Wistar Murray

Medical Copywriting Portfolio

March 14, 2021

Creative

Pharma

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Narrative

**CREATIVE**

**1.**

**Pipette marketing for Rainin**

*Territory 2: Connection*

*Tone: Lofty, noble, high-minded, inspiring*

You might be alone in the lab at 2am, but you don’t work in isolation. Great science transcends boundaries, and connects people the world over. You’re bonded across time and space with scientists whose midnight drudgery also led to breakthroughs.

You might be alone in the lab at 2am, but you feel the fellowship of science. This is your village. These are your vending machines.

You might be alone in the lab at 2am, but you’re holding a universal instrument for advancing/dropping knowledge.

You might be a research assistant in Mumbai, a postdoc in Boston, or a biochemist in Seoul, but you’re all united by a higher purpose, and a Rainin pipette.

*Territory 3: Luxury*

*Tone: Humorous, appealing*

Your cell cultures have been treated like guinea pigs long enough. It’s time to give them the luxury they deserve. Raw power, wedded to legendary performance, fused with masterful control. An exhilarating odyssey from petri dish to petri dish.

Pamper your laboratory samples with the ultimate liquid handling experience.

Rainin Pipettes. A microbe’s most coveted ride.

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True luxury is being able to tune out your instrument. We provide the unmatched sophistication. You just focus on the science.

*Territory 3: Luxury*

*Tone: Humorous, appealing*

Ah, the humble pipette. It might not blow your hair back like a moon roof in a luxury car. It might have to spend most of its life in a lab because of contamination concerns. It might lack a built-in MP3 player or a wireless connection to your FitBit.

But to us, it’s spectacular. Why? Because it holds the potential for So. Much. Science.

Reintroducing the Rainin Pipette. The flawless foundation of your life’s work. The gorgeous instrument of your future discoveries. Your most dedicated partner in science.

Rainin: It’s everything that’s going to drop next.

*Territory 4: Personality/Individuality*

*Tone: Humorous, appealing/lofty, inspiring*

You don’t stop being *you* when you put on your lab coat. You might work in a sterile environment, but you have a million things on your mind. Your distinctive self doesn’t pause for science.

That’s why at Rainin we make pipettes to suit every personality. Seriously, all of our pipettes do the same thing. You rarely have to think about them. They’re all science, all the time. They’re the definition of drudgery. They’re the 99-percent perspiration that Einstein was talking about.

And you’re obviously the lone creative genius of the lab. So don’t lose who you are in the pursuit of science. Choose your Rainin pipette from an array of identical Rainin pipettes, get to work, and get inspired with your next original idea.

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Great science is done by individuals. Rainin makes universal tools for unique scientists.

*Territory 4: Personality/Individuality*

*Tone: Humorous, appealing/lofty, inspiring*

You’ve all been there before. You’re in the lab, sciencing. You’re holding your favorite, most coveted Rainin pipette when you’re suddenly overcome by the feeling that OMG, this pipette *gets* you.

This pipette was ergonomically designed because it knows you like to shred on a guitar when you leave the lab. This pipette has lifetime value because you’re the kind of person who still wears the same t-shirts you wore in high school. This pipette is sophisticated because it knows you only drink water that’s sparkling. Very sparkling. In fact, you hold impassioned, somewhat controversial opinions about peak levels of liquid sparkle.

Yes, it feels good to be seen, to be recognized. Rainin actually cares about your personal journey. Wait, are you holding the pipette, or is the pipette holding *you*?

Maybe you’re holding each other.

Rainin: Tell it to the pipette.

*Territory 6: Perception vs. Reality/Theory vs. Practice*

*Tone: Humorous, appealing*

In a scientific golden age, you are a quintessential *scientist*. You command the elements. You discover universal truths, and bring them to the masses. You dream of curing disease, saving the planet, and exploding asteroids into a trillion pieces, just because you can.

You are also unshowered, hungry, alone, and passionately pipetting in your lab at 3am.

At least you have Rainin. Let our pipettes handle the grunt work, so you can keep dreaming.

**2.**

**Restore marketing for Ion Biome**

A.

SUPPORT YOUR CRADLE OF WELLNESS

Earth is no longer all natural. Nourish your inner resilience so you can feel good again, the way Mother Nature intended. Befriend your biome, replenish our world.

B.

FEED YOUR CENTER

Our soil-based supplement helps rebuild the community of your core self. Restore works to fortify the injured axis between your gut and your brain. It’s Mother Nature’s formula for love and connection on a cellular level.

C.

BE THE WELLNESS YOU WANT TO SEE IN THE WORLD

Restore is food with a view. A view of hope and happiness. A view of teeming, healthy earth under bare feet. Our science goes beyond grey matter to the core intelligence that infuses our gut ecosystem. Let’s heal our centers so we can all foresee a future where we no longer need Restore.

D.

THE SCIENCE OF FEELING THE WAY MOTHER NATURE INTENDED

Grey matter has always been gut matter. That’s why it pays to mind your center. Restore enriches your interior so your cells can concentrate on what they were born to do: connect and thrive.

**PHARMA**

**1.**

**Q&A for sales team at MilliporeSigma**

**1. Question:**

We have enough insecurity in formulation already. Why would I want to take a risk by switching to new excipients?

Answer:

Because our company isn’t just about chemicals. We stand for documentation, transparency, and quality. Exerting greater control over your formulations will save you time and money by mitigating your risk and making your APIs safer and more effective.

As a large company with a broad portfolio of raw materials, we have the resources to develop new delivery technologies. We never stop conducting proactive research to provide the best and most innovative excipients for your formulations.

**2. Question:**

All excipient providers are the same. What can you offer that’s different?

Answer (3 points by bullet):

We help you increase control over your formulation through

* Emprove® program: support supply chain transparency and risk mitigation with our in-depth, consistent documentation in a centralized location, so you can access information on-demand. Check out the free basic dossier.
* Breadth of portfolio: Our 400+ portfolio of high-quality excipients.
* Innovation & consultation: unique solutions for your complex formulation challenges (innovative products such as Parteck® range, application services for our excipients, R&D, technical sales force).

**3. Question:**

Do you offer Glycine, too?

Answers:

1. Yes. Here’s the specification and price. (1)
2. Yes. We have different grades of Glycine. What is your application? (3)
3. Yes. We have different grades. What are your specific criteria? For instance, are you starting a new project or do you need a second supplier? One form of Glycine may even improve your process efficiency. Our excipients increase your control over your formulation with full regulatory and documentary support. (10)

**4. Question:**

What are the key messages of our Formulation campaign?

Answer:

Whether it's an innovative new therapeutic modality or a supplier suddenly falling out of regulatory compliance, disruptions come in known challenges and unexpected obstacles.

Disruption is inevitable, but how you treat that disruption can be a game-changer. When you have greater control over your formulations, you decide the shape that disruption will take.

With MilliporeSigma as your excipient provider and partner, you can maximize predictability. We're MilliporeSigma, and we're changing the rules on disruption.

**5. Question:**

What are the proof points to the key theme (greater control over your formulation) of the Formulation campaign?

Answer (3 points by bullet):

* Support of supply chain transparency and risk mitigation with our Emprove® program (providing in-depth, consistent documentation in a centralized location, so you can access the information you need when you need it).
* Breadth of portfolio: our 400+ portfolio of high-quality excipients.
* Innovation & consultation: including unique solutions for your complex formulation challenges (innovative products, application lab, R&D, technical sales force).

We're MilliporeSigma, and we're changing the rules on disruption.

**6. Question:**

Why do I need to know all of that? It’s only Marketing, isn’t it?

Answer (5 points by bullet):

* We will use that theme for tradeshows, print & digital advertising campaigns, and additional marketing activities. Your customer might ask you about it.
* The theme precisely summarizes how we differentiate ourselves from the competition, and how to make a meaningful connection to our offerings (portfolio products, innovative products, Emprove® program, services) in any customer conversation.

**7. Question**

Why should I buy specialized excipients and then have to rely solely on you without alternative sources?

Answer:

Specialty excipients can optimize your formulation process and/or reduce your costs.

E.g., switching from wet granulation to DC? We have Parteck M and SI, specialty excipients which ensure content uniformity even for low-dose formulations and can scale up.

Continuous manufacturing for solid dose?

Solubility challenges: More and more new BCS class II APIs are coming to market where current excipients / technologies might fail.

3-D printing will require new polymers to meet market needs.

**8. Question:**

Just deliver the raw material. I will take care of the technical problem internally.

Answer:

Can you afford to waste time and costs in troubleshooting to find solutions for your technical challenges? Wouldn’t it be better if you had a partner who’s been in the business for 350 years who could help you solve issues faster so that you can concentrate on your development work?

Merck offers technical expertise and application know-how so that you can focus on important tasks.

**9. Question:**

Why should I pay for the Emprove® Suite? I don’t see the value. Our competitors are offering the same free of charge.

Answer:

An FDA audit on short notice? Don’t you want immediate online access to product information? No need to contact many different suppliers – in different time zones.

Emprove documents over 400 different excipients. All Emprove® excipients are supported by three different types of dossiers, covering Qualification, Risk Assessment, and Process Optimization, all of which are accessible 24/7 via our online Emprove® Suite.

Save money and convenience in your registration process with high-level documentation.

**10. Question:**

We are working on products with solubility challenges. What can you offer?

Answer:

Merck offers specialty excipients to overcome solubility challenges. For example:

HME? We offer Parteck MXP.

Inorganic carriers? Would you be interested in testing our Parteck SLC (an inorganic drug carrier based on Silicon dioxide)?

Counterions? We have meglumine in our portfolio which can be a solution if you are working on APIs with a pka value of 6 or less.

Merck is also offering feasibility studies in case you require development support.

**11. Question:**

New technology trends – Where do you see pharma market developments?

Answer:

Detailed product documentation.

Improving solubility while leaving the chemical nature of the NCE unchanged.

Continuous pharmaceutical manufacturing, driving the need for tighter process controls and a more thorough process and product understanding.

Regionalization and personalization of treatment approaches, requiring faster, more efficient, and increasingly flexible solutions.

Additive manufacturing technologies like 3D pill printing.

Need for solutions for biopharmaceutical formulations, in line with an increasing pipeline of biologic APIs.

**12. Question:**

Your mannitol (or another product example) is 3 times more expensive than competitive products. Why?

Answer:

Consider the cost savings of using just one excipient supplier for more than 400 different excipients along with high quality and comprehensive documentation already in the right format needed for registration.

Minimize the risk of product failures.

For example, our mannitols provide excellent compactibility in DC process, and you see improved handling of granulated products in comparison with severe caking issues with non-granulated products.

At the end of the day, we save you money.

**13. Question:**

How can Merck support us with our efforts on risk assessment?

Answer:

Elemental Impurities, Emprove Documentation, TUPPs, Emprove grades, paper-free packaging, change control, raw material supplier assessment.

Excipients for high-risk applications like parenterals or medium risk applications.

Emprove products contain low content of Mibio and endotoxins. Additionally, we offer paper-free packaging to minimize the risk of contamination.

Merck supplies comprehensive documentation for our Emprove products containing information on elemental impurities, technically unavoidable particles, and raw material supplier information.

Merck has a validated change control procedure in place.

**14. Question:**

Generics represent a major price pressure for us. How can you help?

Answer:

Your life-cycle management strategy?

Products and services that will help you develop formulations with different release kinetics like ODTs, or with a sustained release profile so that you can extend your patents.

Products for a variety of different administration routes.

We offer specialty packaging or granulated materials for products that tend to cake.

Our products can help for easy scale-up and reduction of failure rates, and Emprove can help speed up the registration process.

**15. Question:**

As a CDMO, how can I justify the use of your excipients with my sponsors?

Answer:

How much freedom do you have to decide on the raw material supplier?

Are you facing challenges like batch to batch variabilities? How about failure rates -- do you want to speed up delivery time of the final product?

High quality products with Emprove documentation can reduce costs and accelerate time to market.

Merck can support you for risk mitigation.

Our broad offering of excipients will allow you to work with just one partner.

**16. Question:**

We’re working on developing drugs for more niche or special patient types like infants and the elderly. How can we know that your excipients are both cutting-edge and safe for these populations?

Answer:

We understand the unique challenges posed by delivering drugs to pediatric and geriatric patients. Among other factors, infants have different dosing requirements, and for the elderly, something as simple as swallowability can make or break the success of a drug. Thus we’re committed to helping you find the right excipient for drugs aimed at all demographics, always with unrivalled quality standards.

**17. Question:**

We’re bracing ourselves for changes related to personalized medicine: more complex, more time-consuming, more expensive. Are you a reliable partner to help guide us on this journey?

Answer:

Yes. We see emerging science as an opportunity to deliver safer medicine. Considering a patient’s genomics when designing a drug might pose more of a challenge to scientists and drug manufacturers, but our ultimate goal is to help you formulate better, more effective drugs with fewer side effects—and our customers are doing it. For example, 3-D printing can be applied for personalized drug delivery systems. We’ve recently developed polymers that can withstand the high heat of these modes of manufacturing.

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Whether it's an innovative new therapeutic modality or a supplier suddenly falling out of regulatory compliance, disruptions come in known challenges and unexpected obstacles.

Disruption is inevitable, but how you treat that disruption can be a game-changer. When you have greater control over your formulations, you decide the shape that disruption will take. You see the potential risk, the unknown variable, or unmet need in advance — and how to shape each one into an opportunity to move forward.

With MilliporeSigma as your excipient provider and partner, you can better control disruption and maximize predictability. To support full supply chain transparency and risk mitigation, we provide in-depth, consistent documentation in a centralized location, so you can access the information you need when you need it. Our 400+ portfolio of high-quality excipients includes unique solutions for your complex formulation challenges. We're MilliporeSigma, and we're changing the rules on disruption.

**VIDEO SCRIPTS**

**1.**

**Pharma Starts with You: 360° VR Experience Script for CAR-T Therapy**

**Scene 1: mirror, memory**

*[Scene opens with appealing natural landscape. Camera pans over to reveal that landscape is view through window of hospital room. Camera settles on mirror, where female narrator in hospital gown is gazing at her reflection.]*

Hello. I'd like to introduce you to my body. You may be wondering what we're doing in a hospital room. Usually I'm the nurse, not the patient. I'll explain everything in a minute, but first let's take a tour.

*[Archival footage begins as narrator thoughtfully indicates parts of her body.]*

Here is where my body carried my two thriving children to term. Here is where my body inhaled air from the summit of Mount Kilimanjaro after a nine-day climb. Here is where my body digested ripe Puerto Rican mangos the summer before I started nursing school. And here is where my body developed cancer.

**Scene 2: cancer**

*[Footage of narrator in scrubs seeing her patients, looking weak. Meeting with oncologist who seems to be narrator's friend/colleague. Holding children close at home.]*

My body has brought me immense happiness, but it has also brought me here. The stage 4 diagnosis changed everything. I see cancer cells multiplying every time I close my eyes.

*[Animation of invasive cancer cells in bloodstream.]*

When did my bloodstream become a battleground? I try to visualize my body mounting an attack, but I feel weak. The cancer might be winning.

*[Blood is drawn.]*

But there's still hope. My oncologist told me I was a candidate for CAR-T therapy. This morning my cytotoxic T cells were extracted and taken to a laboratory where they will be optimized for reinfusion next week.

**Scene 3: workflow**

*[Narrator walks into laboratory wearing Bio-Rad lab coat.]*

I'm a trained nurse. Labs are familiar to me, and their rigorous methods have always been reassuring. This is where Bio-Rad scientists isolated the subgroup of cells with the CD19 target on them. These scientists know how to detect the proteins and genes in my T cells to ensure that next week those same cells will turn the full force of my immune system on my cancer.

*[Animation shows workflow.]*

My extracted T cells will be returned to the source, ready to fight. Meanwhile I will receive chemotherapy to suppress my natural defenses so the reengineered cells can do their job.

**Scene 4: immune response**

*[Imagined infusion, deploying T cells, dramatic cytokine storm]*

Where will my body take me next? My primed T cells will keep proliferating in my bloodstream, and each one will be capable of killing 100,000 cancer cells. Within hours this kind of assault can take its toll on a body as cytokine flares up in a virtual storm. Fortunately the cytokine release syndrome can be monitored using the Bio-Plex system. The worst effects can be blunted with precision drugs like IL-6.

**Scene 5: home, hope**

*[Return to mirror. Imagined scenes of reunion with children. Narrator is now part of landscape outside hospital.]*

Today you're meeting a body that will continue fighting its disease long after treatment. This is the body that will summit a mountain again, and hoist countless future patients to their feet. This is the body that will grow old beside the children it carried.

My body brought me here. Now I hope that my body will bring me home.

**2.**

**Stressors in the NICU**

**Animated Infographic Script**

**[Introduce NICU stressors]**

Welcome to the NICU, a first home for your hospital’s smallest, most vulnerable patients.

But it’s a home that’s punctuated with loud noises, frequent procedures, and bright lights.1 All of these institutional stressors can impede early brain development.2

You can help protect preterm babies from environmental stimuli while you provide state-of-the-art medical care. Let’s take a look at three ways you might improve outcomes in your NICU by relieving common strains on a neonate’s fragile senses of hearing, touch, and sight.

**[Stressor 1: Alarms/Hearing]**

Pediatricians recommend that NICUs keep noise levels below 40 to 45 decibels.1 And yet sound levels of nearly 60 decibels occur even inside incubators covered in blankets.1

Sound “peaks” like alarms waken preterm infants in their incubators almost 40 percent of the time.3 Newborns even risk hearing loss if placed in a noisy environment for over 48 hours.4

You can use remote monitoring to quiet alarms and help maintain the undisturbed rest of preterm infants, who can spend up to 90 percent of their day sleeping.5

**[Stressor 2: Adhesive removal/Touch]**

Human skin doesn’t mature until 34 to 35 weeks of gestation,6,7 making preterm baby skin highly sensitive. In fact, preterm skin is 3 to 50 times more permeable to alcohol than full-term skin.8

Even a routine procedure like adhesive removal can expose infants to the pain of soft tissue damage.9

But you can help prevent this stressor by using gentle adhesives,10 pH-neutral cleansers,10 and formulated diaper wipes8 that are less likely to injure or irritate neonate skin.

**[Stressor 3: 24-hour cycle/Sight]**

In some NICUS, babies are exposed to continuous bright light up to 24 hours a day.1, 11

Infants maintained in light/dark cycles gain weight faster and boast lengths of stay 33 percent shorter than those kept in light/light cycles.12

By switching off NICU lights and pulling blinds during designated “quiet periods,” you can help give babies the uninterrupted sleep they need for healthy brain development,13, 14 improved oxygen saturation,12 and development of a daily melatonin rhythm.12

**[Conclusion]**

Your small reductions in sensory overload can have a positive impact on a neonate’s critical neurodevelopment, and help encourage enduring health outcomes.2,4

Find out more about infant stressors and how to manage them at [CTA link].

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**3.**

**Data Infographic Script**

**[Improving patient care with data analytics]**

Welcome to the modern hospital.

The human body has stayed the same,

but our technology has changed – dramatically.

Electronic health data has grown from ~500 petabytes in 2012

to an estimated 25,000 petabytes in 2020.1

Let’s see how we can capture that complex information,

and go from data to outcomes.

**[Early warning systems on the general care floor]**

Your patients are more connected than ever.

A single digital platform can

interpret all the streams of data.

When one hospital used automated vital signs monitors

to recommend deployment of rapid response teams,

patient survival increased from 86 to 92 percent,

hospital stays decreased from 3.4 to 3 days,

and the time required to complete and record a set of vital signs

decreased from 4.1 to 2.5 minutes,

saving 1,750 nursing hours a year per ward.2

**[Predictive analytics in the OR]**

Your patient is fully prepped on the operating table.

You have everything you need for successful surgery.

Not just physical tools like scalpels,

but digital tools like electronic health record data.

One study used 3 sources of data

to screen joint replacement patients for surgical site infections (SSIs).3

The algorithm detected 97.8 percent of the SSIs

in 42,173 procedures,

and reduced the number of charts

that would need to be manually reviewed by 90.5 percent,

saving staff over 7,650 hours of work every year.3

*Can you look over this paper to make sure I explained the algorithm correctly?* [*sci-hub.tw/10.1086/658942*](https://sci-hub.tw/10.1086/658942)

**[Mechanical ventilation weaning protocols in the ICU]**

In the ICU, clock is always ticking.

But you can’t be everywhere at once as you

care for your high-risk patients.

Advanced analytics can give you the information you need,

when you need it,

like one alert system that analyzed electronic health record data

and sent texts directly to respiratory therapists

when ICU patients were ready for spontaneous breathing trials.4

On average, the new system reduced ventilation time from 4.6 to 4 days,

length of ICU stay by 1.2 days, and length of hospital stay by 1.4 days.4

**[Discover the data layer]**

Hospital care has many layers.

You can’t always see the critical data layer,

but it’s there,

flowing back and forth between patients and computer servers,

monitors and clinicians –

waiting to be made meaningful.

See how advanced data analytics can help improve patient care at your hospital. [CTA link]

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**SOCIAL MEDIA**

**1.**

**Linus Thought Leadership Activation: Reclaim Time on the Medical-Surgical Floor**

**Blog post: Smarter Spaces story**

**Title:** How Can You Walk Less and Gain Time on the Medical-Surgical Floor?

**Additional Titles:**

How Do Workspace Shortages Affect Medical-Surgical Clinicians?

Where Do You Lose Time on the Medical-Surgical Floor?

A Guided Walking Tour of Lost Time on the Medical-Surgical Floor

**Meta:** In this blog post, we’ll walk through some of the challenges associated with the physical space of the medical-surgical floor. We’ll review how floor layout and workspace shortages can cause interruptions and waste your valuable time. We’ll also look at how clinicians can manage these challenges to reclaim critical minutes and improve care for their patients.

**Social Media Options:**

**Option 1:** Medical-surgical clinicians are constantly on the move.1 In a single shift, nurses can walk up to 5 miles a day.2 Where do you lose time along your hospital routes? Read our blog post to find out.

**Option 2:** Each time you have to search for missing equipment, supplies, or staff, you can lose 3 minutes — adding up to 10 percent of one shift.3 How does this affect care, and what can you do about it? Read our blog post to learn more.

**Option 3:** Walking to answer phone calls at the nurse’s station can consume up to 58 minutes of your day.4 How can smarter spaces and workflows save you time? Read our blog post for tips.

[ Image ]

From room to room and hall to hall, you respond to many different needs on the medical-surgical floor. Competing priorities may divide your attention and require you to be in multiple places at once.1 As a result, you’re almost constantly moving. In fact, nurses usually spend no more than 30 seconds in a single location.2

You may walk up to 5 miles per shift while managing tasks such as alarms, coordinating care, and looking for supplies.2 You work hard to make every step count, but up to 10 percent of your shift can be consumed by breakdowns in internal supply chains.3 Interruptions not only waste time; they can also affect quality of care.5

There’s good news. Every day, medical-surgical clinicians are using smarter workflows and technologies to help them reduce interruptions and save time on the wards.6 They’re using wireless monitoring and clinical decision support systems to help manage competing priorities.4 They’re reducing response times and improving care.4

In this blog post, we’ll examine how physical space can present a challenge for working efficiently on the medical-surgical floor. Let’s take a guided walking tour of the medical-surgical floor to see where your time can get lost, and how you can reclaim it.

**First Stop: Patient’s Room**

Taking care of patients is likely why you decided to work in a hospital. But when you visit a patient’s room, you’re frequently interrupted.1 And that takes time away from your patients.

For example, a nurse’s attention can be derailed by the simple fact that rooms lack enough electrical outlets.3 What if a computer station on wheels blocks the sink because the only electrical outlets available are located above the sink?3

Other physical annoyances can interrupt a nurse’s workflow as well. A lack of space or cluttered layout can make it challenging to move a patient or complete other bedside tasks.7 Nurses in one study reported a total of 2,391 operational failures.7 Of those, 15.1 percent were attributed to floor layout.7 Other studies have implicated insufficient workspace as the underlying reason for 29 percent of clinical interruptions.3

But before you can devote all your attention to the patient on your first stop, you realize that you urgently need an IV pump. Now it’s off to the supply room.

**CTA: Mobile technology can help you manage priorities while on the move. [See how.](http://medtronicsolutions.medtronic.com/vital-sync-cds-product-solution)**

**Second Stop: Supply Room**

Nurses cite equipment and supply problems as the most common reason for operational failures (interruptions caused by lack of supplies or information).7 Each operational failure can take an average of 3 minutes to address.3

In total, nurses spend an average of 30 minutes of every shift tracking down equipment.4 In one study, nurses experienced a total of 120 operational failures, of which space and equipment insufficiency comprised 11 percent.3 Furthermore, nurses can spend up to 25 percent of their time looking for other staff members.1

Operational failures not only waste valuable time — delaying care by as much as 5.5 minutes – they can contribute to burnout and negatively affect patients.3

But tracking devices can help. Locating systems enable clinicians to find equipment, staff, and patients.4 After one hospital tagged its equipment with tracking technology, it reduced daily search time by 96 percent – from four hours to 10 minutes.8

**Third Stop: Central Workstation**

Walking to the nurse’s station can take up to 58 minutes each day.4 When you can spend less time walking, you can spend more time on patient-care activities, like responding to alarms that may be life-threatening.

One hospital in West Virginia decided to speed up the process of patient discharge by installing touch-screens at multiple stations.4 In this way, nurses could update a patient’s status at the point-of-care, without having to drop off a patient’s chart at the front desk, which could cause significant delays in discharge.4 The new system shaved 30 minutes to an hour from the discharge process.4

And after a hospital discharges a patient, the patient’s room needs to be cleaned. Instead of requiring nurses to walk by rooms to observe which ones needed housekeeping, one hospital used flat-panel displays to alert service teams.4 The new system reduced calls to the housekeeping supervisor by 50 percent and calls back to the bed manager nurse by 20 percent.4

Nurses spend a large portion of their time at the nurse’s station. In one time-motion study, busy medical-surgical nurses spent only 2.8 percent of documentation time in the patient room, compared with 80.6 percent at the nurse’s station.2 But mobile devices can reduce the time spent on charting by 25 percent.4

**CTA: See where time gets lost on the medical-surgical floor. View the infographic. [add link]**

**Fourth Stop: Patient’s Room**

You’re finally back in a patient’s room. Studies have shown that nurses only spend about 37 percent of their time with their patients,9 or 9 minutes with each patient per shift.10How can you make that time spent at the bedside more efficient?

Clinical decision support (CDS) systems and wireless monitoring can help you manage patient needs from wherever you are. Remote monitoring can help reduce call response times and falls, length of stay, and hospitalization by up to 80 percent.11,12 In one hospital, wireless monitoring helped nurses save 4.4 percent of time spent on administrative tasks, and more time on patient care.4

**CTA: Remote monitoring can help you track patient conditions even when you’re many steps away. [Learn more.](http://medtronicsolutions.medtronic.com/vital-sync-cds-product-solution)**

**Fifth Stop: Pharmacy**

Nurses walk between one and five miles each 10-hour shift.2 Some of that distance can be accounted for by treks between the hospital pharmacy and patient rooms. And of course some medications need to be taken with food, so that involves a short walk to the unit refrigerator for applesauce.3

Delivery robots can help technicians avoid time-consuming trips related to patient medication.4 One hospital tasked three robots with deliveries of medication and routine supplies.8 The units served by the robots were able to save 4.5 to 7.5 hours every day in clinician time.8

As an added bonus, delivery robots do not require any structural changes in a hospital layout.4 They can be programmed to evade obstacles, and even use the elevators.4

**CTA: Explore more ways technology can buy you more time at the bedside. Visit the resource site. [add link]**

**Sixth Stop: Supply Room**

You’re back in the supply room, this time looking for a syringe. You’re calculating the minutes it will take to call central supply to have the missing items sent up, and you’re feeling frustrated.

Unfortunately, up to 90 percent of clinical have consequences for patient care.5 But your medical-surgical floor can apply the science of saving time to clinical workflow, and help improve outcomes for the patients under your care.

**CTA: Find out how smarter spaces can contribute to patient care. Visit the resource site. [add link]**

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**2.**

**PS Thought Leadership Activation Content**

**[ Blog post – PS Interventional Radiology ]**

**Title: Reducing Sedation Complications in Interventional Radiology**

**Additional Titles:**

How Can IR Clinicians Make the Best Sedation Choices?

How More Complex IR Sedation Affects Your Patients

What Does Balanced Sedation Look Like During IR Procedures?

**Meta:** This blog post addresses some of the challenges that arise during sedation in Interventional Radiology (IR). We’ll review conditions in the IR setting that contribute to sedation-related risks, and how they can lead to adverse patient outcomes. We’ll also look at how clinicians use tailored approaches and continuous monitoring to reduce complications and improve outcomes.

**Social Media Options:**

**Option 1:** 1, 2ese risk factors can make more complex1 What are the risks associated with sedating IR patients, and how can you manage them? Read our blog post to find out.

**Option 2:** Interventional Radiology procedures can take several hours.3 How do you manage adequate sedation levels while maintaining a patient airway during long procedures? Read our blog post for tips.

**Option 3:** Sedation occurs on a continuum.1 What happens if your IR patient drifts into a deeper level of sedation than initially intended? And what can you do about it? Read our blog post to learn more.

[ Image ]

New techniques in Interventional Radiology allow patients to receive diagnostic and therapeutic procedures without ever entering an operating room or experiencing general anesthesia. In recent years, the number of IR procedures requiring sedation nearly tripled.4 These procedures can require the administering of multiple sedatives by trained non-anesthesiologists like radiologic and imaging nurses.1

Clinicians in the IR suite are seeing more physiologic variables — and making more complex decisions about sedation.1 Patients tend to be older and sicker, while procedures often require moderate or deep sedation, sometimes for hours at a time.2 Patients that are opioid naïve or have multiple comorbidities may be at higher risk of developing ventilatory complications related to sedation levels.5,6

That’s why IR clinicians are constantly innovating new approaches to sedation. They’re tailoring sedation to each patient, carefully controlling its depth and length, and actively monitoring for adjustments.5 They’re mindful of the amount of sedation given and its effects on the patient’s ventilator state.

Learn more about how IR sedation is evolving and what that means for you and your patients. In this blog post, we’ll explore how you can balance safety and comfort, minimize complications, and improve outcomes in the IR through smart sedation.

**Challenge #1: Patients Needing IR Sedation May Have More Risk Factors**

Patients in the IR tend to be older and may have one or more chronic conditions, which may make them prone to complications during sedation.1,2

For example, a patient with high BMI may be at increased risk for hypoxia and additional airway maneuvers.7 A wider neck diameter can make it difficult to manage an obese patient’s airway.8

Sedative dosing can also be a challenge for obese patients, because their weight may affect their body’s ability to process drugs.8 Dosing based solely on total body weight may result in an overdose.8

**Challenge #2: The Unique IR Environment May Complicate Intraprocedural Communication**

The IR setting may pose problems for consistent communication during procedures. Though surgical draping is necessary to protect everyone in the IR suite, it can obscure a patient’s breathing patterns from clinicians.9,10

IR clinicians have the additional challenge of working in relative darkness while making incisions of only 2 – 3mm.11 Continuous patient monitoring can help compensate for the direct observation of clinical signs.

**CTA: Learn how capnography can help you manage sedation-related risks. [Explore the solutions.](https://www.medtronic.com/covidien/en-us/clinical-solutions/sedation-outside-operating-room/capnography.html)**

**Challenge #3: Sedation Is a Delicate Balance Between Procedural and Patient Needs**

Some IR procedures require long periods of sedation. For example, a magnetic resonance high-intensity focused ultrasound can last over four hours.3 Throughout this time, patients’ sedation levels can be moderate to deep, and they must have a protected airway to maintain proper ventilation.3

Other procedures, such as image-guided biopsies, involve minimal sedation.12 But clinicians must carefully monitor patient discomfort and anxiety. High anxiety levels can affect patient cooperation and disrupt workflows.12

**CTA: See how IR clinicians make decisions about sedation. [Watch the video.](https://www.medtronic.com/covidien/en-us/clinical-solutions/sedation-outside-operating-room/interventional-radiology.html)**

**Challenge #4: Complications May Lead to Adverse Outcomes and Higher Costs**

Patient responses to sedation can be difficult to predict. During moderate sedation, some patients may maintain stable breathing and ventilation on their own. But others may slide into a deeper sedative state than intended.14 Oversedation may lead to adverse outcomes, including respiratory depression, apnea, and airway obstruction.3

Respiratory compromise associated with IR sedation is associated with worse outcomes and higher costs.15 One study showed that patients without respiratory compromise were 88 percent less likely to die, and that they paid $6,904 less than patients with respiratory compromise.15

**CTA: Find out how you can detect and prevent respiratory compromise in the IR. [Learn more.](https://www.medtronic.com/covidien/en-us/clinical-solutions/respiratory-compromise.html)**

**Here are two tools that can help you balance safety and comfort during IR procedures:**

1. Tailoring sedation levels in the IR suite to accommodate patient preferences and comfort levels can help empower your patients.16 One study showed that patients valued the opportunity to choose between no sedation, minimal sedation, and moderate sedation during venous access device placement procedures.16 This kind of shared decision-making about sedation can improve patient satisfaction.16

2. Nearly half of malpractice claims due to oversedation were “preventable by additional (or better) monitoring,” according to a comprehensive review by the American Society of Anesthesiologists.6 Capnography in the IR suite can help you detect respiratory complications earlier so you can respond more quickly.1

Incorporating capnography in IR procedures can help clinicians detect apnea, hypoventilation, and respiratory depression.1 The use of capnography decreases the odds of oxygen desaturation and assisted ventilation events, leading to better patient outcomes.14 View the infographic.

**CTA: Learn how you can make better decisions about sedation and improve outcomes in the IR suite. [Visit the site.](https://www.medtronic.com/covidien/en-us/clinical-solutions/sedation-outside-operating-room/interventional-radiology.html)**

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**EDUCATIONAL WEBSITES**

**1. Data in Healthcare (Medtronic)**

**I. HOME PAGE**

**FROM DATA TO OUTCOMES**

Your hospital generates huge amounts of data. But data are only meaningful when you apply them. Are you using data to their full potential, helping patients and improving performance?

**Learn More>**

**[Statistic/Note: Will be an image]** 30% of the entire world’s data is stored in healthcare settings1

**THE PATIENT’S JOURNEY**

When a patient takes a breath, a monitor records it, and it becomes a data point. When applied to care, these data may:

* Improve patient outcomes2
* Enhance patient experiences2
* Reduce costs2

But data can be difficult to interpret and integrate into clinical practice.3 Find out how hospitals are using data to get results for their patients.

**GO FROM DATA TO OUTCOMES**

**MEASURING OUTCOMES**

Explore how data define outcomes.

**GETTING INSIGHTS**

Discover the connection between data and action.

**REDEFINING PRACTICE**

Evaluate treatment based on data analysis. This may lead to improved clinical practice.

**CHANGING OUTCOMES**

Track, analyze, and act on hospital data to improve patient outcomes.

**MEASURING OUTCOMES**

Getting the right data is the first step to meaningful outcomes.

Finding the right data helped one hospital develop an advanced warning system and reduce unexpected patient deaths from six to zero.4**Learn More>**

**BIG DATA, BIG OPPORTUNITY**

17.7% increase in hospital spending through 2022 on analytics5

66% reduction in healthcare spending through data analytics3

665 TERABYTES average data stored per U.S. hospital per year6

 **INCREASING VALUE**

Learn more about our approach to value-based care.
**Learn More>**

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**II. ABOUT PAGE**

**FINDING VALUE IN DATA**

Data can play a critical role in helping hospitals transition to value-based payment models.2 Applying big data effectively may lower healthcare costs by up to 8 percent.10

**Learn More>**

**[Statistic/Note: Image will be illustration.]** 4 in 5 healthcare organizations see value as a key driver of analytics1

**[Statistic/Note: Image will be illustration.]** 77% of health care executives rate their organizations as poor at managing data4

 **BUILD ON METRICS**

Data provide the metrics that can lead to clinical insights. These insights can then fuel positive changes in practice. And those changes may reduce complications and adverse events, and create better patient outcomes.

However, these potential positive effects can only occur through meaningful data.

**Learn More>**

**VOLUME TO VALUE: GROWING PAINS**

In 2015, nearly half of registered U.S. hospitals received penalties from Centers for Medicare and Medicaid Services for not effectively tackling readmission rates.5 Since 2012, high readmission rates have resulted in nearly $1 billion in penalties.6**Learn More>**

**[Statistic/Note: Image will be illustration**.] The federal government has previously pledged to increase value-based Medicare reimbursements to 50%.7

**[Statistic/Note: Image will be illustration**.] $30 billion in estimated annual savings for heart disease patients using data-driven interventions2

 **THE RETURN ON DATA INVESTMENT**

The United States has seen a 583% increase in health IT investment since 2011.8 By 2022, the health analytics field may boast a $15 billion annual investment.9 Using big data with proper IT may translate into $300 billion in value for healthcare.10

**Learn More>**

**UNLEASHING INNOVATION**

Mapping the journey from data to outcomes can challenge the most seasoned MDs and MBAs. Hospitals collect millions of data points, but using those numbers to improve health presents multiple hurdles. **Learn More>**

**[Statistic/Note: Image will be illustration**.] 26.5–44 petabytes of electronic health record data stored by a single hospital system11

**[Statistic/Note: Image will be illustration**.] Less than 1/3 of hospitals have achieved data interoperability12

**RAISING YOUR DATA IQ**

How can hospitals make data smarter and more useful? It’s all about integration and analysis. But legacy technology and multiple EHR systems can hinder big data’s interoperability, creating barriers to effective use.3

**Learn More>**

**INCREASING VALUE**

Learn more about how Medtronic is approaching value-based care.

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**III. MEASURING OUTCOMES**

**MEASURING OUTCOMES**

See how meaningful data reveals ways to improve care.

**[Statistic/Note: Image will be illustration**.] More than 900,000 ICU stays recorded in one database1

 **FIND DATA POINTS THAT CLARIFY PROBLEMS**

With so many metrics being generated by hospitals, data selection is the first step to measuring and improving outcomes.

Real-time vitals from the bedside. Electronic health record (EHR) data. Many kinds of information power clinical decision support tools, ensuring that patients receive the best care. But not all data are created equal.2

**Learn More>**

**GO FROM DATA TO OUTCOMES**

**GETTING INSIGHTS**

Discover the connection between data and action.

**REDEFINING PRACTICE**

Evaluate treatment based on data analysis. This may lead to improved clinical practice.

**CHANGING OUTCOMES**

Track, analyze, and act on hospital data to improve patient outcomes.

**INCREASING VALUE**

Learn how Medtronic is helping hospitals connect data to outcomes—and deliver value in care.

**CASE STUDY:**

**USE DATA FOR COMPLEX DECISIONS**

Data algorithms can assess risk quickly and—by integrating multiple measures—accurately. Supporting clinical judgment by narrowing down what’s most relevant to patient care.3

2,000 DATA POINTS collected per second per patient by one ICU4

90–95% CLINICIAN COMPLIANCE RATES when hospitals use standardized decision support tools5

54 POSSIBLE CLINICAL PATHWAYS after one analysis of patient data6

53% REDUCTION in false alarms when EHR data were incorporated into one early warning system7

 **EXTRACTING THE RIGHT NUMBERS**

One successful early warning system based its alerts on the following real-time and EHR data streams:

* Vital signs7
* Lab results7
* Cardiac rhythms7
* Nursing assessments7

**Learn More>**

**[Statistic/Note: Image will be illustration**.] 26 variables analyzed by one early warning algorithm7

**[Statistic/Note: Image will be illustration**.] 94% of decision support trials significantly improved clinical practice8

 **SEEING HOW THE NUMBERS RELATE**

Single data points matter, but the relationships between variables can often matter more. Algorithms rapidly correlate key values to assess risk.1

**Learn More>**

**PERSONAL AND COLLECTIVE KNOWLEDGE**

Algorithms can complement existing medicine without depersonalizing care.3 Evidence-based medicine aligns individual cases with collective wisdom from data.3**Learn More>**

**[Statistic/Note: Image will be illustration**.] 48% decrease in patient mortality with an early warning system9

**[Statistic/Note: Image will be illustration**.] 100% improved likelihood of adequate antibiotic coverage with computer decision support10

**PREVENTING HARM BY DATA INITIATIVES**

Clinical decision support has been shown to make patients safer by reducing adverse drug events and alerting clinicians about preventative measures.11

**Learn More>**

**MACHINE LEARNING HELPS CLINICAL JUDGMENT**

Machine learning principles can combine with existing knowledge of human physiology and pathology to produce better outcomes.3**Learn More>**

**[Statistic/Note: Image will be illustration**.] 93.4% accuracy in making clinical recommendations with one algorithm6

**INCREASING VALUE**

Learn more about how Medtronic is approaching value-based care.
**Learn More>**

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**IV. GETTING INSIGHTS**

**GETTING INSIGHTS**

Clinically meaningful data lead to meaningful insights.

**[Note: Video has not been made yet] Watch Video>**

**[Statistic/Note: Image will be illustration**.] 1 REDBLOOD CELL UNIT TRANSFUSED = 29% INCREASED RISK OF MAJOR INFECTION4

**MAKE THE MOST OF YOUR DATA**

Hospitals have more data points available than ever before thanks to lower costs of digital storage and the output of continuous monitoring.1 But hospitals might not know how to extract meaning from the numbers.1,2

Blood transfusions cost $1.62–6.03 million per hospital, per year.3 And they may lead to surgical complications.4 What if the data could help better manage transfusions?

**View Case Study>**

**CASE STUDY: IDENTIFY PATIENTS WHO MAY NEED TRANSFUSIONS**

Almost half of all patients undergoing coronary artery bypass grafting (CABG) procedures in Michigan required red blood cell (RBC) transfusions.5 Find out whether clinics can use data to potentially lower the risk for patients needing transfusions.

* 46.5% blood transfusion rate for CABG patients5
* 16% increased mortality risk in CABG patients6
* 0–6.3 blood units per CABG patient7
* 25% of all U.S. blood usage is in cardiac surgery8

**GO FROM DATA TO OUTCOMES**

**MEASURING OUTCOMES**

Explore how data defines outcomes.

**REDEFINING PRACTICE**

Evaluate treatment based on data analysis. This may lead to improved clinical practice.

**CHANGING OUTCOMES**

Track, analyze, and act on hospital data to improve patient outcomes.

**INCREASING VALUE**

Learn how Medtronic is helping hospitals connect data to outcomes, and deliver value in care.

 **AN ALGORITHM TO MANAGE TRANSFUSIONS**

Researchers in Michigan used data analytics to build a model that predicted which CABG patients would require transfusions.8**Learn More>**

**[Statistic/Note: Image will be infographic**.] 20,377 patients contributed data to the algorithm9

**[Statistic/Note: Image will be illustration**.] 16 variables in the CABG algorithm9

**NARROWING DOWN THE DATA**

Of the preoperative clinical and demographic variables, the hospital narrowed its focus to the four strongest predictors of transfusion:

* Body surface area9
* Emergency surgery9
* Concurrent dialysis9
* Low hematocrit levels9

**Learn More>**

**POTENTIAL TO STANDARDIZE CARE**

Wide variation existed among rates of RBC transfusion for CABG patients at Michigan hospitals.5 Big data has the potential to lower overall costs and standardize care between institutions.5**Learn More>**

**[Statistic/Note: Image will be illustration**.] 26.5–71.3% variation in transfusion rates5

**[Statistic/Note: Image will be illustration**.] PNEUMONIA RATE 1 OUT OF 8 PATIENTS WHO RECEIVED TRANSFUSIONS VS. 1 OUT OF 28 PATIENTS WITH NO TRANSFUSIONS10

 **STRONG NUMBERS LEAD TO STRONG DECISIONS**

Data from tens of thousands of patients created a model to reduce risk of transfusion.8 The model also provided clinicians with time to reduce their patients' likelihood of transfusion.8 In the future, the model may lead to similar results in other areas of care.8

**Learn More>**

**NUMBERS DRIVE NEW CARE**

The Michigan CABG algorithm offered new treatment options to patients. The model accurately predicted which patients could expect transfusions.8 Because clinicians could predict, they could intervene—and improve outcomes.6

**Learn More>**

**INCREASING VALUE**

Learn more about how Medtronic is approaching value-based healthcare.
**Learn More>**

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**V. REDEFINING PRACTICE**

**REDEFINING PRACTICE**

See how data can drive meaningful change in clinical practice.

**[Statistic/ Note: Image will be illustration.]** 53% reduction in sepsis mortality1

**MANAGE CHANGE WISELY**

Hospitals continuously juggle new patients—and new protocols. No one wants bold initiatives to compromise standards of care.2

Clinicians generally do not want more alarms to manage.3 They want more targeted alerts—and fewer worries on the floor.

**View Case Study>**

**CASE STUDY: REDUCING BOTH SEPSIS AND ALARM FATIGUE**

At Huntsville Hospital, a new electronic sepsis surveillance and point-of-care alerting system introduced a fresh set of protocols.1 Find out how this busy nursing staff adjusted to the new alarms.

* 19/20 HOSPITALS rate alarm fatigue as their primary patient safety concern4
* 350 ALARMS heard by nurses per bed per day in the ICU4
* 20% estimated mortality rate from sepsis5
* $24 BILLION annual cost of sepsis care6

**GO FROM DATA TO OUTCOMES**

**MEASURING OUTCOMES**

Explore how data defines outcomes.

**GETTING INSIGHTS**

Discover the connection between data and action.

**CHANGING OUTCOMES**

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**INCREASING VALUE**

Learn how Medtronic is helping hospitals connect data to outcomes, and deliver value in care.

**BUILDING AN EFFECTIVE ALGORITHM**

A clinical team built a computer model that used data from electronic health records (EHR) to predict which patients would develop sepsis.1**Learn More>**

**[Statistic/ Note: Image will be illustration.]** 2.1 times less likely to die with electronic survellience1

**[Statistic/ Note: Image will be illustration.]** 30% drop in readmissions with electronic survellience1

 **REAPING THE BENEFITS OF IN-HOUSE DATA**

During the study period, hospital floors with the new sepsis-screening technology reduced readmission rates by a third.1

**Learn More>**

 **BETTER ALERTS, BETTER CARE**

During the study, nurses received four types of high specificity (true negative) sepsis alerts:

* Informational prompts1
* Diagnostic alerts1
* Advice alerts1
* Reminder alerts1

The absence of false positives decreased the chances that nurses would ignore the alerts.1**Learn More>**

**[Statistic/ Note: Image will be an infographic.]** 95% sensitivity of the new sepsis alerts1

**[Statistic/ Note: Image will be illustration**.] 36% of healthcare providers are satisfied with limited ability to integrate big data8

 **CHALLENGES TO IMPLEMENTATION**

Like many hospitals trying to initiate new protocols using data, Huntsville encountered several challenges in rolling out the new insight:

* Existing IT infrastructure6
* Hospital readiness7
* Interoperability of healthcare data7
* Availability of discrete, codified terms of medical conditions/medicines7

**Learn More>**

**IMPROVING PRACTICE AND OUTCOMES**

The hospital overcame these obstacles by focusing not only on the new decision support software, but also on change management.7

Three teams—a nursing ward team, a sepsis steering committee, and a physician steering committee— divided duties such as creating new EHR documentation and establishing nursing protocols for testing.1**Learn More>**

**[Statistic/ Note: Image will be an infographic.]** 30% reduction in readmissions using electronic surveillance1

**INCREASING VALUE**

Learn more about how Medtronic is approaching value-based care.
**Learn More>**

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**VI. CHANGING OUTCOMES**

**CHANGING OUTCOMES**

Find the data. Analyze the data. Act on the data. These steps hold little value if you cannot improve outcomes for your patients.

**[Note: Video has not been created yet] Watch Video>**

**[Statistic/ Note: Image will be illustration.]** 74% reduction in surgical site infections1†

**DRIVING MORE PREDICTABLE OUTCOMES**

Data-based initiatives may yield actual, replicable results for patients.

Imagine a hospital that uses predictive analytics to flag

surgical infections before they happen. Patient outcomes may change dramatically. 2‡

**View Case Study>**

†In three years.

‡In high-risk wounds.

**CASE STUDY: REDUCE SURGICAL SITE INFECTIONS**

A clinical team at the University of Iowa Hospitals and Clinics collected patient electronic health records and real-time surgical data. With it, they predicted which patients faced the greatest risk of acquiring surgical site infections (SSIs) after their operations.2

* $9.8 BILLION annual cost of health care-associated infections3
* $20,785 average cost of a surgical site infection3
* 3% mortality rate for surgical site infections5
* MORE THAN 50% readmission rate for patients who contract surgical site infections6

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 **GETTING DATA TO THE BEDSIDE**

Real-time surgical data employed by the predictive model included:

* Estimated blood loss2
* Blood transfusion volume2
* Lowest patient core temperature during surgery2
* Surgical Apgar score2
* ASA (American Society of Anesthesiology score)2
* CDC wound class2

Nurses recorded these variables into a web portal while the patient remained in the operating room, often with the surgical incision still open.7

**Learn More>**

**[Statistic/ Note: Image will be illustration.]** 58% reduction in surgical site infections over three years2

**[Statistic/ Note: Image will be illustration.]** $4.2 million in annual savings1

 **EVIDENCE-BASED DECISION MAKING**

The algorithm correlated its data with pretreatment information like patient zip code, sex, insurance, and other EMR and administrative data.2,5 The model then informed doctors on the likelihood that the patient might develop an infection.2 From there, providers could determine next steps and interventions.2

**Learn More>**

**ADDRESSING THE RISK**

When surgeons have a better idea of SSI risk, they can manage wounds more effectively.5 They can also develop targeted solutions based on the type of infection: superficial, deep, or organ space.5

**Learn More>**

**[Statistic/ Note: Image will be illustration.]** 6.3X higher readmission rate6 87% longer stay with surgical site infections6

**[Statistic/ Note: Image will be an infographic.]** 60–80% effective at reducing infections in high-risk wounds2,\*

 **EARLY IDENTIFICATION PRODUCES BETTER OUTCOMES**

Early identification of surgical patients at high risk for infection may result in better clinical outcomes, fewer readmissions, and lower overall costs.8

**Learn More>**

**ADMINISTRATIVE OUTCOMES**

The success of the study inspired the hospital to invest in big data technology and analytic training for staff.2 Satisfaction in the results spurred further quality improvement efforts.2

**Learn More>**

**[Statistic/ Note: Image will be illustration.]** $740,000 estimated savings per 1,000 surgical patients2

 **INCREASING VALUE**

Learn more about how Medtronic is approaching value-based care.
**Learn More>**

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**VII. INCREASING VALUE**

**INCREASING VALUE**

Connecting relevant data to meaningful outcomes can improve care while lowering its cost. See how we’re partnering to achieve value-based healthcare.

**Learn More>**

**[Statistic/ Note: Image will be illustration.]** 20% reduction in respiratory compromise events is our goal

 **OUR SHARED GOAL: IMPROVING OUTCOMES**

**Discover the Outcomes Pledge Program**

By targeting specific complications in the ICU and OR, and on the general care floor, participating hospitals and Medtronic share the goal of improving outcomes.

The program:

* Provides a clear framework for quality improvement
* Focuses on clinically meaningful metrics
* Covers each step from data collection to outcomes assessment

**Learn More>**

**DATA THAT DRIVES OUTCOMES**

**GENERAL CARE FLOOR**Target: 20% reduction in respiratory compromise events.

**OPERATING ROOM**Target: 20% relative reduction in major morbidity and operative mortality.

**INTENSIVE CARE UNIT**Target: half-day reduction in ventilation time for COPD patients.

**SOLUTIONS THAT SUPPORT CLINICAL DECISIONS**

**[Statistic/ Note: Image will be an infographic.]** 11% decrease in ICU length of stay with protocol-driven ventilator weaning1

 **EXPLORE HEALTH INFORMATICS TOOLS**

Integrate monitoring and patient data. Deliver it where and when patients need it. By improving workflow and helping prioritize care, clinical decision support solutions may help improve outcomes. Enabling protocol-driven ventilator weaning—and shorter ICU stays—is one such example.

**Learn More>**

**PARTNERSHIPS THAT DELIVER VALUE**

**APPLY INTEGRATED HEALTH SOLUTIONS**

At the hospital or healthcare system level, achieving a value-based approach takes long-term partnerships. Medtronic is working with institutions to improve clinical, operational, and financial outcomes.
**Learn More>**

**[Statistic/ Note: Image will be an infographic.]** 44% reduction in average clinic wait times after Medtronic partnership2

**READ CASE STUDIES**

**NEW BRUNSWICK HEART CENTER**

**MAASTRICHT UNIVERSITY MEDICAL CENTER**

**REFERENCES**

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**NARRATIVE**

**1.**

**“Goodnight Brush,” a personal essay for *Clinical Front***

Bunny Murray did not die in the hospital, but her time in Martha Jefferson prepared us for the reality of her dying. She was admitted for pneumonia on a Sunday night in May, and the next morning she was still struggling mightily for air as the antibiotics sought to gain traction in her body. In Room 2032 we crowded around what we thought was her deathbed.

Words like “sick” and “grandmother” and “91 years old” evoke images that are somewhat horrible for their banality. After Bunny’s diagnosis, I avoided telling strangers that my grandmother had inoperable lung cancer, then that my grandmother was battling pneumonia, and then—ultimately—that my grandmother was dying. It distressed me that most people would imagine a little old lady, a generic figure lying in a hospital bed, weakly brushing her white hair in order to look presentable for the revered doctor who would soon arrive to take her pulse.

Because that was not my grandmother. Look closely at her, at my dear and faithful friend, at my Bunny. Look at the way she hauls her head up from the hospital pillow so she can get a better purchase on the white waves that she could never grow past her shoulders. Watch how each trembling brush of hair carries jingling with it those bracelets engraved with the names of her sons, the names of their children. See how her bruised wrist trails the bundle of tubing that holds the medicine. Regard this little old lady, whose cotton gown shrinks her to half her size, whose breath is audible through her chest wall, whose dark and aged hand is tight around mine. Watch how she delights when the doctor walks into the room.

But the staff at Martha Jefferson does not traffic in everyday patients. They immediately recognized my grandmother for what she was: a cherished being, a dynamo. The nurses doted on her without all of that little-old-lady nonsense. Bunny’s caretakers made an extreme sacrifice—they became her friends. They bonded with her, despite knowing that she would soon be dead.

A hospital can be a sad and sacred place, but it is also an extension of conventional life, and Bunny wouldn’t have it any other way. And so while the patient slept, her family gathered in the corridor, telling jokes and spilling drinks from Styrofoam cups. Great-grandchildren sat in the window overlooking the Murray-Morris Meadow, marveling at the ducks and wildflowers. Playing “Hospital” from within the hospital, the kids administered “shots” with a new syringe, a treasure from a nurse. We took turns spooning out the cream of wheat that Bunny insisted on flavoring with bacon. We rearranged the flowers, the baby photos on the table. One night my sister Margaret and I held a girlish sleepover with Bunny, giggling and passing Margaret’s wedding pictures back and forth at the foot of the bed while the orderlies tiptoed around us.

At times the terminal nature of this dying process seemed unbelievable. And yet, throughout her week in the hospital, Bunny bravely and conscientiously said her goodbyes to the people who loved her. I tried to savor these final moments. I did not get to say goodbye to my father, Dr. Latham Murray, nor did any of his friends at Martha Jefferson. Our surgeon left us too suddenly, mere hours before he was scheduled to operate. And so embedded in Bunny’s extended departure was a sort of postponed farewell to my dad, her son.

On a wall between the elevator and Bunny’s hospital room hangs a plaque dedicated to my father’s memory, signifying a generous donation from his medical practice. My mom and I couldn’t tell exactly what had been given to the new hospital in Dad’s name, thus we speculated rampantly: It was the underlying rug. It was the art (how Bunny loved the colors in the new hospital!). It was the adjacent waiting room. The entire wing! The carpet Zamboni! But on a less tangible level, my father is attached to something at Martha Jefferson that goes far beyond the plaque. His brand of compassionate medical care seeps into the walls, into the sutures, into the IV lines, into the touch of the nurses, even into his eldest son—my brother Brad, freshly minted M.D., who stood one afternoon outside Bunny’s hospital room looking every inch as though he could save her life. My dad did not live to practice at the new Martha Jefferson, but his mother lived to feel his spirit pervade every aspect of her harbor there.

Bunny was so *happy* in the hospital. She was so *well cared for*. She loved that her room was full of flowers. She loved that the nurses wrote their names on the whiteboard before every shift—all the thoughtful details. She loved that she could coax a smile out of the early-morning phlebotomist whose feigned surliness she saw through immediately. She loved that on the floor above her, babies were being born. On Bunny’s last morning in the hospital, the paramedics bundled her up and secured her to a gurney, preparing to shuttle her across the street to Westminster-Canterbury, where she would die in hospice five days later. My grandmother, my little old lady, gazed wistfully at all the straps across her fragile body and said, “I’m leaving here just like the babies.”

And so we look upon this majestic soul in her mechanical hospital bed. For the last time, I see my Bunny in the sanctuary of her room, curled up and ready for her bedtime rituals. Her hair is in place, her pillows are fluffed, her doctor has already come and gone. And sitting beside her, watching her face fall into a sleep that transcends the beeping of machines, I am transported into that wonderful storybook by Margaret Wise Brown:

Goodnight comb

And goodnight brush

Goodnight nobody

Goodnight mush

And goodnight to the old lady

whispering “hush”

Goodnight stars

Goodnight air

Goodnight noises everywhere