

A System-Level Approach to Reducing Physician Propagation of the Opioid Crisis: A Brief History of Increased Opioid Prescribing in the U.S. and a Review of Expedited Recovery After Surgery Protocol Effects on Opioid Prescribing

by

Devin Emory Rogers

BS Biology, Nova Southeastern University, 2015

MD, University of Pittsburgh School of Medicine, 2020

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This essay was presented

by

Devin Emory Rogers

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and approved by

Mary E. Hawk, DrPH, Associate Professor and Associate Chair for Research, Behavioral and
Community Health Sciences, Graduate School of Public Health, University of Pittsburgh

Essay Advisor: David N. Finegold, MD, Professor, Human Genetics, Director, Multidisciplinary
Master of Public Health, Professor, Graduate School of Public Health, University of Pittsburgh

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David N. Finegold, MD

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Abstract

The opioid crisis has gripped the United States for decades. In the late 1990's through 2010, opioid prescribing rates and overdose death rates skyrocketed in tandem by four times. In 2008 alone, researchers approximated 830,652 years of potential life lost (YPLL) for opioid overdose related deaths. The cause for these trends is multifactorial and includes recommendations from the American Pain Society and the Joint Commission to be more proactive about pain control with the use of opioids. The over-prescribing of opioids was one major contributor to the uprising on opioid use disorder and overdose death rates in the United States. These two entities have since changed their recommendations in light of the opioid crisis and many have been researching ways to combat the opioid crisis.

Adequate pain control is humane and must be taken seriously. After surgery, many patients have variable levels of pain. Over the years, experts have found that multi-modal approaches to analgesia in the surgical setting provides superior pain control while decreasing exposure to opioids. Researchers have also found increased risk for long-term opioid use after exposure to opioids. It has also been documented that there is immense variability among prescribers and institutions surrounding peri-operative analgesia regimens for common procedures and surgeries. The ERAS (Expedited Recovery After Surgery) Society was created by experts in the field to provide evidence-based guidelines for the peri-operative management of patients with three main

pillars: fluid homeostasis, pain control, and return of function. Under the pain-control pillar, the ERAS society employs multi-modal pain control methods to manage pain in the peri-operative setting.

ERAS protocols have been developed for numerous procedures and surgeries across many different specialties of medicine. After implementation across the world, numerous studies have shown the benefits of using ERAS protocols. Studies have shown that not only does the utilization of ERAS protocols greatly reduce opioid exposure and prescribing, it also provides better pain control for patients. ERAS protocols should be developed for more procedures and surgeries to provide better peri-operative pain control for patients while reducing variability in prescribing patterns.

The public health impact of the adoption and implementation of ERAS pathways for many routine surgeries is immense. The use of ERAS pathways in the peri-operative setting has led to decreased opioid usage, reducing opioid exposure for patients. With less exposure, there is less risk for long-term opioid use and opioid related death. Developing these pathways for more types of surgeries and implementing their use may lead to less long-term opioid use after surgery.

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1.0 Introduction

The opioid epidemic has gripped the United States for decades, and opioid-related deaths have been on the rise since the 1990's [1]. Currently, it's rare for someone to not have been affected by the opioid crisis, whether through themselves, a family member or a friend. If rising death rates are not of enough concern, the crisis continues to cost more money to the American people, with the NIH estimating an annual cost of 78.5 billion dollars per year when accounting for costs of healthcare, lost productivity, substance use treatment, and the involvement of the criminal justice system [2]. This is a troubling fact considering the United States is a leader in health expenditure, spending more money per capita on healthcare than any other developed nation, and has worse outcomes by many measures, including maternal and fetal mortality rates [3, 4]. Addressing the opioid crisis is one critical way to save lives, reduce the financial burden of healthcare in this country and keep the economy invigorated.

Healthcare providers have the unique ability to legally prescribe and administer opioid medications and pharmacotherapy to improve outcomes for those with substance use disorders. While there are many contributing factors to the rise in opioid use disorder, overprescribing of opioids plays a substantial role. For these reasons, many people see healthcare providers as one of the gatekeepers to opioid use disorder, placing them in a unique position of responsibility and power to effect change. In this essay I will discuss a brief history of the opioid crisis in the United States, and a paradigm shift in post-surgical care, Expedited Recovery After Surgery (ERAS), the system-level approach adopted by many health systems which may reduce physician propagation of the opioid crisis.

2.0 Brief History of the Opioid Crisis in the United States

The Executive Vice President for Health Care Quality Evaluation at The Joint Commission, Dr. David W. Baker, MD, MPH, FACP, succinctly outlined the history of the opioid crisis and the response of The Joint Commission over the years in his 2017 *JAMA* article [5]. He explained that in 1987, the Institute of Medicine released a seminal report regarding pain and disability using clinical, behavioral and policy perspectives in response to changes made by the Social Security Administration's categorization of chronic pain as it related to social security benefits [6]. The disparities in pain management and lack of adequate assessment of pain and pain control for patients was then brought to the national stage by Dr. Mitchell Max MD MPH, the President of the American Pain Society, in 1990. In his article published in the *Annals of Internal Medicine* [7], Max outlined numerous patient and physician factors that led to the state of inadequate pain control and made process and procedural recommendations to address these factors. His recommendations included 1) making pain "visible", 2) providing practitioners with tools for change, 3) assuring patients a place in the "communications loop", 4) increasing clinician accountability, 5) facilitating innovation and exchange of ideas, and 6) working with narcotics control authorities to encourage therapeutic opioid use. At the time, Dr. Max reported that over the past 20 years, research had shown that there was low addiction potential for patients treated with therapeutic dosages of opioids, citing a 1980 article with a low level of evidence in the *New England Journal of Medicine* by Jane Porter and Dr. Hershel Jick, MD [8], which helped assuage fears surrounding more aggressive pain control regimens utilizing opioids [9]. The following year, the American Pain Society published quality assurance standards to address Dr. Max's concerns [10]. This emphasis on pain began to take hold throughout the medical community and in 1995, Dr. James Campbell

MD in his presidential address to the American Pain Society inaugurated the treatment of pain the “fifth vital sign” [11].

With the growing support of physicians and medical societies, regulations began to be implemented to ensure pain assessment and management were focal points in a patient’s medical care. In the late 1990’s, state governments began passing bills mandating pain assessment for all patients [12] and in 2000, the 106th U.S. Congress established 2001-2011 as the “Decade of Pain Research” [13], stimulating increased focus on pain control and research. Additionally, in 2000 the Joint Commission (previously known as JCAHO, the Joint Commission on Accreditation of Healthcare Organizations) released pain management standards that should be followed by healthcare organizations [14]. With increased exposure surrounding the need for adequate pain control, and government and accrediting body mandates regarding pain assessment, opioids began to be prescribed more than ever before.

2.1 Historical Rates of Opioid Prescribing and Deaths

As there were new pain screening initiatives for all patients and recommendations from government, accrediting bodies, and professional medical societies for more aggressive pain control, opioid prescribing and overdose-death rates increased in tandem. In 2011 the Center for Disease Control released a Morbidity and Mortality Weekly Report that brought light to the concerning correlation [15]. The report showed that between 1999 and 2008, overdose death rates, opioid sales, and substance use treatment admissions related to opioids increased in parallel and at alarming rates. Compared to 1999, overdose death rates related to opioids were four times higher by 2008, and by 2010 sales of opioids were also four times higher [15]. In 2008 alone, researchers

approximated 830,652 years of potential life lost (YPLL) for opioid overdose related deaths, which was comparable to the YPLL for motor vehicle crashes at the time [15]. They also found that by 2010, enough opioids were sold to medicate every single American with 5mg of hydrocodone every 4 hours for an entire month [15].

A follow-up MMWR report in 2017 compared changes in opioid prescribing between 2006 and 2015, showing a peak in 2010 with a modest downtrend through 2015, resulting in a threefold increase in opioid prescribing as compared to 1999 [16]. In response to these staggering numbers, the US Government declared the opioid epidemic a public health emergency On October 16, 2017.

In response to the public health emergency, there was a renewal of research focusing on better understanding the causes and upstream factors contributing to opioid overdose, with the hope of designing and implementing interventions at numerous levels to quell the epidemic. One area of research exploration was the increased prescribing rates of opioids over time. Analyses of these increased rates suggest that most of the increased prescribing has been for chronic non-cancer pain syndromes [17, 18], yet no randomized controlled trials have provided level I evidence that treatment of chronic pain with opioids benefits pain or return-of-function outcomes. Additionally, there is a growing body of literature showing increased risk for long-term opioid use after opioid-naïve patients are prescribed short-course opioid prescriptions for acute pain, especially in the post-surgical setting [19-23].

3.0 Risk of Long-Term Opioid Use for Opioid-Naïve Patients

There has been an increased interest in better understanding pathways that lead to opioid use disorder. Short-term opioid prescriptions are commonly provided in the post-operative setting to manage the acute pain associated with most surgical procedures. Many patients in the post-operative setting are prescribed opioids for the first time in their lives, and numerous studies have explored whether there is increased risk for long-term opioid use for opioid-naïve patients in these settings [19-23]. A 2016 JAMA article by Sun et al. of 641,941 opioid-naïve major and minor surgical patients aimed to explore this exact question. They found the baseline incidence of chronic opioid use (defined as having filled 10 or more prescriptions or more than 120 days' supply of an opioid in the first year after surgery, excluding the first 90 postoperative days) among the nonsurgical comparison group patients was 0.136% [19]. Their large study stratified risk of long-term opioid use by surgery type and found an increased odds ratio ranging from 1.28 for cesarean delivery to 5.10 for total knee arthroplasty when using multi-logistic regression to control for confounders including sex, age, preoperative history of depression, psychosis, drug or alcohol abuse, and preoperative use of benzodiazepines, antipsychotics, and antidepressants. They also found that male sex, age older than 50 years, and preoperative history of drug or alcohol use disorder, depression, benzodiazepine use, or antidepressant use were associated with chronic opioid use among surgical patients. With such a large sample size of 641,941 patients and control for confounding factors, this data is highly compelling. In line with this study, numerous smaller studies have shown similar results.

A 2017 JAMA article reporting findings from a study of 36,177 opioid-naïve patients undergoing both major and minor surgeries showed rates of new-persistent opioid use (defined as

an opioid prescription fulfillment between 90 and 180 days after the surgical procedure) were between 5.9%-6.5% as compared to 0.4% in the comparison group of randomly selected patients who did not undergo surgery in the study period [20]. They found the following independent risk factors to be associated with increased risk: preoperative tobacco use, alcohol and substance abuse disorders, mood disorders, anxiety, and preoperative pain disorders [20]. A 2016 study looking at patients undergoing total knee arthroplasty (TKA) and total hip arthroplasty (THA) found that, in opioid-naïve patients, 8.2% of TKA and 4.3% of THA patients were using opioids at 6 months [21].

These findings are not isolated to the US. One Canadian study found that opioid-naïve patients receiving an opioid prescription within 7 days of discharge after a short-stay surgery were 44% more likely to become long-term opioid users within 1 year after their surgery [22]. Another Canadian study found that approximately 3% of opioid-naïve surgical patients continued to use opioids over 90 days after their surgery [23]. Although studies are needed to determine if there is a dose-dependent effect, these findings affirm recent concerns in the medical community that even the initial prescribing of opioids can lead to long-term use.

While the percentages of previously opioid-naïve patients who have long-term opioid use after a surgical procedure vary, there is strong enough evidence to be concerned that even one opioid prescription places patients at risk for long-term use. On October 16, 2017, the US Government declared the opioid epidemic a public health emergency. In response to the growing concern over the opioid epidemic, numerous efforts have been made to affect change, including the implementation of Expedited Recovery After Surgery (ERAS) protocols throughout hospital systems nationwide.

4.0 History of ERAS

ERAS protocols for perioperative management of patients as we know them today are products of The ERAS Society. One outcome of these protocols is a system-based approach to opioid prescription reduction. This all began in 2001 when Drs. Ken Fearon and Olle Ljungvist met at a conference and decided to start a collaborative group on peri-operative care. Thus the ERAS Study Group was initiated [24]. The ERAS study group, comprised of leading surgical groups, quickly realized that there was great variability in peri-operative care among surgical groups and between actual practice and the evidence-based best practices of the time, which were not comprehensively organized. This sparked the ERAS Study Group to develop a method to transition from traditional care to care based on evidence-based best practice guidelines. In 2005 the ERAS Study Group published their evidence-based consensus protocol for patients undergoing colonic surgery, encompassing pre-operative, intra-operative, and post-operative interventions [25]. The 2005 colonic surgery protocol has since undergone revision three times. In 2007 they published an evaluation of this protocol roll-out, showing that simply adding a protocol was not sufficient to convert practice from traditional to evidence-based best practice guideline that ERAS Study Group had developed. To address the lack of protocol adoption, the society developed implementation programs. In 2009, the group developed protocols for rectal surgery and in 2010 The ERAS Society was born – a non-profit medical society with the mission to develop perioperative care and to improve recovery through research, education, audit and implementation of evidence-based practice.

The ERAS Society began holding annual international conferences in 2012, attracting medical leaders across the world, disseminating information, and sparking collaborations to create

protocols for more procedure types [24]. To date, the ERAS Society has developed peri-operative care protocols and modified pathways for anesthesia, bariatric surgery, cardiac surgery, colorectal surgery, gynecology, head and neck surgery, liver surgery, nurses and advanced health practitioners, orthopedic surgery, pancreatic surgery, thoracic surgery and urologic surgery. The ERAS Society also has country-specific chapters all across the world.

4.1 ERAS Framework

The ERAS protocols have a framework of three pillars including: fluid homeostasis, pain control, and return of function. Numerous methods are used to address these three pillars. The most recent guidelines for elective colorectal surgery organize evidence-based recommendations into the following categories: 1) preoperative information, education and counseling, 2) preoperative optimization, 3) preoperative bowel preparation, 4) preoperative fasting and carbohydrate treatment, 5) preanesthetic mediation, 6) prophylaxis against thromboembolism, 7) antimicrobial prophylaxis and skin preparation, 8) standard anesthetic protocol, 9) post-operative nausea and vomiting, 10) laparoscopy and modifications of surgical access, 11) nasogastric intubation, 12) preventing intraoperative hypothermia, 13) perioperative fluid management, 14) drainage of peritoneal cavity after colonic anastomosis, 15) urinary drainage, 16) prevention of postoperative ileus, 17) postoperative analgesia, 18) perioperative nutritional care, 19) postoperative glucose control, and 20) early mobilization [26]. ERAS protocols for other procedures contain most of these same categories, modifying certain categories for the unique aspects of the different surgeries. These multi-modal approaches to peri-surgical care have provided evidence-based standards in several specialties to optimize patient care.

5.0 Effect of ERAS Implementation of Opioid Prescribing

5.1 Multimodal Pain Management

Multimodal pain management is the use of non-opioid and opioid pharmacologic measures, as well as non-pharmacologic measures in the treatment of pain, with the goal of reserving systemic opioid-based treatment for breakthrough pain [27]. This approach to pain management has been adopted by professional medical organizations, including the American Pain Society in their 2017 guidelines for the management of postoperative pain [28]. In their 2017 guidelines, the American Pain Society provides a set of 32 recommendations for the management of acute postoperative pain in the following domains: preoperative education and perioperative pain management planning (recommendations 1-4), methods of assessments (recommendation 5), general principles regarding the use of multimodal therapies (recommendation 6), use of physical modalities (recommendations 7-8), use of cognitive-behavioral modalities (recommendation 9), use of systemic pharmacological therapies (recommendations 10-19), use of local and/or topical pharmacological therapies (recommendations 20-22), use of peripheral regional anesthesia (recommendations 23-25), use of neuraxial therapies (recommendations 26-28), organizations structure, policies, and procedures (recommendations 29-31, and transitioning to outpatient care (recommendation 32). Many of the pharmacologic recommendations supplant the overuse of systemic opioids with systemic non-opioid agents and targeted local therapies. It is important to also notice that many of the recommendations include non-pharmacological, behavioral-based interventions to pain management.

This approach to pain management in the acute peri-operative setting has become one of the mainstays of ERAS pain protocols because of the overwhelming evidence that multimodal pain management provides better outcomes for numerous patient-centered measures including but not limited to length of hospital stay, return of bowel function, post-operative morbidity, pain, nausea, urinary tract infections, pneumonia, delirium, and the need for opioids after discharge [29-35] The American Pain Society notes that when strategically using different analgesics targeting different areas of the pain pathway, the interventions may have the ability to work synergistically and provide greater pain relief [28].

5.2 Decrease in Opioids Used and Prescribed

The use of ERAS pathways and multi-modal pain management has resulted in drastic changes to opioid prescribing in the post-operative period. To provide pain control without using opioids, other analgesic agents must be used, such as non-steroidal anti-inflammatory drugs (NSAIDs). Due to their inhibition of cyclooxygenase enzymes, NSAIDs inhibit platelet activation and aggregation. This affect has been harnessed by medical professionals for years, including the United States Preventative Services Task Force (USPSTF), an organization that provides preventative health recommendations to physicians nationwide. Their most recent guidelines for primary prevention of cardiovascular events (myocardial infarction and ischemic stroke) promotes the use of daily low-dose Aspirin (an NSAID) [36]. These recommendations also address a concern that many prescribers have with daily NSAID prescriptions – the small to moderate increased risk for gastrointestinal (GI) bleeding and hemorrhagic stroke [36]. The USPSTF found that in patients aged 50-69 years old with increased risk for cardiovascular events, the benefits of decreased

cardiovascular disease risk when taking daily low-dose aspirin are not outweighed by the increased harm of GI bleed and hemorrhagic stroke [36].

Bleeding is a primary concern for surgeons and they frequently take measures to reduce the risk of post-operative bleeding. Surgeons may have been less likely to prescribe peri-operative NSAIDs due to the above small to moderate increased risk for GI bleeding and hemorrhagic stroke, extrapolating this data to the post-operative setting. It is important to understand that the USPSTF did not stratify the risk of bleeding events based on surgical status [36]. Since ERAS protocols frequently use NSAIDs, there has been concern for increased risk of post-operative bleeding when using these protocols. Many studies have looked at the risk of bleeding events in the peri-operative setting with the use of NSAIDs, and one recent meta-analysis of 27 articles, published in *JAMA Surgery*, compiled the data [34]. The researchers found no difference in post-operative bleeding between the NSAID group and the control group (odds ratio [OR], 1.1; 95% CI, 0.61-2.06; P=.72) [34], showing that in most operations NSAIDs can be safely used for analgesic efforts without increasing the risk of bleeding. This same study also looked at opioid usage rates when using multi-modal analgesia for colorectal surgery ERAS pathways, finding that while 50% of patients used opioids during their hospital stay, most patients used less opioids during their stay and many did not require opioids upon discharge [34].

The previous systematic review is not the only one that compared ERAS peri-operative management to non-ERAS peri-operative management. A systematic review of 10 studies of ERAS protocols for breast reconstruction also examined whether the use of ERAS pathways had an effect on numerous outcomes including oral morphine equivalents used by the patients [35]. The researchers compared traditional peri-operative management to ERAS peri-operative management, which included the combination of venous thromboembolism prophylaxis, pre-

operative and intra-operative analgesia, peri-operative intravenous fluid management, post-operative analgesia, post-operative breast reconstruction flap monitoring, and early mobilization [35]. This systematic review also found a statistically significant decrease in the oral morphine equivalents prescribed when comparing ERAS peri-operative management to traditional peri-operative management [35]. These two systematic reviews looking at a total of 37 articles show that the use of the ERAS pathway and multi-modal analgesic efforts including the use of NSAIDs is not only safe, but also leads to decreased opioid prescribing.

5.3 Equivalency of Pain Control

One question that comes to mind when discussing the reduction of opioids provided to patients in the post-surgical setting is whether their pain has been adequately controlled. In fact, many studies have been performed to explore this question, finding that patients undergoing ERAS protocols with multimodal pain control regimens are provided less oral and intravenous opioid pain relievers while self-reporting the same or better post-operative pain levels [37-40].

Studying pain has notoriously been difficult for researchers because pain is an objective experience with no physical markers that can be quantified with a dose-specific relationship to perceived pain. Many times, patient-reported data can be obtained when a healthcare professional trained in pain assessment obtains the data directly from the patient. This is usually quantified by using the Visual Analog Scale, where the patient rates their pain level on a scale of 0-10. In many study designs this data is obtained during an inpatient hospital stay or during a clinic visit or virtual follow-up appointment. For some study designs, it is not feasible to have a healthcare professional assess pain at every interval that the researchers are interested in. To circumvent this problem,

researchers rely on validated patient-reported outcome surveys that quantify pain levels in many different areas that pain can affect a person.

One widely-used pain survey is the Revised American Pain Society Patient Outcome Questionnaire (APS POQ-R). Originally developed in 1991 and revised in 1995 and 2005, this tool assesses five meaningful measures of pain including (1) pain severity (pain), (2) interference with function (activities), (3) affective experience (emotional), (4) side effects (safety), and (5) perceptions of care (satisfaction) [41]. Within each meaningful category are 3-5 questions that aid in understanding the factors associated with each category. For instance, the activities category explores how the patients pain has affected them falling asleep, staying asleep, performing activities such as sitting up, turning and repositioning, and performing activities such as walking, sitting in a chair and standing at a sink [41]. Through the revisions, expert recommendations and validation studies, the questions in the revised survey have been validated to accurately and appropriately quantify patient-reported pain levels. The APS POQ-R and other validated patient-reported pain surveys provide tools to evaluate pain outcomes when comparing different analgesic methods.

Many studies have explored the equivalency of pain control when comparing ERAS protocols to historical, non-standardized peri-operative management. One meta-analysis looked at sixteen studies exploring the efficacy of a transverse abdominal plane (TAP) block in colorectal surgery outcomes [37]. A TAP block is a component of multi-modal pain management that is under the category of localized pain control – analgesic medication is injected directly into the tissue plane where the nerves that innervate the incision site are located, reducing the amount of intravenous or oral opioids required. This study found there was a significant decrease in pain score at 24 hours at rest for patients who received a TAP block (weighted mean difference = -0.91,

p<0.05) and on coughing or movement (weighted mean difference = -0.36, p<0.05) [37]. This study is not unique in its findings. A matched pair comparison of ERAS versus conventional management on opioid exposure and pain control in patients undergoing lung surgery found that not only were ERAS patients exposed to fewer morphine milligram equivalents (14.2 vs. 57.8, p<0.001), they had better pain scores using the Visual Analog Scale when thoracotomy was part of the procedure (median 1.3 vs 1.8, p=0.004) [38]. Another study compared ERAS protocol patients to historically managed pre-ERAS implementation patients undergoing laparoscopic sleeve gastrectomy and found that when opioids were used for pain that was unable to be controlled via non-opioid methods, only 9 (10%) of ERAS patients required opioids in the immediate post-operative period and significantly fewer ERAS patients required an opioid prescription after discharge (11% vs 100%, p<0.001) [39]. A different study compared gynecologic oncology ERAS protocol patients to a historical pre-ERAS cohort for patients undergoing elective laparotomy at a major medical center [40]. The researchers found that when compared to the historical pre-ERAS cohort, ERAS patients required less intra-operative opioids (45 vs 75 oral morphine equivalents, p<0.0001), required less post-operative opioids (45 vs 154 oral morphine equivalents, p<0.0001), and reported lower maximum pain scores using the Visual Analog Scale in the post-anesthesia care unit (three vs six, p<0.0001) and on post-operative day one (four vs six, p=0.002) [40]. These studies show that using the multi-modal pain management algorithms of ERAS in the peri-operative setting not only reduce opioid exposure to patients, but patients also have better self-reported pain scores than with historical, non-opioid-sparing analgesic methods.

6.0 Conclusion

The opioid crisis has gripped the United States for decades and has a complicated and multifactorial history. As prescribers, physicians have a unique role of responsibility and power to reduce their propagation of the opioid crisis while still providing compassionate care. Numerous interventions have been implemented to combat the opioid crisis, one being the adoption of ERAS protocols in the peri-operative setting, a system-level approach that has the benefit of reducing opioid consumption and prescribing. These protocols have three main foci: fluid homeostasis, pain control, and return of function. Multimodal pain control regimens are the mainstay for pain control in the ERAS framework, supported by numerous professional medical societies including the American Pain Society. These regimens utilize non-pharmacological and pharmacological methods to target numerous areas of the pain pathways, providing synergistic effects that results in better pain outcomes while reducing the amount of opioids required after surgery.

The public health impact of the adoption and implementation of ERAS pathways for many routine surgeries is immense. Pain is common with most surgeries, to variable degrees, and pain control is a necessary and humane part of medical care. To not provide pain control is neglect, but to provide too much pain control is harmful. It has been shown that increased exposure to opioids increases risk for long-term opioid use after surgery. The ERAS pathway reduces opioid exposure while providing the same or better pain control than historical, non-standardized peri-operative analgesic plans. Though there are no studies showing direct links, suffice to say that since ERAS pathways decrease opioid exposure and opioid exposure is related to long-term opioid use, implementation of ERAS pathways is one way to reduce the incidence of long-term opioid use after surgery. With overwhelmingly positive findings, ERAS pathways should be developed for

more standard procedures across more surgical specialties. This is one small way physicians can help decrease their propagation of the opioid crisis.

Finally, there must be more that can be done to influence prescribing behavior. One interesting idea is to provide prescribers feedback on their opioid prescribing habits for different procedures and compare it to their peers. I imagine this to be a platform similar to the Prescription Drug Monitoring Programs, a database used in many states where prescribers can find all opioid prescriptions that a patient has been prescribed and filled, allowing prescribers make educated decisions about how to prescribe analgesics to that patient. Instead of being stratified on a patient level, this database would be stratified on a prescriber level, where prescribers could see the amount of opioids a specific prescriber provides to patients for certain diagnoses, procedures or ICD codes. Having this database comparable across peers would also allow prescribers to compare themselves and self-regulate their prescribing habits. This would also provide a wealth of information about the variability of opioid prescribing behaviors. While this idea may seem far-fetched, it may very well be the kind of change needed to maintain accountability among prescribers and continue to address the prescriber's role in the opioid epidemic.

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