



Institute for Cancer Care Innovation

Enhanced Recovery Program

2018 Annual Report

Enhanced Recovery Program

ANNUAL REPORT FY18

Institute for Cancer Care Innovation Mission

Assist institutional providers and programs to develop and implement innovative value-based cancer care programs.

Primary Goals

Value-Based Care
Enhanced Recovery Programs
Cost of Care Analysis
Patient and Provider Outcome Development
Value-Based Care Education

Enhanced Recovery Program Focus

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 caregivers and patients in their treatment planning and care delivery. The mission for our ERP team 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 patients' symptom burden, and enhance patient experience and functional recovery, thereby facilitating timely return to adjuvant oncologic therapies when indicated and improving cancer outcomes.

Content Creators

Ruth Amaku
Iris Recinos, MBA

Contributors

Brittany Kruse, DBH

Special mention to all Enhanced Recovery Program members who contributed time and effort to making the FY18 annual report a reality.

Contact Us

Phone: 713-745-7400
Email: InstCancerCareInnov@mdanderson.org
Website: mdanderson.org/icci

Table of Contents

| | |
|-------------------------------------|----|
| Opening Statements from Our Leaders | 4 |
| Facts & Figures | 6 |
| FY18 by the Numbers | 7 |
| Let's Celebrate Our Work | 8 |
| Interview with Brent Braveman | 10 |
| Interview with Margaret Luciano | 12 |
| Interview with Jenny Koetting | 14 |
| Interview with Luisa Gallardo | 16 |
| Teamwork Makes the Dream Work | 18 |
| Hear from Our Institutional Leaders | 20 |
| The Talk Around ERP | 21 |
| Ongoing Initiatives | 22 |
| All the Buzz | 23 |
| Meet the ICCI Team | 24 |
| Team Leads | 25 |
| Appendix | 26 |
| Notable Events | 30 |
| Upcoming Events | 31 |

Opening Statements from Our Leaders



Thomas A. Aloia, MD, FACS

Head, Institute for Cancer Care
Innovation

Chief Value & Quality Officer

On this, the 5 year anniversary of beginning our institutional journey of enhanced recovery implementation, it is timely to reflect on where we have been, where we are now and our vision for the future. As we reflect, we need to acknowledge the profound and notable transformation in practice that has brought so many benefits to the now thousands of patients who have been cared for under our programs. Across every domain of patient-centered value, including higher quality, reduced harm and reduced patient borne costs of care, Enhanced Recovery Programs have hit the mark. The programs embody our central focus to return patients rapidly, “Back to Family, Back to Work, Back to Life, and Back to Self.” There is no other dynamic innovation in medicine that has achieved such positive outcomes with zero toxicity.

After review of the palpable and central patient care benefits that we have undoubtably achieved, I would quickly move on to remark on how these programs have brought us together as providers and human beings who care for other human beings. In these very challenging times for health care workers, with epidemic levels of cynicism and burnout, enhanced recovery has provided a ray of light. We have become better partnered and better partners to each other through these programs. Resilience is not an individual mandate. It is born from communities that look out for each other and lift team members in need. For this attribute, I am thankful daily for the programs and community we have built together through enhanced recovery.

As we look to the future, the opportunities are great. As One MD Anderson expands its reach we can support the mission by educating and leading the implementation of enhanced recovery in cancer surgery pathways for Houstonians, Texans, Americans and the World.

We appreciate all those who have contributed and continue to contribute to these efforts. There is not enough room to list them all, so on behalf of leadership I say to all reading this: Thank you!



**Vijaya Gottumukkala, MD
MBBS**

Professor & Deputy Chair,
Anesthesiology & Perioperative
Medicine
Director, Program for Advancement
of Perioperative Cancer Care

As I reflect on the evolution and success of our ERP over the last five years, I am extremely happy and pleased with the amazing progress we have made in advancing the principles of patient-centered recovery-focused care across our practice. Program growth has been possible through the dedication and hard work of many, and words cannot express my gratitude to all who have contributed to its success.

By collaborating with interested and engaged partners from both clinical and non-clinical areas, we were able to expand the program from a modest beginning with one surgical service in liver surgery to all surgical service lines in our practice. Many of the newer programs are in different stages of planning and implementation. Furthermore, our teams from medical oncology, emergency department and stem cell transplantation are also implementing patient-centered recovery-focused care into their practices. We, as the ERP community, have demonstrated the value of coordinated multidisciplinary care in directly improving patient care, as well as enhancing provider engagement, collaboration and satisfaction. ERP at MDACC demonstrates our fabric of team care and team science.

As the future landscape of the healthcare industry continues to shift, ERP will play a major role and be the driver for value-based care at MDACC. In implementing ERP, our goal has always been to develop patient-centric recovery-focused outcomes-based value driven programs. Consistently through all our programs we have been able to demonstrate improved clinical outcomes, lower opioid related complications, enhance patient satisfaction and experience, and lower hospital stay. In the era of opioid epidemic crisis and narcotic shortages, through our ERPs, we are able to meet patient needs for effective pain management while greatly minimizing opioid use both during the hospitalization and upon discharge.

Thank you all for your support of the ERP and for all you do every day for our patients.

Facts & Figures

6

All-teams
meetings held

8,736

Hours dedicated to the ERP
and its patients

18

Publications

36

Presentations

6

Awards

16

Surgical

19

ERP teams at
MDACC

3

Non-surgical

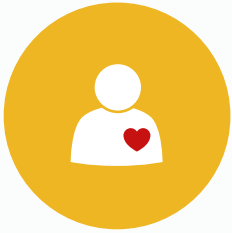
3,389

ERP patients in FY18

21%

Patient increase from FY17

FY18 by the Numbers



Patient Count*

Bladder: 226
 Colorectal: 443
 Gynecology:
 Open Surgery: 344
 MIS Surgery: 443
 Head and Neck: 507
 HIPEC: 50
 Liver: 200
 Medical Oncology: 50
 Neurology: 73
 Pancreas: 150
 Spine: 40
 Stem Cell Transplant: 47
 Thoracic: 816



Presentations

Bladder: 1
 Colorectal: 2
 Gynecology: 14
 Head and Neck: 2
 ICCI: 2
 Liver: 6
 Medical Oncology: 2
 Neurology: 1
 Spine: 1
 Stem Cell Transplant: 1
 Thoracic: 4



Publications

Bladder: 2
 Colorectal: 1
 Gynecology: 2
 Liver: 6
 Pancreas: 5
 Spine: 1
 Thoracic: 1



Awards

Gynecology: 2
 Pancreas: 2
 Thoracic: 2

See Appendix (pg. 26) for publications and presentations.

**Patient count was determined based on team and OneConnect data*

Let's Celebrate Our Work

Bladder

Research:

Measuring surgical recovery after radical cystectomy multicenter study

Gynecology

Quality Improvement Initiatives:

Discharge Opioids Rx Project

Aim: To reduce unused prescribed opioid medications through implementation of an algorithm to standardize and personalize amount of post-operative opioids prescribed

SUGAR Project

Aim: To reduce the rate of surgical site infections (SSI) among diabetic laparotomy patients by 40% within 2 years by implementation of preoperative, intraoperative and postoperative algorithms to address hyperglycemia

Randomized Control Trials:

HERO Trial

Aim: To evaluate feasibility and real world effectiveness of the addition of pre-operative self-hypnosis to an enhanced recovery pathway on improving patients' perception of post-surgical pain, after undergoing open gynecological surgery (laparotomy)

Status: Enrolling

PACIRA Trial

Aim: To evaluate wound infiltration with liposomal bupivacaine vs. standard wound infiltration with bupivacaine in patients undergoing open gynecologic surgery on an Enhanced Recovery Pathway

Status: Completed

Liver

Research:

Holistic neurocognitive and physical frailty evaluation

Quantification of recovery and RIOT readiness

Comparison of sarcopenia to PRO response on postoperative outcomes

Conversion of neurocognitive frailty screening from paper form to electronic (iPad) collection

Opioid utilization and prescribing practices

Randomized trial of Epidural vs. TAP block for open liver surgery

Pancreas

Initiatives:

Risk-stratified clinical pathway implementation

Generated greater than 20% cost reduction and a 4 day decrease in length of stay for patients undergoing pancreatic surgery

Clinical Trials:

PancFit: Multimodal exercise during preoperative therapy for pancreatic cancer

Aim: To learn if regular exercise and behavioral skills training can improve physical activity and enhance chemodelivery in patients with pancreatic cancer who are scheduled to receive chemotherapy and/or radiation before pancreatectomy

Status: Enrolling

PancStrong: Combining exercise and telemedicine to improve strength during pancreatic cancer treatment

Status: Enrolling

A single arm assessment of physical activity in pancreatic and periampullary cancer survivors following pancreatectomy

Aim: to evaluate the effects of preoperative exercise on quality of life and functional recovery

Status: Completed

Planned repeat vs. single regional anesthetic block after open pancreatectomy: A randomized controlled trial

Aim: To reduce dissemination of opioids into the community and reduce the risk of persistent opioid use among pancreatic cancer survivors

Status: Enrolling

Pancreatic and periampullary cancer survivors following pancreatectomy

Aim: To evaluate the effects of preoperative exercise on quality of life and functional recovery

Status: Completed

Research:

Use of physical activity and exercise during active cancer therapy to improve both drug delivery of chemotherapeutics and surgical outcomes

Use of multimodality treatment strategies to reduce opioid consumption

Use of prospective assessments of operative risk to drive perioperative care and expedite functional recovery

Neurology

Research:

Developing a unified protocol for craniotomy neurosurgery enhanced recovery path

Spine

Quality Improvement Initiatives:

Enhanced Recovery Spine Surgery/Multidisciplinary Spine Program (MSPINE)

Thoracic

Quality Improvement Initiatives:

Preoperative carbohydrate loading in thoracic surgery patients

Initiatives:

Enhanced Recovery Pathway reduces opioid exposure in patients undergoing lung surgery leading to:

- 21-fold reduction of median in-hospital opioid consumption (morphine milligram equivalents)
- 50% reduction in patients discharged on opioids
- 28% improvement in average pain score

Research:

Out of hospital recovery after lung resection: Before and after implementation of an Enhanced Recovery Program

Adjuvant chemotherapy is facilitated by enhanced recovery after thoracic surgery: A time series analysis

Robotic assisted lobectomy for non-small cell lung cancer: A comprehensive single institution experience



Rehabilitation and the Enhanced
Recovery Program

An Interview with Brent Braveman

Brent Braveman, PHD

Director

Department of Rehabilitation Services

*"The ERP is
Efficient Quality Care"*

How long have you worked at MD Anderson?

"7 ½ years."

ERP initiatives. Team members have been open to collaboration and problem-solving."

What is your role in the ERP?

"I help to coordinate Occupational Therapy (OT) and Physical Therapy (PT) services."

Describe the ERP in three words or less.

"Efficient quality care."

How did you discover enhanced recovery?

"One of our PT staff had been involved with ERP efforts in surgery and was doing great work, but I personally became involved in earnest when I was invited to join the ERP in stem cell transplantation."

Where have you noticed the biggest impact from the ERP?

"Improved satisfaction of patients in understanding the course of their care and becoming empowered to help manage it."

How do you see the Department of Rehabilitation Services impacting the research of the ERP?

"OT and PT can help to guide research on strategies for maintaining and improving function and therefore improving the efficiency and effectiveness of care."

For those you have come in contact with from different disciplines, what feedback have you received about the ERP?

"Only positive feedback about the involvement of OT and PT and our contributions to the various



Change Management and the Enhanced
Recovery Program

An Interview with Margaret Luciano

Margaret Luciano , PhD

Assistant Professor
Arizona State University, ASU Department of
Management & Entrepreneurship

*"The ERP is
Life-Changing"*

What is your role at Arizona State University?

"I am an Assistant Professor in the Department of Management of Entrepreneurship in the W.P. Carey School of Business."

How did you first hear about the ERP?

"In a conversation with Dr. Thomas Aloia. Initially, we were discussing a research project about improving coordination within and between units in the perioperative system when he mentioned ERP. From a scientist's perspective, ERP is an incredibly exciting intervention because of its scope across multiple care providers and units. From a healthcare consumer perspective, ERP is an incredibly exciting intervention because of its impact on patient outcomes."

Tell us about your role in partnering with ICCI for the ERP.

"Co-investigator on research projects related to teams and change implementation. For example, assisting the MD Anderson partner locations with reinvigorating and/or implementing ERP."

For those who may not know, what is change management?

"Change management is where the rubber meets the road. It encompasses the perspectives of both the change agents and change recipients, focusing both on how to structure and execute desired changes as well as how to prepare and support individuals

through the change process."

What are the factors that predict change readiness and the likelihood of quality improvement program sustainability in hospitals? How does that relate to the ERP?

"First, there needs to be a defined need – a clear and compelling answer to why the quality improvement program should be implemented. Second, alignment with organizational culture and rewards systems. Third, there are logistical considerations surrounding time, resources, personnel, technology, and importantly – what else is going on at that time. The ERP is a relatively large program as it involves multiple care providers in multiple units and some fairly notable changes from both the patient and provider perspective. Because of the scale and scope of the intervention, in order to achieve pervasive and sustained change adoption, the organization must have a high level of change readiness or be willing to invest in getting ready."

Describe the ERP in three words or less.

"Life-changing."



Nutrition and the Enhanced Recovery Program

An Interview with Jenny Koetting

Jenny Koetting, MS

Clinical Program Manager
Department of Clinical Nutrition

*"The ERP is
Whole Patient Care"*

Tell us about your role in the ERP.

"Nutrition is a critical component of enhanced recovery so our team is widely involved in programs at MD Anderson. We realized that Clinical Dietitian participation has grown to a level that we needed to coordinate and facilitate Clinical Nutrition's involvement across services lines and with the program at large. My role is to make that happen."

How did you first find out about enhanced recovery?

"I first learned about enhanced recovery five or six years ago when I was working as a practitioner of oncology nutrition. Enhanced recovery was a hot topic in the articles coming across my desk and at seminars I attended. As a dietitian, awareness of the importance of nutrition in recovery was certainly not new, nevertheless, it was exciting to see nutrition embraced as a crucial and independent component of the optimal patient pathway. The excitement sparked my foray into enhanced recovery, and I have been on board ever since."

Where have you noticed the biggest impact from the ERP?

"The improvements in patient experience are undeniable, but the biggest impact I've noticed from the ERP is the increase in meaningful interdisciplinary collaboration. The ERP has given us an avenue to increasingly work together, and this culture of collaborative care is extending beyond the ERP. I'm excited to see what the future holds as I believe that the more we reach out across disciplines to care for the patient as a whole, the stronger we become as

an institution."

What were the challenges faced with ERP implementation within your discipline?

"Implementing change is no less difficult in nutrition than it is in other disciplines. To minimize nutrient deficits, ERP calls for limited preoperative fasting and early reintroduction of an oral diet after surgery. The established practice of prolonged perioperative fasting and clear liquid diets is all many physicians, nurses and dietitians knew. Although the evidence in favor of ERP was clear on paper, lack of experience made adopting the new practices feel very uncomfortable. One of the challenges we face in nutrition has been helping everybody feel comfortable with the fact that not only are the ERP nutrition guidelines safe for patients, but that following the guidelines has an independent positive impact on clinical outcomes and quality of life. Early experiences with ERP nutrition guidelines were very good at MD Anderson, and that has helped pave the way for wider acceptance."

How do you see the ERP impacting MDACC at the institutional level in the future?

"I envision the ERP leading the way in bringing us out of our silos to work together across the institution. From a nutrition perspective, I see the ERP putting a spotlight on the importance of nutrition in recovery that can be translated across the continuum of cancer care."

Describe the ERP in three words or less.

"Whole patient care."



Nursing and the Enhanced Recovery Program

An Interview with Luisa Gallardo

Luisa Gallardo, MSN, RN

Executive Director, Quality-Safety-Research
Nursing Administration

*"The ERP is
Patient-Centric, Efficient
and Innovative"*

What is your favorite thing about MDACC?

"Employee engagement."

What is your role in the ERP?

"My role is that of a partner/collaborator. I work with ICCI to bring value based care initiatives to the forefront. We partner to leverage opportunities that will support clinical nurses working with teams to enhance the entire patient experience through evidence based practice."

How did you first find out about enhanced recovery?

"I was invited to participate on a project focused on pain management and patient empowerment."

What were the challenges faced with ERP implementation within your discipline?

"The biggest challenge we face is sustainability of work efforts."

Where have you noticed the biggest impact from the ERP?

"Patient's knowledge of and involvement in their plan of care resulting in decreased hospitalization time in many of the enhanced recovery projects."

How has ERP changed communication and teamwork in general at MDACC?

"In my opinion, enhanced recovery has increased collaboration among teams across departments

and challenged many of our workflows to improve efficiency in the care we provide."

Describe the ERP in three words or less.

"Patient-centric, efficient, innovative."

Teamwork Makes the Dream Work

By Iris Recinos, MBA and Ruth Amaku

The evolution of healthcare coupled with a global demand for high-quality patient care has led to an increased focus on effective teamwork. By maximizing collective intelligence through effective collaboration we can positively affect the quality of care and outcomes. Now imagine your favorite sports team. What makes championship team? Attributes of a successful team are trust and commitment from all members, clear communication, defined roles, and dedication. For high-quality patient care delivery as in team sports, a well-functioning team is paramount to success.

The ERP is no different. Many parallels can be drawn between the ERP and a sports team. In sports, the goal is always to win with the fewest errors and injuries as possible. With the ERP, the main goal is to help patients maintain, improve or regain their health. The ERP requires a multidisciplinary approach designed to increase patient engagement and experience, improve health outcomes, and reduce healthcare costs.

The ERP multidisciplinary team consists of clinical and non-clinical staff members who employ practices of collaboration and effective communication to make decisions as an integrated unit. Together they work to achieve a common goal of ensuring patient-centric, value-based care. The patients are the number one priority and like in sports, they are considered the fans whose support is necessary to secure the win. It is crucial that patients and their care givers participate in their healthcare journey, and the ERP offers that. On game day, all you see is the love and passion for the game from the fans and team.

Beginning a Program

Providing high-quality care to patients set forth by the ERP requires strategic planning. In every sport, there are people on and off the field working together as an integral part of the overall success of the team. An example is the ICCI, which focuses on the program management. The ICCI team partners with stakeholders to optimize the program and help new service lines implement enhanced recovery. Just like a coach has a game plan to execute the play, the project management team begins with a project plan. The coaching team develops a plan to make the team successful based on the skills of each player.

One critical element of any sport is the “rules of the game.” In an ERP, the “rules of the game” can be thought of as the processes, methodologies, and templates designed to support the team. ICCI has developed an ERP guide that has recommended templates, supporting literature, and materials aimed at helping the success of each discipline. Members of the Office of Performance Improvement, Patient Education, and Information Technology/Systems can be thought of as assistant coaches who contribute to the overall formation of the plays/guidelines each team member should adhere to. They design the process map that outlines the processes, roles and responsibilities that occur during each phase of care, create clear communication materials, and design data collection/reporting structures. Once the play has been built and understood, it’s time for the front line players to put the process into action.

Program in Action

The starting lineup includes: Surgery, Anesthesia, Nursing, Nutrition, Pharmacy, and Physical Therapy/

Occupational Therapy. The Surgery and Anesthesia leads are the team captains. Like in every sport, the team captains prepare for the “game” and work together to lead their team to victory. The Anesthesia lead and Surgery lead partner heavily during the perioperative phase by utilizing opioid-sparing analgesia/anesthesia and goal-directed hemodynamic optimization and rational fluid management. Pharmacy works hand in hand with the team leads by applying their vast knowledge of pharmaceuticals to determine which dosage and medication type are appropriate. Other vital team members include Nursing, who collaborate with Physical Therapy/ Occupational Therapy and the Nutrition team during the pre-operative and post-operative phases to perform various actions including carbohydrate loading in eligible patients, providing the appropriate oral non-narcotic medications, and ensuring consistent mobilization and early feeding.

The Benefits of Banding Together

Benefits of an effective team working towards a common goal include a plethora of positive outcomes. ERP has been shown to increase functional recovery, decrease length of stay, positively impact financial metrics, and increase patient satisfaction. One notable outcome includes more than a 60% opioid use reduction among six surgical teams: Gynecology, Thoracic, Liver, Spine, Pancreas, and Bladder.

Additionally, surgical teams have observed a decrease in length of stay within the inpatient setting by 2.5 days overall (Figure 1). Lastly, with a 2.5 million dollars in financial savings since the program’s inception, these outcomes and many others demonstrate the impactful results of intentional collaboration.

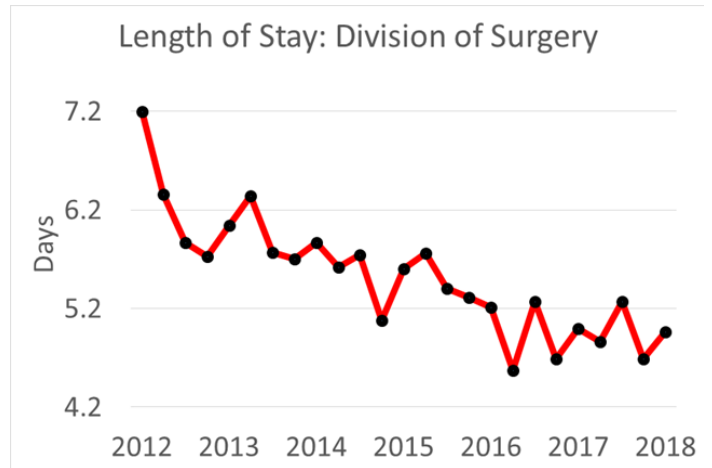


Figure 1. Decreased length of stay observed within the division of surgery

Beginning in 2013 within one disease site, the ERP has expanded to 11 service lines within the division of surgery. There have been over 45 combined publications from these teams and several presentations at local, state, national and international meetings. Due to the success of the program within different disciplines, the following 7 teams are set to launch in FY19: Autologous Breast, Breast, Emergency Department, Gastrectomy, Hip Arthroplasty, Renal, and programs within our network in Houston Area Locations. With a focus on patient education, engagement and empowerment for active participation in their recovery-focused care, each member of our multidisciplinary team is “all in” for timely, safe, and high-quality care.

As the renowned basketball coach Phil Jackson once said, “The strength of the team is each individual member. The strength of each member is the team.” The ability of the ERP team members to come together as a cohesive unit reinforces patient-centric, recovery-focused, value-based care to Make Cancer History ®.

Hear From Our Institutional Leaders



Carin A. Hagberg, MD, FASA
Chief Academic Officer
Head, Division of Anesthesiology,
Critical Care and Pain Medicine

"Enhanced Recovery Programs (ERP) and the resulting multidisciplinary patient-centric, recovery focused initiatives at MD Anderson have demonstrated the value of team-science and team-based care. While initially started in surgical service lines, these principles are now being successfully implemented in non-surgical patients as well. I am proud of our team leaders in Anesthesiology and Surgery and all the team members who are collectively working for our patients. I enthusiastically support these initiatives as ERP at MDACC is one of the key drivers for value based care."



Stephen G. Swisher, MD, FACS
Head, Division of Surgery

"The Enhanced Recovery Program has been a game changer for the Division of Surgery, Anesthesia and our patients. Our patients are now returning to their regular activities in a shorter period of time. They also spend less time in the hospital with fewer complications in part because of the use of standardized approaches to pain control, anesthesia, and better perioperative management. This has been a multi-disciplinary effort between Surgery and Anesthesia which has been driven by the excellent outcomes. I look forward to further improvements throughout the hospital as these measures are implemented."



Carol Porter, DNP, RN
Chief Nursing Officer
Head, Division of Nursing

"The Enhanced Recovery Program (ERP) at the University of Texas MD Anderson Cancer Center has been the conduit to connect and support interdisciplinary team-based care for our patients. Evidence based improvements in pain management, early mobility, nutrition and rest assist patients in returning to their pre-operative functional state in a shortened timeframe. Nursing staff are integral members of the team and support the ERP standards of care around the clock. Teaming up with our colleagues in Anesthesia, Surgery and all departments that interact with our patients, sets the tone for a well-coordinated patient experience and improved outcomes."

MDACC nurses are proud of their contributions to enhanced recovery and the excellent teamwork which is a core foundation of the program. We look forward to ongoing improvements in our patients experience of care."

The Talk Around ERP

With the multidisciplinary nature of the ERP there are many clinical and non-clinical key players involved in working together to guarantee program success. Let's take a look at what some of our team members have to say about enhanced recovery.

"Enhanced recovery has continued to significantly advance the patient care provided to our surgical patients, so much so that it is now being implemented for non-surgical patients. The multi-disciplinary approach is critical to its sustainable successes as every member of the care team serves a key role in improving our patient care. The ERP continues to grow and develop new endeavors to positively impact patient care."

Claire A. Marten, PharmD, BCPS
Clinical Pharmacy Specialist, Gynecologic Oncology

"Enhanced Recovery Pathways have helped to shorten our patients' length of stay without sacrificing the excellent care MD Anderson is known for. My patients are happier because their pain is well controlled, they're eating sooner, and they get to sleep in their own beds faster than ever before!"

Whitney Dewhurst, MS, AGNP-C
Advanced Practice Registered Nurse, Surgical Oncology

"The ERP does more than just improve patient outcomes, it amplifies working relationships among providers and administrators. Witnessing individuals from various disciplines come together to achieve patient-centric, recovery-focused, value-based care is incredible. I feel honored every day to be a part of the ERP and collaborate with the teams to ensure MDACC succeeds in providing the highest level of patient care."

Brittany C. Kruse, DBH
Project Consultant, Institute for Cancer Care Innovation

"For an effective team you have to have people that are motivated and passionate about enhanced recovery. The ERP is composed of people that are volunteering their time. These individuals have to be passionate about that to keep the momentum moving forward. Even some of the programs we have now, they are continually trying to improve upon what they are already doing instead of just settling for what worked well."

Timothy Coleman, MS, RD, LD
Clinical Dietitian, Clinical Nutrition

"ERP was a totally new concept, and a bit of a hard sell to nurses, especially those with many years of experience. ERP was the opposite of conventional preoperative preparation methods. ERP has engaged nurses as advocates and champions. Nurses help to empower and support patients in this evidence-based practice change."

Alita Campbell RN, BSN, OCN
Nurse Manager, Nursing Post Anesthesia Care Unit

Ongoing Initiatives

RIOT By Vijaya Gottumukkala, MD

Successfully executing an ERP strategy improves overall surgical outcomes as a result of minimizing postoperative complications, and earlier return to baseline functional status. Rapid return of cancer patients to their baseline function allows for an earlier return to their appropriate oncologic treatment after surgery, including the timely institution and successful completion of planned adjuvant therapies.

Our team at MDACC has proposed “time to return to intended oncologic therapy” or “RIOT” as an outcome measure for perioperative cancer programs assessing the value of an ERP. The concept of RIOT is now being widely recognized internationally as an important therapy relevant outcome measure in the appropriate patient population, where adjuvant therapies are a component of the cancer care plan. In patients undergoing cancer related liver surgery, our team has validated the impact of ERP, and showed that these programs’ effects extend beyond the perioperative setting in liver surgery.

Our team is engaged in validating this important concept of RIOT across other disease sites, as there is a positive correlation between the time to institution of adjuvant therapies and improved oncological outcomes in patients with breast, lung, pancreas and liver resection secondary to metastatic colorectal disease.

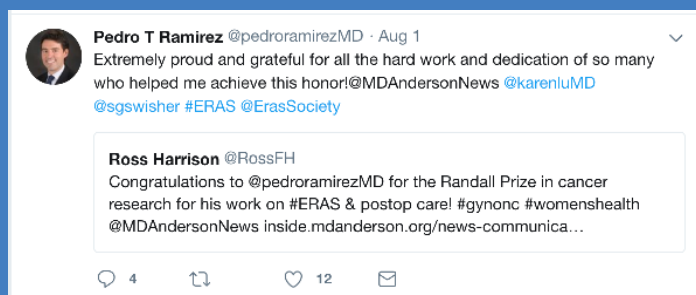
Data Standardization By Ruth Amaku

Since MD Anderson’s transition to the OneConnect Electronic Health Record system in March of 2016, the topic of effective data collection, analysis, extraction and reporting has come to the forefront. For the ERP, individuals have been working to obtain valuable data by optimizing the current information technology systems in place. The objective is to optimize institutional systems to improve ERP metrics, compliance, efficiency, and outcomes to transform MDACC as a data-driven value-based organization.

Dr. Frenzel, Director of Learning Health Systems for the ICCI, is a leader in data standardization and states data optimization has to begin with a data dictionary containing clear definitions of valuable variables. “Definitions create clarity so that people understand the context in which the data is expected to be collected. So when you use that data according to its context, it can be appropriately used in the analytics.” As ERP team members continuously work to improve data standardization, the meaningful data obtained from having a data dictionary in place will ensure program outcomes are appropriately measured year after year.

All the Buzz

The ERP has gained increased awareness with the use of social media. Check out these tweets to see the enhanced recovery buzz on Twitter.



Pedro Ramirez, MD, Gynecology Surgical Lead



Vijaya Gottumukkala, MD, Liver Anesthesia Lead



Brittany Kruse, DBH, ICCI Project Consultant



Thomas Aloia, MD, Liver Surgical Lead, ICCI Head



Alita Campbell, Nurse Manager, MSN, RN, PACU



Joanna Grace Manzano, MD, Oncology Hospitalist

Meet the ICCI Team



Ron Walters, MD
Associate Head



Thomas A. Aloia, MD
Head



John Frenzel, MD
Director of Learning Health
Systems



Minh Mosley
Operations Manager



Brittany Kruse, DBH
Project Consultant



Utpala Daftary, MBA
Project Consultant



Jarrod Eska, MA
Data Analyst



Iris Recinos, MBA
Clinical Value Improvement
Coordinator



Ruth Amaku
Graduate Research
Assistant

Team Leads

Autologous Breast

Rene Largo, MD
Jesse Sebler, MD
Barbra Bryce Speer, DO

Bladder Surgery

Neema Navai, MD
Wendell Williams III, MD

Breast Surgery

Sarah DeSnyder, MD
Gabriel Mena, MD

Colorectal Surgery

Brian Bednarski, MD
Barbra Bryce Speer, MD

Emergency Center

Adriana Wechsler, MD

Gastrectomy

Brian Badgwell, MD
Ravish Kapoor, MD

Gynecology Surgery

Pedro Ramirez, MD
Larissa Meyer, MD
Javier Lasala, MD

Head/Neck Surgery

Carol Lewis, MD
Zheng Gang, MD

Hip/Knee Arthroplasty

Spencer Frink, MD
Thomas McHugh, MD

HIPEC Surgery

Keith Fournier, MD
Pascal Owusu-Agyemang, MD

Liver Surgery

Thomas Aloia, MD
Vijaya Gottumukkala, MD

Medical Oncology

Marina George, MD

Neurosurgery

David Ferson, MD

Pancreas Surgery

Matthew Katz, MD
Jose Soliz, MD

Renal Surgery

Christopher Wood, MD
Jose Karam, MD
Surena Matin, MD
Timothy Jackson, MD

Thoracic Surgery

David Rice, MD
Gabriel Mena, MD

Spine Surgery

Claudio Tatsui, MD
Keyuri Popat, MD

Stem Cell Transplantation

Uday Popat, MD

Sugar Land

Nicole Fleming, MD
Craig Messick, MD
Makesha Miggins, MD

Appendix

Bladder

Presentations

Cata J, Navai N. Updates in bladder surgery enhanced recovery. Oral presentation at: The University of Texas MD Anderson Cancer Center and Global Partners, 5th Global Conference on Perioperative Care of the Cancer Patient: Enhanced Recovery Programs - Patient Centric Care; December, 2017; Houston, TX.

Publications

Li R, Metcalfe M, Kukreja J, Navai N. Role of Radical Cystectomy in Non-Organ Confined Bladder Cancer: A Systematic Review. *BJ cancer (Amsterdam, Netherlands)*. 2018;4(1):31-40. doi:10.3233/BLC-170130

Kukreja JB, Metcalfe MJ, Qiao W, Kamat AM, Dinney CPN, Navai N. Cost-Effectiveness of Robot-assisted Radical Cystectomy Using a Propensity-matched Cohort. *Eur Urol Focus*. July 2018. doi:10.1016/J.EUF.2018.07.001

Colorectal

Presentations

Speer B, Chang G. Updates in colorectal surgery enhanced recovery. Oral presentation at: The University of Texas MD Anderson Cancer Center and Global Partners, 5th Global Conference on Perioperative Care of the Cancer Patient: Enhanced Recovery Programs - Patient Centric Care; December, 2017; Houston, TX.

Bednarski BK, Manandhar M, Nickerson P, Messick C, You N, Speer B, Gottumukkala V, Chang G. Accelerated enhanced recovery following minimally invasive colorectal cancer surgery (RecoverMI): results of a prospective randomized controlled. Paper presented at: 2018 American Society of Colon and Rectal Surgeons Annual Scientific Meeting; May 2018; Nashville, TN.

Publications

Price BA, Bednarski BK, You YN, et al. Accelerated enhanced Recovery following Minimally Invasive colorectal cancer surgery (RecoverMI): a study protocol for a novel randomised controlled trial. *BMJ Open*. 2017;7(7):e015960. doi:10.1136/bmjopen-2017-015960

Gynecology

Awards

Larissa Meyer, M.D., received the Foundation for Women's Cancer Grant and was awarded with \$25,000 for a project titled, "Randomized Pilot of Self-Hypnosis to Improve Post-Operative Pain Outcomes and Reduce Opioid Intake in an ERAS Program."

Pedro Ramirez, M.D., received the Jack and Beverly Randall Prize for leadership and research in the Enhanced Recovery After Surgery (ERAS) in gynecology.

Presentations

Meyer LA. Patient-reported symptom burden and functional recovery before and after Enhanced Recovery After Surgery (ERAS) implementation: A comparison between open and minimally invasive surgery, scientific plenary. Oral presentation at: Society of Gynecologic Oncology 49th Annual Meeting on Women's Cancer; March, 2018; New Orleans, Louisiana.

Meyer LA. Impact of ERAS implementation on patient reported outcomes in open and minimally invasive surgery. Oral presentation at: 6th ERAS World Congress; May, 2018; Stockholm, Sweden.

Ramirez PT. Updates in ERAS implementation and MD Anderson Cancer Center experience. Oral presentation at: 6th ERAS World Congress; May, 2018; Stockholm, Sweden.

Meyer LA, Lasala J, Iniesta MD, Shi Q, Cain K, Corzo C, Earles T, Harris M, Wang XS, Ramirez PT. Adoption of an Enhanced Recovery After Surgery Program leads to decreased patient reported opioid related adverse events. Poster presented at: 6th ERAS World Congress; May, 2018; Stockholm, Sweden.

Wang XS, Shi QS, Williams LA, Cleeland CS, Garcia A, Ramirez PT, Iniesta MD, Siverand A, Meyer LA. Validation and application of a module of the M.D. Anderson Symptom Inventory for measuring multiple symptoms in patients with gynecologic cancer (MDASI-Peri-GYN) for perioperative care. Poster presentation at: 6th ERAS World Congress; May, 2018; Stockholm, Sweden.

Publications

Nelson G, Dowdy SC, Lasala J, et al. Enhanced recovery after surgery (ERAS®) in gynecologic oncology – Practical considerations for program development. *Gynecol Oncol.* 2017;147(3):617-620. doi:10.1016/J.YGYNO.2017.09.023

Meyer LA, Lasala J, Iniesta MD, et al. Effect of an Enhanced Recovery After Surgery Program on Opioid Use and Patient-Reported Outcomes. *Obstet Gynecol.* 2018;132(2):281-290. doi:10.1097/AOG.0000000000002735

Head & Neck

Presentations

Lewis CM. Updates in head and neck surgery enhanced recovery. Oral presentation at: The University of Texas MD Anderson Cancer Center and Global Partners, 5th Global Conference on Perioperative Care of the Cancer Patient: Enhanced Recovery Programs - Patient Centric Care; December, 2017; Houston, TX.

Lewis CM. Updates in head and neck surgery enhanced recovery. Oral presentation at: Quality of Care Meeting at the American Head and Neck Society Annual Meeting; April, 2018; National Harbor, MD.

Liver

Presentations

Gottumukkala, V. Updates on Enhanced Recovery Program at MDACC. Oral presentation at: The University of Texas MD Anderson Cancer Center, Innovative Strategies for Improve Cancer Outcomes Symposium; November, 2017; Houston, TX.

Aloia TA, Gottumukkala V. Updates in upper abdominal surgery enhanced recovery. Oral presentation at: The University of Texas MD Anderson Cancer Center and Global Partners, 5th Global Conference on Perioperative Care of the Cancer Patient: Enhanced Recovery Programs - Patient Centric Care; December, 2017; Houston, TX.

Gottumukkala, V. Advancing perioperative care further together: minimizing preventable complications. Oral presentation at: The Hunan Cancer Hospital, Chinese and American Forum: Anesthesia and Analgesia for Cancer Patients; May, 2018; Changsha, China.

Gottumukkala V. Patient centric recovery focused care is value based care. Oral presentation at: The University of Texas MD Anderson Cancer Center, Value-Based Care Open Forum; June, 2018; Houston, TX.

Publications

Aloia TA, Kim BJ, Segraves-Chun YS, et al. A Randomized Controlled Trial of Postoperative Thoracic Epidural Analgesia Versus Intravenous Patient-controlled Analgesia After Major Hepatopancreatobiliary Surgery. *Ann Surg.* 2017;266(3):545-554. doi:10.1097/SLA.0000000000002386

Patel SH, Kim BJ, Tzeng C-WD, et al. Reduction of Cardiopulmonary/Renal Complications with Serum BNP-Guided Volume Status Management in Posthepatectomy Patients. *Journal of Gastrointestinal Surgery.* 2017;22(3):467-476. doi:10.1007/s11605-017-3600-1

Kim BJ, Aloia TA. What Is "Enhanced Recovery," and How Can I Do It? *Journal of Gastrointestinal Surgery.* 2017;22(1):164-171. doi:10.1007/s11605-017-3605-9

Appendix (continued)

Afonso AM, Gottumukkala V. ASA Newsletter. Vol 82. *American Society of Anesthesiologists*; 2018. <http://monitor.pubs.asahq.org/article.aspx?articleid=2686962>.

Narula N, Kim BJ, Davis CH, Dewhurst WL, Samp LA, Aloia TA. A proactive outreach intervention that decreases readmission after hepatectomy. *Surgery*. 2018;163(4):703-708. doi:10.1016/j.surg.2017.08.023

Medical Oncology

Presentations

George M, Kruse B, Gallardo L, Jenkins N, Wechsler A, Waits M, Mansfield P, Hwu P, Yennu S, Gottumukkala V, Aloia T. Process development for enhanced recovery in medical oncology. Oral presentation at: 2018 Annual Meeting on Supportive Care in Cancer; June, 2018; Vienna, Austria.

Mathai S, Mendez N, Olanigan M, Ong Y, Waits M, Varghese S, George M. Clinical Safety & Effectiveness (CS&E) - Enhanced recovery in medical oncology. Oral presentation at: The University of Texas MD Anderson Cancer; August, 2018; Houston, TX.

Neurology

Presentations

Ferson D, Frederick L. Updates in brain surgery enhanced recovery. Oral presentation at: The University of Texas MD Anderson Cancer Center and Global Partners, 5th Global Conference on Perioperative Care of the Cancer Patient: Enhanced Recovery Programs - Patient Centric Care; December, 2017; Houston, TX.

Pancreas

Awards

Ching-Wei D. Tzeng, M.D., received the Cancer Survivorship Research Seed Money Grant and was awarded with \$50,000 for project titled, "Prospective Randomized Clinical Trial of Repeat Regional Anesthetic Block to Reduce Postoperative Opioid Exposure and Persistent Use in Pancreatic Cancer Survivors".

Keri Schadler, Ph.D., An Ngo, D.O., and Matthew Katz, M.D., received an NIH/NCI R21 grant and was awarded with \$440,000 for project titled, "PancFit: Do angiogenic biomarkers, inflammatory parameters, and fitness change with aerobic or multimodal exercise?"

Publications

Soliz JM, Ifeanyi IC, Katz MH, et al. Comparing Postoperative Complications and Inflammatory Markers Using Total Intravenous Anesthesia Versus Volatile Gas Anesthesia for Pancreatic Cancer Surgery. *Anesthesiol pain Med*. 2017;7(4):e13879. doi:10.5812/aapm.13879

Petzel MQB, Hoffman L. Nutrition Implications for Long-Term Survivors of Pancreatic Cancer Surgery. *Nutrition in Clinical Practice*. 2017;32(5):588-598. doi:10.1177/0884533617722929

Cloyd JM, Nogueras-González GM, Prakash LR, et al. Anthropometric Changes in Patients with Pancreatic Cancer Undergoing Preoperative Therapy and Pancreatoduodenectomy. *Journal of Gastrointestinal Surgery*. 2017;22(4):703-712. doi:10.1007/s11605-017-3618-4

Ngo-Huang A, Parker NH, Wang X, et al. Home-based exercise during preoperative therapy for pancreatic cancer. *Langenbecks Archives of Surgery*. 2017;402(8):1175-1185. doi:10.1007/s00423-017-1599-0

Denbo JW, Bruno M, Dewhurst W, et al. Risk-stratified clinical pathways decrease the duration of hospitalization and costs of perioperative care after pancreatectomy. *Surgery*. 2018;164(3):424-431. doi:10.1016/J.SURG.2018.04.014

Spine

Presentations

Popat K, Tsatsui C. Updates in spine surgery enhanced recovery. Oral presentation at: The University of Texas MD Anderson Cancer Center and Global Partners, 5th Global Conference on Perioperative Care of the Cancer Patient: Enhanced Recovery Programs - Patient Centric Care; December, 2017; Houston, TX.

Publications

Grasu RM, Cata JP, Dang AQ, et al. Implementation of an Enhanced Recovery After Spine Surgery program at a large cancer center: a preliminary analysis. *J Neurosurg Spine*. August 2018:1-11. doi:10.3171/2018.4.SPINE171317

Stem Cell Transplant

Presentations

Szewczyk NA, Budhwani R. Clinical Safety & Effectiveness (CS&E) - Process improvement for enhanced recovery prior to stem cell transplant. Oral presentation at: The University of Texas MD Anderson Cancer Center; August, 2018; Houston, TX

Thoracic

Awards

Dr. Rice's publication in The Annals of Thoracic Surgery received the J. Maxwell Chamberlain Memorial Paper for General Thoracic Surgery, as well the Thoracic Surgery Directors Association (TSDA) Resident Research Award in January 2018.

Presentations

Rice D. Enhanced recovery pathways in thoracic surgery. Oral presentation at: Global Academic Program Conference; August, 2017; Harbin, China.

Mena GE, Rice D. Anesthesia for robotic assisted thoracic surgery: the MD Anderson Cancer Center experience. Oral presentation at: The University of Texas MD Anderson Cancer Center, 4M Symposium on Robotic Thoracic Surgery; November, 2017; Houston, TX.

Rice D. Enhanced recovery pathways in thoracic surgery. Oral presentation at: The University of Texas MD Anderson Cancer Center and Global Partners, 5th Global Conference on Perioperative Care of the Cancer Patient: Enhanced Recovery Programs - Patient Centric Care; December, 2017; Houston, TX.

Mena GE. Lessons learned from implementation of ERAS in non-cardiac surgery. Oral presentation at: Society of Cardiovascular Anesthesiology (SCA); April, 2018; Phoenix, AZ.

Publications

Van Haren RM, Mehran RJ, Mena GE, et al. Enhanced Recovery Decreases Pulmonary and Cardiac Complications After Thoracotomy for Lung Cancer. *Ann Thorac Surg*. 2018;106(1):272-279. doi:10.1016/J.ATHORAC-SUR.2018.01.088

Institute for Cancer Care Innovation

Presentations

Aloia TA. Enhanced Surgical Recovery: A model for value-based care. Oral presentation at: The University of Texas System Quality Sharing Meeting; June, 2018; Houston, TX.

Kruse B, Recinos I, Eska A, Gottumukkala V, Aloia T. Scaling up a patient centric program to an institution-wide initiative: It is a team sport. Oral presentation at: The Arizona State University Summer Institute; July, 2018; Flagstaff, AZ

Notable Events

Enhanced Recovery After Surgery Symposium:

Implementing Change and New Standard of Care in Surgery

February 12-13, 2018

The primary goal of the Enhanced Recovery After Surgery Symposium was to educate multidisciplinary providers on the basic principles of ERAS guidelines and the steps to implement such goals in their surgical programs to improve patient care.

Hosted by:

Department of Gynecologic Oncology and Reproductive Medicine

The University of Texas MD Anderson Cancer Center

2017 Global Conference:

Perioperative Care of the Cancer Patient

November 29-December 3, 2017

The 2017 Global Conference focused on effective strategies on delivering value-based perioperative care with patient-centric focus (minimizing symptom burden and enhancing functional recovery). Additionally, the conference was an opportunity to incorporate the knowledge of cancer epidemiology and biology to improve the perioperative and oncological outcomes for the cancer patient.

Hosted by:

Department of Anesthesiology & Perioperative Medicine

The University of Texas MD Anderson Cancer Center

The Global Network for Advancement of Cancer Anesthesia

ERP Teams

Active

Bladder
Colorectal
Gynecology (MIS)
Gynecology (Open)
Head and Neck
HIPEC
Liver
Medical Oncology
Neurology
Pancreas
Spine
Stem Cell Transplant
Thoracic

Upcoming

Autologous Breast
Breast
Emergency Center
Gastrectomy
Hip Arthroplasty
Renal
Sugar Land

Upcoming Event

PATIENT-CENTRIC RECOVERY-FOCUSED CARE TRANSFORMATION

MD Anderson Enhanced Recovery Program Retreat

Mark your Calendar: Saturday, December 15, 2018

**Sponsored by: Institute for Cancer Care Innovation, Division of Surgery, & Division of
Anesthesiology, Critical Care and Pain Medicine**

For more information email: InstCancerCareInnov@mdanderson.org