Woodard, T. Enhanced Recovery Program (ERP): Shifting the culture towards seamless care. Oral presentation at: Sixth Annual Cancer Care Symposium; September 2018; San Diego, CA.

Campbell, A. Overview of Enhanced Recovery Programs: Patient-centric care. Oral presentation at Cancer Network - Visiting Nurses from Singapore; October, 2018; Houston, TX.

Campbell, A., Ong, Y., Szewczyk, N., Sterling, B., Washington, L., & Villamin, C. It takes a village. Oral presentation at: The University of Texas MD Anderson Cancer Center, Enhanced Recovery Program Internal Retreat; December 2018; Houston, TX.

Campbell, A. & Kruse, B. The A team: Developing interprofessional partnerships for successful evidence based practice and research. Oral presentation at: 2019 Nursing Science at the Bedside Conference; March, 2019; Houston, TX.

Campbell, A., Kruse, B., & Mathai, S. Enhanced Recovery Programs across oncology service lines. Oral presentation at: Global Academic Programs Conference 2019; May, 2019; Houston, TX.

Campbell, A. ERP in the perioperative setting…and beyond. Oral presentation at: MDACC: Connecting the Dots; August 2019; Houston, TX.

Quality Improvement Activities:

Medication Matrix

PANCREAS

Publications:

Denbo, J., Bruno, M., Dewhurst, W., Kim, M., Tzeng, C., Aloia, T., . . . Katz, M. (2018). Risk-stratified clinical pathways decrease the duration of hospitalization and costs of perioperative care after pancreatectomy. Surgery, 164(3), 424-431. doi:https://doi.org/10.1016/j.surg.2018.04.014.

Newhook, T., Dewhurst, W., Vreeland, T., Wang, X., Soliz, J., Speer, B., . . . Kim, M. Inpatient opioid use after pancreatectomy: Opportunities for reducing initial opioid exposure in cancer surgery patients. Annals of Surgical Oncology, 1-8. doi:10.1245/s10434-019-07528-z.

Ngo-Huang, A., Holmes, H., des Bordes, J., Parker, N., Fogelman, D., Petzel, M., . . . Katz, M. (2019). Association between frailty syndrome and survival in patients with pancreatic adenocarcinoma. Cancer Medicine, 8(6), 2867-2876. doi:https://doi.org/10.1002/cam4.2157.

Parker, N., Ngo-Huang, A., Lee, R., O'Connor, D., Basen-Engquist, K., Petzel, M., . . . Schadler, K. (2019). Physical activity and exercise during preoperative pancreatic cancer treatment. Supportive Care in Cancer, 27(6), 2275-2284. doi:https://doi.org/10.1007/s00520-018-4493-6.

Research Activities:

Repeat quadratus lumborum block to reduce opioid need in patients after pancreatic surgery (RESQU-BLOCK Trial)

PancFit: Multimodal exercise during preoperative therapy for pancreatic cancer: A randomized trial testing effects on fitness, health-related quality of life, and tumor vasculature

Awards:

Jose M. Soliz, MD, was nominated for a Faculty Excellence Award and recognized as a Clinical Quality Improvement Honoree in August 2019 by The University of Texas MD Anderson Cancer Center President, Dr. Peter Pisters.

Matthew Katz, MD, was nominated for a Faculty Excellence Award and recognized as a Clinical Quality Improvement Honoree in August 2019 by The University of Texas MD Anderson Cancer Center President, Dr. Peter Pisters.

PATIENT EDUCATION

Quality Improvement Activities:

Institutional Enhanced Recovery Program Patient Education Video Project

Institutional Enhanced Recovery Program Patient Education Written Materials Project

Awards:

Desiree Phillips, Pedro Ramirez, MD, Larissa Meyers, MD, Maria Iniesta-Donate, MD, and Nipa Sheth received the National Health Information Gold Award for Patient Education Information on a project titled, "Enhanced Recovery After Surgery Video Series."

REHABILITATION SERVICES

Publications:

Ngo-Huang, A., Fontillas, R., Gupta, E., Sahai, S., Popovich, S., Andrabi, T., & French, K. Implementing prehabilitation as part of Enhanced Recovery after Surgery (ERAS) efforts at a comprehensive cancer center: A team-based approach. (2018). [Abstract]. Journal of Clinical Oncology, 36(30): 137-137. doi:10.1055/s-0038-1676473

Presentations:

Ngo-Huang, A., Fontillas, C., Gupta, E., Sahai, S., Popovich, S., Andrabi, T., & French, K. Implementing prehabilitation as part of Enhanced Recovery after Surgery (ERAS) efforts at a comprehensive cancer center: A team-based approach. Poster presentation at: American Society of Clinical Oncology Quality Care Symposium; September 2018; Phoenix, AZ.

RENAL

Quality Improvement Activities:

Enhanced Recovery Program for Patients Undergoing Renal Surgery

Enhanced Recovery Renal Surgery Program Pocket Guide Mobile Application

SPINE

Presentations:

Oro, M. ERP: Value-based care for neurosurgical spine patients. Oral presentation at: Society for Anesthesia and Perinatology Annual Conference; April, 2019; San Francisco, CA.

Quality Improvement:

360* iCare Post-Op Discharge Initiative

The Multidisciplinary Spine Program

STEM CELL TRANSPLANT

Presentations:

Gale, H. & Coleman, T. Enhanced Recovery during stem cell transplant: Battling the culture of malnutrition. Oral presentation at: The University of Texas MD Anderson Cancer Center, Malnutrition Symposium: Current Trends in Identification and Intervention; September, 2018; Houston, TX.

Szewczyk, N. Experience with applying and improving feasibility of an enhanced recovery model for allogenic stem cell transplant patients aged 65 and older. Poster presentation at: Transplantation and Cellular Therapy; February 2019; Houston, TX.

Szewszyk, N. Feasibility of enhanced recovery for allogenic stem cell transplant patients aged 65 and older. Oral presentation at: The University of Texas MD Anderson Cancer Center, Global Academic Programs Conference, Innovation & Collaboration to Transform Patient Care; May, 2018; Houston, TX.

THORACIC

Publications:

Nelson, D., Mehran, R., Mitchell, K., Correa, A., Sepesi, B., Antonoff, M., & Rice, D. (2019). Enhanced recovery after thoracic surgery is associated with improved adjuvant chemotherapy completion for non-small cell lung cancer. J Thorac Cardiovasc Surg, 158(1), 279-286.e271. doi:10.1016/j.jtcvs.2019.03.009.

Nelson, D., Cata, J., Niu, J., Mitchell, K., Vaporciyan, A., Antonoff, M., . . . Rice, D. (2019). Persistent opioid use is associated with worse survival after lobectomy for stage I non-small cell lung cancer. Pain. doi:10.1097/j.pain.0000000000001630.

Nelson, D., Mehran, R., Mitchell, K., Rajaram, R., Correa, A., Bassett, R., . . . Swisher, S. (2019). Robotic assisted lobectomy for non-small cell lung cancer: A comprehensive institutional experience. The Annals of Thoracic Surgery. doi:https://doi.org/10.1016/j.athoracsur.2019.03.051.

Pachella, L., Mehran, R., Curtin, K., & Schneider, S. (2019). Preoperative carbohydrate loading in patients undergoing thoracic surgery: A quality-improvement project. Journal of PeriAnesthesia Nursing. doi:http://doi.org/10.1016/j.jopan.2019.05.007.

Rice, D., Rodriguez-Restrepo, A., Mena, G., Cata, J., Thrall, P., Milton, D., . . . Mehran, R. (2019). Matched pairs comparison of an AQ1 enhanced recovery pathway versus conventional management on opioid exposure and pain control in patients undergoing lung surgery. Annals of Surgery.

Presentations:

Woodard, T. Enhanced Recovery after Surgery. Oral presentation at: Sixth Annual Scripps Cancer Care Symposium; September 2018, San Diego, CA.

Woodard, T. Optimal recovery after robotic-assisted thoracolaparoscopic surgery (RATS) esophagectomy. Poster presentation at: Clinical Excellence; May 2019; Houston, TX.

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