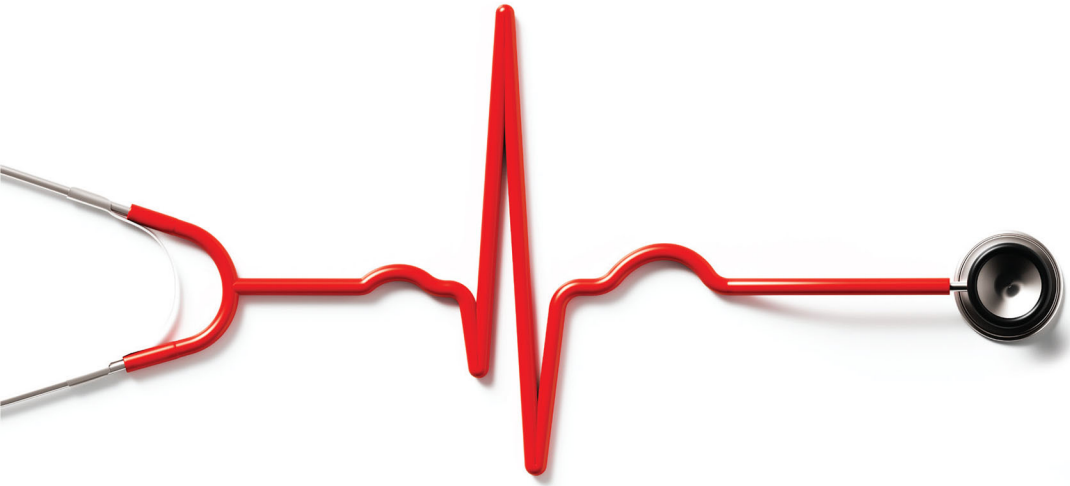
One Brilliant Mathematician's Proven Plan
for Saving Hospitals, Many Lives,
and Billions of Dollars

HOSPITAL, HEAL THYSELF



MARK TAYLOR

WILEY

Praise for *Hospital, Heal Thyself*

"Our hospitals and health systems are in crisis. Patients are endangered daily. This book is a reminder of the long-simmering underlying causes of that crisis and the fact that no system is safe if it is operated in an unsystematic way. It is also the compelling story of mathematician Eugene Litvak's improbable life and career, from childhood in a multifamily Soviet apartment to managing patient flow in health systems around the world. *Hospital, Health Thyself* lifts the veil on hospital practices in a readable understandable way and offers practical real-world solutions. If you are a healthcare professional or a patient, or plan on ever being one, you need to read this book!"

—Helen Haskell, President, Mothers Against Medical Error and Consumers Advancing Patient Safety, Former Chair, World Health Organization, Patients for Patient Safety Advisory Group

"*Patients, please read this book.* If surgery, emergency care, pregnancy, or hospitalization could be in your future, read *Hospital, Heal Thyself* to learn why healthcare systems can fail to deliver the best care in emergency departments, operating rooms, and other clinical care areas. Most failures do not stem from malicious intent. But unintentional, less-than-optimal care can still result in unfortunate outcomes, injuries, and death.

"*Nurses, please read this book.* Dr. Litvak's wit, determination, and brilliance inspire me and will inspire you. He understands the priorities of front-line nurses – saving lives, safe patient care, nurse retention, and less overtime. If you want all this and more, read about Dr. Litvak's steadfast journey to a silver bullet solution that incorporates operations management, smoothing patient flow, and minimizing variability. Then advocate for your patients, colleagues, and yourself by convincing hospital executives to implement Dr. Litvak's variability-based methodology. Read about Dr. Eugene Litvak's extraordinary life to understand why he perseveres in his uphill battle to improve healthcare outcomes. Read this book to understand how Dr. Litvak's approach to operations management, smoothing patient flow, and minimizing variability will help broken healthcare systems

prevent serious harm to their patients. I read the book and I'm astounded by the emotions it elicited: laughter, tears, sadness, anger, awe, admiration and inspiration."

—Marilyn Rudolph, RN, former Vice President, Quality Improvement, VHA, Faculty Member, Institute for Healthcare Improvement

"More profitability, improved outcomes, greater safety, less stress. If these are a priority for your institution, read this book and courageously act on its lessons. Eugene Litvak has cracked the code of improvement available for all to implement. You can do that. Don't wait; start before you are ready. Everyone mentioned in this book is willing to help."

—James M. Anderson, JD, past President and CEO, now President Emeritus, Cincinnati Children's Hospital Medical Center, Strategic Advisor, Taft Stettinius and Hollister

"A fascinating story of Eugene Litvak, a pioneer in system thinking and work-flow design applied to healthcare delivery. Done well, healthcare systems will be better "prepared" and more "resilient"– two concepts that should be added to the mission of delivery systems."

—Denis Cortese, MD, Professor and Director, Arizona State University Center for Health Care Delivery and Policy, Emeritus Professor and former President and CEO, Mayo Clinic

"This book is a must-read for health system executives and others who want to understand how applying engineering principles to healthcare, and tackling issues such as throughput and operational efficiency, can produce better results all around – for patients, providers, and the nation."

—Susan Dentzer, President and Chief Executive Officer, America's Physician Groups, former Editor-in-Chief, *Health Affairs,* former On-Air Health Correspondent*, PBS NewsHour*

"We all deal with the myriad of problems facing providers of primary care. What we hope they (readers) recognize is that the generosity of experts like

Dr. Litvak in assisting under-resourced institutions is lifesaving. St. Thomas Clinic would likely have gone under without his help. I felt God's grace in Dr. Litvak's kindness."

—Donald T. Erwin, MD, Founder and CEO, St. Thomas Community Health Center, New Orleans, Louisiana.

"Eugene Litvak, an extraordinary and visionary mathematician, has developed methods which improve the flow of patients through hospitals and improve safety and efficiency and reduce costs. These changes are critical if society wishes to be able to support adequate healthcare as demand rises. He has partnered with clinicians and hospital managers throughout the world to change the way hospitals schedule their work to smooth flow. His method works everywhere it has been tried, in specialties and whole hospitals, in state and private systems. It is time to stop the need for persuasion; Litvak's methods should be mandatory. Better care for more patients at lower cost."

—Martin Elliott, MD, Emeritus Professor of Cardiothoracic Surgery, University College London, former Medical Director, Great Ormond Street Hospital for Children, London, UK, Provost of Gresham College, London

"Mark Taylor's excellent accounting of the history of the Institute of Healthcare Optimization and the genius of its creator and leader, Dr. Eugene Litvak, makes for compelling reading for anyone interested in meaningful healthcare reform, especially as it relates to the US hospital system.

"This book needs to be read by change agents at all levels of healthcare delivery, from the patient level to the C-suite. And more importantly, the principles and practices recounted therein need to be widely adopted by hospitals throughout the country."

—Ellis "Mac" Knight, MD, retired Hospital Senior Vice President and Consultant

"When 45% of healthcare costs fail to benefit patients and hospitals sink into debt, something is very wrong in the way they operate. This book presents a foundation for hospital leadership nurtured by the intellect of Eugene Litvak, a savvy driver and leader of healthcare quality who 'thinks' about the inconsistencies of care and provides proven solutions. The Litvak method, based on sensible medical and surgical practices, must be implemented if healthcare is to work for patients and hospitals are to remain viable."

—Robert G. Lahita, MD, PhD, Director of St. Joseph's Institute for Autoimmune and Rheumatic Diseases, Professor of Medicine, Hackensack Meridian School of Medicine, Clinical Professor of Medicine, Rutgers, New Jersey Medical School.

"At the Mayo Clinic in Florida, managing variability dramatically improved staff job satisfaction and retention, decreasing nurse turnover by 41%, thereby allowing a stable team of experienced staff to deliver safe care. Anyone looking for a way to better deploy healthcare resources for a safer healthcare system should read this book and explore implementing Dr. Litvak's model."

—C. Daniel Smith, MD, Director, Esophageal Institute of Atlanta, former Dean Warren Professor of Surgery, Emory University School of Medicine, former Professor of Surgery and Surgeon-in-Chief, Mayo Clinic in Florida

"Mark Taylor has performed an invaluable service: introducing the work of Dr. Eugene Litvak to a broad range of potential readers who are interested in saving lives and saving money – *at the same time*. He has demonstrated an approach which could benefit the country greatly. Taylor's book should be required reading for hospital leaders, board members, and anyone interested in improving the safety and affordability of America's most important healthcare institutions – and that should be all of us."

—Mark D. Smith, MD, former President, California Healthcare Foundation

"This is not just another author with a good idea. Litvak's solutions are straightforward, tried and true. They save lives, improve care and improve staff satisfaction. Hospitals MUST adopt his solutions for the sake of their patients, their staff, their physicians, and their bottom line. Read this book. Take it to your hospital administrator, your chief of surgery, the head of your health department, the Joint Commission, and CMS. Your life may depend on it."

—Peter Viccellio, MD, Professor and Vice Chairman, Department of Emergency Medicine/Associate Chief Medical Officer, Stony Brook (NY) University Hospital

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To Marcia, for everything.

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Preface

If you knew a way to save thousands of lives and billions of dollars, wouldn't you want to share it? Eugene Litvak knows how and for nearly two decades has battled to apply his methods for improving the quality of hospital care and reducing the cost of that care while better protecting patients.

To be clear, Eugene Litvak, PhD, is not a physician. And though he is a well-regarded researcher in the field of hospital operations, Litvak did not study medicine or healthcare at the prestigious colleges he attended in the former Soviet Union. He is that uniquely American creation – the immigrant who built a better mousetrap: in his case, a tested method of improving patient flow and patient care that saves lives, as well as billions of dollars in unnecessary spending.

Litvak laments that between 250,000 and 440,000 people die unnecessarily each year because of hospital admissions issues, according to multiple reputable researchers.[1] That's 10% of US yearly deaths, making it the third leading cause of fatalities after heart disease and cancer (pre-COVID pandemic), according to the US Centers for Disease Control and Prevention (CDC).[2] Litvak is aware that while there is no organized reporting and data collection system tracking medical errors, it is widely acknowledged that hundreds of thousands are reported each year attributable to hospitals; errors that can result in death, costly hospitalizations, and permanent harm. He also knows that as much as one-quarter to one-third of all US healthcare current spending, $4.1 trillion, is considered wasteful or avoidable

and that much of that cost, pain, and suffering could be spared.[3] Healthcare costs continue to grow exponentially and are predicted to reach $6 trillion by 2027.[4]

This book details Litvak's story and chronicles his battle to save lives and money and improve care in American hospitals by changing the way they operate. Litvak, born in the Ukrainian city of Kiev in the former USSR, was an applied mathematician there and a rising star in the field of operations management, sometimes referred to as industrial engineering. There, he helped improve the reliability of the telecommunications and computer networks and enhanced the process of efficiently building railroads.

After achieving worldwide recognition for his research in the 1970s in the USSR, Litvak began receiving offers to present his work in other countries. One invitation came from a personal hero, Claude Shannon of the Massachusetts Institute of Technology (MIT), the father of information theory. But Soviet bureaucrats prohibited Litvak from traveling abroad, fearing that, as a Jew, he would not return. So in 1977 he and his wife, Ella, applied to emigrate and requested permission to leave the country. The government also refused that request and Litvak, and his wife immediately lost their jobs and became refuseniks: Soviet citizens, often Jews, who sought to leave the USSR, but whose applications for exit visas were refused and their careers halted.

After years of working menial positions and suffering government persecution and anti-Semitism, including recruitment attempts by the dreaded KGB, the Litvaks and their parents finally received exit visas and joined a Jewish Diaspora fleeing the dying Soviet state. The six émigrés first landed in Vienna before arriving in the United States in 1988, where they initially stayed with relatives and plotted their new lives in Boston.

"The start of our emigration was not very easy," Litvak recalls. "We could take from the USSR no more than $150 each. We had two pairs of old, sick parents, no jobs and little English."[5]

But Litvak has battled bureaucracy his entire life, joking that his time as a refusenik, fighting to emigrate, prepared him for decades of butting heads with America's healthcare bureaucracy. "I truly believe there's a need for a great public uproar and awakening about our healthcare system," he states. "All of us will need advocates to care for us if nothing changes."[6]

Litvak's first encounter with the US healthcare system came when his father, a decorated soldier who had been badly wounded in World War II, was hospitalized at Beth Israel Hospital in Boston the day after the family arrived on US shores. "He was helpless. I couldn't speak English. But I was really impressed with the hospital and the respect and attention of healthcare providers towards my parents and me," Litvak recalls. "I never experienced that in Russia. I knew my father was sick and I had to do something. I felt it was my responsibility to save him, since I brought him to America."[7]

That was 36 years ago. "He received excellent care then," Litvak remembers. "Though today the drugs and equipment are better, the respect, quality of care, and personalized attention are worse than at that time."[8]

For the last two decades as a hospital consultant and co-founder of the not-for-profit Boston-based Institute for Healthcare Optimization, Litvak has combed through hospital finances, quality reporting, and staffing data to track the process of how patients flow through typical American hospitals from admission to discharge. His groundbreaking work in healthcare was driven by a powerful motivator.

"My first incentive to work in this field was hunger," recalls Litvak, who accepted a position as a postdoctoral fellow at the Harvard School of Public Health several years after arriving in the United States. Prior to that, he'd worked as a night manager in a small inn.

"I simultaneously felt like a prince and a pauper," he says. "On one hand, I had recommendations from distinguished scientists. But on the other hand, every company I applied to told me that I was overqualified."[9]

Harvard's School of Public Health wasn't sure how to capitalize on Litvak's skills. He was first assigned to explore testing for the growing HIV/AIDS epidemic and discovered a new screening protocol to detect the virus in donated blood. He and his colleagues developed a method that substantially reduced the cost of screening and significantly improved its accuracy, but faced government health agency intransigence because of the influence of powerful test kit manufacturers.

It was one of Litvak's first battles with American bureaucracies. Later, he worked as an outside consultant at Massachusetts General Hospital in Boston, where managers of its stress lab were seeking more money to grapple with a growing demand. Litvak discovered that the lab was operating with 30% unused capacity, yet still claimed it needed more space to expand.

Working with Mass General researchers, he found similar problems in the hospital's operating rooms and in other departments. He employed complex mathematical theories and algorithms to understand why the Operating Rooms (ORs) and Emergency Rooms (ERs) became overcrowded and how that impacted the cost, quality, and efficiency of care. He learned what creates these predictable weekly overcrowding events there and within most of the nation's 5,000 acute care hospitals.

Emboldened by his findings, Litvak sent letters to every Massachusetts hospital offering to share his research. "Very few even replied, except to say, 'No thanks,'" Litvak recalls. In that era, health maintenance organizations (HMOs), a new health insurance model that achieved savings for its members by cutting healthcare costs

and reducing services, began penetrating the Massachusetts market. "Finally, people were talking about healthcare costs," he attests.[10]

Hospital overcrowding, he discovered, isn't just annoying to patients tired of waiting. Well-documented research proves it frequently leads to bad health outcomes and occasionally even death for patients and great stress on the doctors and nurses who care for them. Ambulances are diverted when hospital emergency rooms are backed up and have no space, postponing lifesaving care for patients desperately needing treatment. ER patients lay in hallways and lobbies awaiting space in treatment rooms. Doctors and nurses are stretched thin, working extra shifts caring for ever-growing numbers of patients.

And this was before the COVID pandemic. It has worsened since.

During overcrowding episodes, ER patients requiring hospital admission can wait hours without care or be transferred to open beds, but in inappropriate units. Surgical patients, for example, may be moved to cancer wards because surgical unit beds are unavailable. Sometimes problems occur in the ensuing chaos.

Patients with planned surgeries see their procedures postponed or canceled, causing personal stress and inconvenience and adverse health outcomes. Meanwhile hospitals lose millions in well-reimbursed payments from health insurance plans, revenues that they required more than ever during the pandemic. Declining revenues, often due to canceled surgeries, have contributed to hospital closures around the country.

Litvak has studied these logjams and discovered both the source of the problem and its operational solution. Both relate to patient flow, the journey of a patient through the hospitalization process.

He has widely published the results of his research in prestigious medical journals from the *Journal of the American Medical Association* (*JAMA*) to the *New England Journal of Medicine* (*NEJM*) and *Health Affairs*.

His findings have been endorsed by state hospital associations and the country's leading hospital accreditation agency, the Joint Commission, as well as some of the nation's preeminent healthcare researchers and leaders. These include Donald Berwick, MD, the former administrator of the Centers for Medicare and Medicaid Services (CMS), the federal agency that administers the Medicare program, and Harvey Fineberg, MD, former president of the Institute of Medicine (now known as the Academy of Medicine) and president of the Gordon and Betty Moore Foundation.

In a *JAMA* piece, Stanford University Professor Arnold Milstein, MD, the medical director for the Pacific Business Group on Health, and his co-author, University of California Berkeley Professor Steven Shortell, PhD, estimated that if all US hospitals adopted Litvak's methods for improving patient flow, it could dramatically reduce US spending on hospital care. According to the CDC, in 2019, hospital spending accounted for 37.2% of personal healthcare expenditures. They estimated potential annual savings of 4% to 5% of US annual healthcare spending, between $120 billion and $150 billion ($150 billion to $180 billion in today's dollars), along with reductions in unnecessary patient deaths and medical errors.[11]

Litvak has found a cure for one of the hospital industry's costliest and most vexing issues. His treatment is for a condition previously undiagnosed, but a grave one that hospital administrators prefer to ignore: overcrowding and the resulting peaks and valleys in patient census, which can spark understaffing, chaos, and life-threatening issues.

The cause of his quixotic quest is not as easily identifiable as cancer or heart disease. It's a problem that lurks beneath the surface but is the root of an unnecessary cascade of health complications and steep financial costs.

Litvak's ideas have been tested and validated in the best hospitals in the United States, Canada, England, and Scotland. In one Midwestern

medical center, the Cincinnati Children's Hospital, Litvak's methods for improving hospital operations produced over $100 million in annual savings as well as an avoided payment of $100 million on a planned, but unnecessary, new patient tower, along with improved quality of care and patient safety.

Prestigious medical centers such as the Mayo Clinic Health System, the Johns Hopkins Medical Center in Baltimore, and the Boston Medical Center have applied Litvak's methods and saved millions of dollars, as did the New Jersey Hospital Association. His successes have been chronicled by major US news organizations, including *CNN Digital* and *NBC Digital*, *the Wall Street Journal, Forbes Magazine, Newsweek,* and the *PBS NewsHour*.

As readers will soon learn, Litvak's methods for smoothing patient flow have been tested and proven to work throughout the country and around the world and offer benefits beyond improving hospital efficiency and profit margins. They've been shown to save lives, reduce medical errors, decrease hospital and ER overcrowding, and improve nurse retention and patient satisfaction. But one added value is that improving hospital efficiency can expand access to care, enabling hospitals and other healthcare providers to treat more patients, thereby reducing, albeit indirectly, racial inequities and healthcare disparities.

In 2022 the National Academies of Sciences, Engineering, and Medicine published a report documenting racial and gender-based disparities in the organ transplantation process. That report, "Realizing the Promise of Equity in the Organ Transplantation System," revealed that people of color, poor people, and women receive organ transplants at a disproportionately lower rate and after long waiting times than other patients of similar need. While African Americans are three times as likely to develop kidney failure as White Americans, they are much less likely to receive kidney

transplants. And while they suffer higher rates of heart failure, they are also less likely to receive heart transplants than White people.[12]

The report found that more than 20% of kidneys, the most commonly donated organs, are wasted, even as, on average, 17 people die daily awaiting transplants because needed organs are unavailable. The major cause of this waste was a lack of available surgeons to perform those transplants when they were needed for harvest and transplantation.[13]

In an opinion piece for *The Hill* co-authored with Harvey Fineberg, MD, the president of the Gordon and Betty Moore Foundation, and Mark Smith, MD, the former president of the California Health Care Foundation, Litvak said that part of the problem can be addressed with a single management intervention. The authors wrote that hospitals should streamline patient flow by "scheduling admissions, discharges, and visits in a way that alleviates manmade peaks in demand. Such steps can be particularly important in safety net institutions, which are historically under-resourced and were hit hard by COVID."[14] The authors added that "Streamlining patient flow by smoothing surgical schedules can increase access to organ transplants and reduce patient mortality."[15]

They noted that "The COVID pandemic has revealed and exacerbated inequities in health care and produced disproportionate deaths of people of color. It has stretched hospital staffing to the breaking point. In such times of stress, improving health care equity requires more than noble intentions or even money. It requires something more difficult – commitment and practical steps to increase efficiency by overcoming impediments of habit and traditional ways of doing things."[16]

Adopting Litvak's program isn't easy. If it were, many more hospitals and health systems would have employed these methods decades ago. But it is not arduously challenging either. And while the

rewards can be great, the alternative – maintaining a status quo that needlessly causes harm and costs patient lives – is far worse.

Litvak conceded that his interventions to reduce variation and smooth patient flow will not cure all of the many problems plaguing hospitals and healthcare organizations. He recognizes that there are other process and quality improvement programs that will also enhance the delivery of healthcare services.

"But unless one can staff to meet the peaks of patient demand – which is not financially feasible for most healthcare organizations – these census peaks inevitably will result in excessive nursing workloads and shortages, medical errors, hospital and ER overcrowding, reduced access to care, and waste," Litvak said.[17]

"Therefore, whatever else is done, whatever other proven interventions are implemented, smoothing those peaks is a pre-requisite to creating a quality healthcare delivery system. In other words, almost everything else a hospital tries to do to improve its system is bound to ultimately fail without addressing the underlying causes."[18]

So why, if those methods have been researched, tested, and proven to work in some of the best US hospitals, haven't all of America's hospitals adopted this lifesaving and cost-effective program?

Litvak blames institutional culture, inertia, and greed for hospital leadership's failure to adopt these proven strategies. He believes a national movement rallying patients, healthcare providers, and policymakers is required to improve patient outcomes by spurring changes in hospital operations.

Sooner or later, most Americans or their loved ones will face hospitalization and may be impacted by the adverse consequences of overcrowding. Litvak and his family were personally impacted when his mother was hospitalized before her death in June 2018.

"I praise the commitment of doctors and nurses to patient care. But I would also inform clinicians that our healthcare system

frequently destroys the good work they do," he asserts. "I'd tell families of hospital patients that the system could screw up at any time. Until their loved ones are safely back at home, don't breathe easy."[19]

Litvak's methods are no magic elixir. And adopting them despite their proven success is not painless. It takes time and hard work to fully implement. And they require cultural as well as operational changes.

Hospital association surveys show the average job span for a hospital chief executive officer is 6.6 years. Traditionally, hospital CEOs and their boards of directors have deferred to the wishes of elite specialty physicians who operate within their facilities. These rainmakers – surgeons and other specialists who perform expensive procedures – often have many choices about where they will operate. So hospital CEOs lure and welcome these doctors and the multimillion-dollar revenue streams they channel to their hospitals.

Hospital CEOs are loath to tinker with what they view as a successful model that allows surgeons and cardiologists to set their own operating schedules, usually only a few hours a week and almost always early in the week. Litvak's research proved that this existing model is not only costly and ineffective, but also leads to dangerous swings in patient flow, census overload, and burnout of clinicians, harming patients, and claiming lives.

His solution requires hospital administrators and their medical and nursing staff to change.

Many surgeons resist challenges to their routines, even when those changes have been proven to improve their work schedules and revenues. And most surgeons have the luxury of choice. Facing new and suspected inconvenient administrative or scheduling changes, some doctors warn they'll transfer their surgeries to competing hospitals. Even the threat of that loss of business sends hospital boards of directors searching for new CEOs.

Multiple studies indicate that most hospitals today face overcrowding. Litvak observes, "Adding new Emergency Department beds and building new additions is exactly what hospital CEOs do in this situation and that only increases the overcrowding, because they're increasing traffic to the hospital entrance while blocking the exit flow. And it does nothing to address the underlying issue. Rather, it exacerbates the problem. Litvak cites the noted healthcare researcher Peter Viccellio, MD, vice chairman of the department of emergency medicine for the Health Sciences Center at Stony Brook University in New York, who opined, "One cannot cure constipation by extending the colon."[20]

Litvak notes, "You can only change hospital culture by engaging the CEOs. But most are afraid they will lose their jobs if they attack this problem. They're not looking for a fight. And they wonder: why would I engage in this fight if my rival hospital CEO does not?"[21]

Since the late 1990s Litvak had examined America's healthcare system as an objective observer, a researcher, consultant, and outsider who had little personal interaction with it. That changed in February 2018, when he was personally impacted by healthcare dysfunction when his elderly mother was treated for a brain tumor. The healthcare journey was torturous and frustrating, and if Litvak had not advocated for her, the outcome would have been much worse.

Among the other issues was one that Litvak explained in a *Wall Street Journal* piece. Millions of hospital discharges are driven, not by improved patient health, but because the hospital census reaches its peak on Thursdays and Fridays and hospitals need to free up beds. "On these days it seems patients magically become healthier and are discharged. I knew on Thursday that it could be a problem but thought my mother's serious condition would not allow this practice. I was wrong."[22]

Litvak's mother's painful experience inspires him to complete his mission. "If you want me to summarize what is wrong with our

healthcare delivery system, I could do it in two words: almost everything," Litvak states. "The system is broken. It's getting more and more like a combat zone."[23]

Litvak is exhausted by hospital leaders' apathy and inaction. "I am a part of this system, and I can see that people outside of healthcare just don't know what's going on," he bemoans. "Enough is enough. I have studied this problem and know how to fix it. And now I have seen it personally with my own eyes. We are hurting people unnecessarily and that must stop."[24]

Chapter 1

How One Hospital Adopted Litvak's Methods and Saved $100 Million

In 2006 the president and CEO of Cincinnati Children's Hospital, Jim Anderson, realized his hospital faced a daunting crisis. At the time, few outsiders would suspect anything amiss. The prestigious institution, routinely ranked among the best pediatric hospitals in America, seemed healthy. Admissions – from US patients, but also from around the world – were rising and revenue was growing. But several times each week the hospital mysteriously became packed beyond capacity.

Anderson grew concerned when he heard from transplant surgeon Fred Ryckman, MD. During overcrowding episodes, the hospital's care sometimes plummeted to an "inadequate and inefficient" level, Ryckman told him.[1] This was an alarming development from an institution that considered itself world class. The Cincinnati Children's Hospital has been caring for children since 1883.[2] But in 2006 when the 425-bed hospital (700 beds today) contracted with Eugene Litvak and the not-for-profit Institute for Healthcare Optimization (IHO), it was facing routine overcrowding issues, a problem vexing hospitals throughout the United States.

Anderson realized that the hospital could not keep up with the growing patient volume and maintain its high standards. When a surge of new patient arrivals swamped the facility, overstressed clinicians – doctors and nurses – were more likely to make mistakes.