

# 2100: A HEALTH ODYSSEY

What does the future of  
health care look like?



**Jefferson**

Philadelphia University +  
Thomas Jefferson University

HOME OF SIDNEY KIMMEL MEDICAL COLLEGE

**KALEIDOSCOPE**

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## WOW. Enjoy this collection!

Terrific writers, spell-casting stories. More importantly, our dream is that you'll use it to think differently, in your own world. Let me explain. Colleen and I are delighted by the submissions – all of them – and excited by this collection of the winners. But I still challenge everyone: Think like Captain Kirk, or Doc Brown, or even Yoda ... where wisdom and a no limits approach converge. And then use your imagination - and even science fiction – to create an optimistic future in your own lives!

This is why we endowed 2100: A Health Odyssey:

Think about the first time you saw 2001: A Space Odyssey and you started to question how technology started. Or when you saw Lieutenant Uhuru kiss Captain Kirk on the original Star Trek and all of a sudden love trumping racial differences seemed plausible. You can dream/imagine/plan for a different future and no one gets mad at you ... because it's the future.

If there were ever two industries that needed a healthy dose of science fiction, they are academics and healthcare. There is no easy solution to solve their unsustainable funding models and the fact that they have somehow escaped the consumer revolution. It is why all three of my books have had science fiction themes: To imagine a future and ask why we cannot do it now.

The first imagined a medical student getting abducted by aliens immediately before the residency match and coming back twenty years later – to illustrate that we only teach half of what doctors need to know to be happy and satisfied in their chosen profession. If we ever needed science fiction, it was the political climate and healthcare debate around the last election. So, my second book imagined President Obama bringing together in one room all the stakeholders in the healthcare ecosystem. As luck would have it, there was another alien invasion; this time it caused a blackout and emitted a vapor that got everyone to wake up thinking about what they could do to transform the

system instead of just “blaming everyone else.” My most recent book, “Bless This Mess: A Picture Story of Healthcare in America” imagines that ICAHS (the Intergalactic Council of Awesome Healthcare Systems) admits the U.S. system into their club in 2035. They are amazed, because back in 2018, we were ... well, a mess.

So, why is all this important? Because as Walt Disney said, “if you can dream it, you can do it.” That’s where you come in. We endowed this contest to allow people to dream ... about a transformed, disrupted healthcare system where cost, access, patient experience and quality are not marketing slogans. Where your genetic code is more important than your zip code. And where technology has developed wonderful robots and allowed humans to be ... well, human. Or an educational system where creativity matters as much as whether c) or d) is the right answer on the multiple choice test.

Simply put, both healthcare and education, in order to survive, need to go through a once in a many generation change, and thinking incrementally is not an option. If we confront all the immediate challenges, creativity takes a back seat. But science fiction allows for a new game of play, where vision and creativity trump operational skills and even strategy.

With great love and appreciation for everyone who submitted,

**Stephen Klasko and Colleen Wyse**



# ONE WIDOW'S HEALING

BY SALLY WIENER GROTTA



## ONE WIDOW'S HEALING

Dr. Maria Heilari fidgeted with her avatar's gown, editing it up to the last minute despite the rental agreement that forbade tampering with the design. Regardless what Gabrielle, Chanel's virtual saleswoman, had said, the sequins weren't right. Too fussy. Too many. Especially for a simple nanophysician who lived almost entirely in shorts and t-shirts and rarely wore shoes.

At least the avatar's hair emulated her chin-length grey frizz and the rounded body approximated Maria's, though with more bust, longer legs and unbent back. Nevertheless, it was all too frivolous just when she needed the world to take her seriously.

*"Why did I let Gabrielle talk me out of renting white tie and tails?"* she thought.

Maria glanced at the countdown clock. The ceremony was about to begin.

*Dolled up and glittery, or sensible and solemn, she was in the thick of it now.*

Zooming out through her desk's holographic projection, Maria tested her avatar controls one last time. Having declined a bodysuit, she wore a mesh headset, gloves and slippers. She turned her head right and left, wiggled her hands, and shuffled her feet as the avatar mimicked her movements.

Initially, Maria had planned to attend in person. What an adventure that would have been. Heck, she'd rarely been outside of Scranton, let alone as far as Europe.

Until recently, Scranton had been enough.

Gazing out her window at the winter-bare trees and granite hills of Nay Aug Park, Maria imagined she could still smell evergreen trees and river spray, mixed with the taste of Doug's flesh on hers. Her mind overlaid years of memories, hand-in-hand strolls along the park's nearly deserted paths, through winter snows, spring blossoms, summer breezes, and fallen leaves. On one such autumn walk twenty years ago, a scruffy mutt – Watson – had bounded into their path and their hearts.

Maria hadn't left their one-bedroom apartment in nearly thirteen years, never feeling the wind or touching another creature since Watson died two months after Doug. Not that she was hearth-locked, instead just that, like most people, she had no reason to go outside. All information entertainment or interactions were online. Anything she needed or wanted could be 3D.

*Physician heal yourself, she thought. Time to re-enter the real world.*

But within minutes of Maria RSVPing "yes" to the all-expense-paid trip to Sweden, Mark Singh, Whole Life System's (WLS) Chief Communications Officer, had vidcon'd.

"Congratulations on the Nobel, Dr. Heilari," He said. His voice had oozed sincerity though his avatar's smile had failed to crinkle its eyes. "I'll be your liaison for the ceremony and its aftermath."

He then proceeded to explain the intricate rules of etiquette: who to bow to and how deeply, proper titles, when to speak, how to speak... too many directives, too tedious to remember.

"I'll do my best to protect you from the crackpots that'll come out of the woodwork, but I can do nothing about the pressing crowds you'll encounter in Stockholm."

"I think I'll stay home," Maria had decided.

"I'll arrange for the avatar rental," Singh readily agreed.

Maria glanced at the pictures on either side of her large wall monitor. "Well, Doug," she said to her favorite – the vidcard of Watson and Doug cuddling on the sofa – "I might be there only virtually, but hell... they'll have to listen to me now."

A drumroll from her speakers prompted everyone in the Stockholm Concert Hall to stand for the Swedish Royal Anthem. Then Maria's avatar joined the other honorees on their promenade down the aisle toward their red velvet seats on the royal blue stage. Viewing the crowded auditorium through her avatar's eyes on her holodesk and via the public stream on her wall monitor, Maria had difficulty distinguishing who was physically present and who was a hologram avatar.

Singh had said that Drs. Lamont Mitchell and Kamau Quammen would attend in person. But walking behind Maria's avatar, they resembled their official corporate pictures too closely – perfectly trimmed beards, one pure white, the other grey, neat ear-length hair exactly the color of their beards, and just the right touch of casual smugness.

*If they're not avatars, she wondered, what does it say about them that they choose to look artificial?*

Maria knew she was no genius, not like Mitchell and Quammen, whose various cyber medical innovations had changed the way medicine was practiced.

She was in Stockholm (virtually) thanks to a mere intuitive leap prompted by a widow's loneliness, backed up retroactively with a decade of data crunching. Yet Mitchell and Quammen had to share their Prize with *her*, since their newest invention was based on her discovery.

*Her* discovery, dammit. And here on the world stage, WLS would no longer be able to silence her.

Her avatar sat motionless on the stage among the twenty other honorees, while Maria was stuck at her desk in her small living room office, doing nothing. Officials droned on, prizes were awarded, and musical interludes played. At this rate, it could be another forty minutes before her turn.

Maria was jolted out of her reveries by a MedicAlert icon buzzing on her wall screen.

*It's not my concern. Not today.*

Singh had made that very clear. "Your online actions will be recorded for posterity. If you window away from the ceremony for even a moment, the insult will go viral."

Whatever the emergency, it would be covered by the substitute nanophysician Singh had assigned to handle today's 39 scheduled patients.

Maria had no doubt that the sub would competently follow the routine 10-minute script: check the internal nanites' readings, ask the patient standard questions relevant to the symptoms and test results, then sign off on the prescriptions calculated by the WLS-AI.

But she was worried about Alex Asanti... and Matti Cohn... and Asa Krupp... and...

One by one, names and faces catapulted through her mind. Maria couldn't help herself, even now in the midst of the most momentous event of her life, because *they* were her life.

Maria had been chastised more times than she could count.

"You're online to check diagnostics and prescribe, not to engage in social diversions or invade individuals' privacy," she had been told.

Still, she had overstepped the bounds only when she felt it was necessary, never going far enough for WLS to carry out their threats of dismissal. Who would fight for her patients if she were sacked?

WLS had changed tactics sometime between her paper's publication and Mitchell and Quammen's unveiling of their Robotic Healing Hands. Nowadays, her supervisors seldom threatened dismissal. Instead, they were outwardly respectful, and generally overlooked her day-to-day infringements. Mostly WLS ignored her, including any of her attempts to explain how and why the cyberhands were a travesty.

Maria wondered if Mitchell or Quammen had even read her paper – or had an assistant skimmed the abstract and concocted a one-line report, focusing on a few keywords: hands, touch, palpate, heal?

What had she expected? Who read anything longer than a wristpad screen these days?

The MedicAlert kept buzzing. Why was the sub ignoring it?

*Oh, heck, what harm would it do to open a thumbnail window, while the ceremony continued to stream on the main screen and the holodesk?*

But as soon as she read the scrolling inset message – “Joseph Albertson (908.7845:076-3950-9877) small vessel cerebral aneurysms” – Maria went into full vidcon mode.

“Hello Joe. How are you feeling?”

“Not so good, doc. My head hurts awful bad.”

“I know Joe. While I fix it, keep me company. Tell me, who won the *MegaRegatta* today?”

They chatted, while Maria directed Joe’s nanites to repair the vessel walls, remove plaque and inflammation, and administer an analgesic.

When she tried to add Nanotros to Joe’s daily meds to prevent future aneurysms, an *UNAUTHORIZED* warning box strobed on her screen – as she had expected. Nanotros was a high-cost anti-modulator considered unsuitable for the 28% of patients who couldn’t afford supplemental plans – the so-called *Lifers* – like Joe.

“Ahhh... that’s better. Thanks, doc.”

“I’m glad Joe. I’m prescribing auto-repeat treatments as needed. Bye.” Maria wished she didn’t have to hang up on him so quickly, but she needed to get back to the ceremony.

Dr. Maya Eklund, Director of the Royal Swedish Academy of Science, stepped to the podium.

“One of the great mysteries of modern medicine has been why otherwise healthy people have been dying at an increasing rate,” she said “The Whole Life System provides a consistent standard of life for everyone, combatting the potential for illness and incapacity the moment our internal nanites detect a micro-anomaly, often arresting disease or disability before any symptoms manifest. Yet, mortality rates continue to rise.”

*A subsistent standard for Lifers, Maria sniped silently. You think you’re doing them a favor giving them base-level nutrition, housing and health care, but Joe deserves better.*

Eklund droned on about Maria’s “meticulous analyses of over twenty million patient records.” Then, she launched into a gushing description of Mitchell and Quammen’s implementation of Maria’s discovery with their Robotic Healing Hands.

“Through the dynamic data exchange between these palpating cyberhands and patients’ nanites,” Eklund said, “we now have the diagnostic missing link that we can expect will reverse mortality rates.”

*Damn their cherry picking twisting of my discovery. But no more. Tonight, I’ll finally tell the world: WLS’s accursed cyberhands aren’t the answer.*

Eklund finished with a flourish.

“Dr. Maria Heilari, please step forward to receive the 2100 Nobel Prize for Medicine from her majesty.”

At the press conference following the ceremony, Maria’s avatar sat with Mitchell and Quammen on the stage of an historic wood-paneled lecture hall jam-packed with journalists. Unlike the staid ceremony, the energy in the room was frenetic and nerve-wracking.

A Nobel Foundation spokesperson whose name Maria couldn’t remember introduced them.

“Drs. Heilari, Mitchell and Quammen will speak briefly, then they’ll field your questions.” She turned toward Maria’s avatar.

“Dr. Heilari...”

Maria took a deep breath to steady her hands on the avatar controls. It was now or never.

Suddenly, the holofeed from the avatar’s “eyes” went black, and the words that came out of her avatar’s mouth weren’t Maria’s uploaded statement.

“Thank you, Ms. Nyman.” The avatar nodded to the woman who had introduced it. “I’m honored to share a Nobel Prize with Dr. Mitchell and Dr. Quammen, whose humanitarian work I have long admired.”

The avatar had been hijacked!

Maria poked icons and buttons, frantically trying to regain control, to no avail.

*I'm a damned fool, letting Singh talk me out of attending in person, she thought.*

Not knowing what to do, Maria kept hitting the same commands.

Suddenly it was over and Dr. Mitchell was introduced.

Maria crumbled in defeat, slouching deep into her high-backed desk chair, tears of frustration and anger pouring unchecked. Then she noticed a blinking icon in the corner of her wall monitor. Someone at the press conference had beamed a message to her in the seconds before WLS had hacked her avatar.

"Dr. Heilari, I've read your paper," the note said. "I'm taking the transAtlantic tube to Pennsylvania tonight. Please answer your door tomorrow when I ring. We need to talk. ~ Alex O'Brian, personal assistant to Luna Matheny."

*Luna Matheny?* What could that eccentric gazillionaire possibly want with her? And had O'Brian really read her paper? Or was he one of those crackpots Singh had warned her about?

Before slumping off to sleep, Maria googled Alex O'Brian and found that someone of that name was indeed Matheny's personal assistant.

The next day, Maria studied O'Brian on her security monitor. His face might be craggier and his black hair thinner than in his online portrait, but he looked enough like his photo that she opened her door.

"Dr. Heilari, thank you for seeing me."

When he extended his hand, Maria hesitated. She hadn't touched anyone in years, not since Doug's death.

O'Brian's handshake was warm, uncalloused and firm. He wore casual charcoal trousers and a matching turtleneck under a grey tweed blazer. Everything about him radiated wealth and confidence.

*Thank goodness I changed from shorts to jeans. Heck, I'm formal. I'm wearing shoes, she thought to herself.*

"I must admit, Mr. O'Brian, I'm curious. Please come in."

He sat in her desk chair, while she perched on the sofa. Maria hadn't realized how worn the upholstery had become. She absentmindedly wiped dust from the plex coffee table between them.

"I know you're busy, Dr. Heilari, so I'll get right to the point," O'Brian started. "Mx. Matheny recognizes that WLS is distorting the core of your work. She sent this proposal which I believe you'll prefer to your current situation."

He tapped his wristpad to beam a presentation to her wall monitor.

Maria had enough corporate-speak to last a lifetime.

"Close that, Mr. O'Brian. Tell me in your own words what you consider the 'core' of my work."

Another tap and the monitor blacked.

"The core? Touch... that the survival of humanity depends on physical connections."

"And by 'humanity'...?" she asked.

"That which makes us more than a collection of isolated individuals consuming, linking and reposting. To use an old-fashioned word that Mx. Matheny favors... our soul."

Maria stood abruptly, annoyed that she'd been so naive as to listen to a religious kook. "I'm sorry, Mr. O'Brian, I have no interest in metaphysics."

She gestured to the door.

"My apologies, if I've insulted you. Mx. Matheny sincerely wishes..."

"Why should I believe you? Why would the richest person in the solar system be interested in me?"

"Luna Methany?" He shrugged. "Much of her success stems from her delight in pummeling competitors. Yet, she dreams of improving the human condition. My guess is that she sees in you the opportunity for both. Luna told me to ask you... If you had a blank check, how

would you create the revolution in medicine that she believes she sees in your paper?”

Maria collapsed onto the creaking sofa.

Just then her wristpad pinged, displaying an automated message.

“Four patients in your queue. You’re behind schedule,” it read.

O’Brian pointed at Maria’s wrist and at the vidcam above her monitor.

“You do realize they’re watching you? They know I’m here, and are probably listening.”

Maria stared at the cam, then at O’Brian. *Luna Methany...? A blank check...?* Not knowing what to believe, she shook her head.

“Dr. Heilari, WLS blocked me every other time I’ve tried to reach you. Has any member of the press talked directly with you, or is WLS purposely keeping you sequestered?”

Her wristpad chimed more loudly, as did the speakers on her various screens.

Maria shuddered. Sure, she’d been angered by WLS’s manipulations, but that didn’t mean she had any reason to trust O’Brian.

“What proof do you have that Luna Matheny sent you?”

“Give me a moment...” He tapped, then whispered into his wristpad. “I’m with Dr. Heilari. Please tell Luna I need her on the line.”

Within moments, Methany’s larger-than-life face filled the wall monitor – and it wasn’t an avatar. About the same age as Maria, Methany was barefaced, showing every freckle and blotch. Her signature carrot-colored hair was pulled into pigtails that exposed white roots. Maria didn’t know whether to be honored that Methany didn’t hide behind a digital mask, or insulted that she didn’t consider Maria worth the effort.

“Hello, Dr. Heilari. Congratulations on your Nobel Prize.”

The screen suddenly scrambled into disorganized pixels.

“Luna, they’re blocking your signal,” O’Brian said into his wristpad.

Luna’s voice came over the speakers. “One moment...” Her face reappeared, though at low-res. “Dr. Heilari, we haven’t the luxury of time before WLS hacks us. Tell me, what would it take to introduce true healing hands into modern medicine?”

Maria scowled, unable to hide her disappointment.

“You’re misreading my work, just like WLS. My findings don’t relate solely to physical touch, but emotional and social as well.”

“Fine, explain,” said Luna, flickering her hand in dismissal.

“Why do you think so many otherwise healthy people are dying at an alarming rate? Because they aren’t living! They have had all the necessities but nothing that gives them reason or meaning. Yes, we need human touch. But we also need a sense of human connection.”

O’Brian harrumphed.

“How, in Heaven’s name, do you plan to integrate *that* into an economically feasible health program?”

“By instituting old-fashioned house calls.”

“There aren’t enough medical professionals,” O’Brian said.

“Not professionals... that’s the point. Anyone with a solid empathy rating could be trained. Lifers preferably, because they have the highest mortality rates. Give them a reason to step outside their homes, to look forward to living another day, and their quality of life and longevity will improve, as would those of their patients.

She continued.

“They’d use palpating gloves with sensors similar to those in WLS’s cyberhands. But because they’d wear the gloves only when communicating with the nanites, the Lifers would be a personal connection, flesh to flesh, engaging the patient’s psyche, increasing their desire and ability to live longer and more fully, boosting the patient’s immunity system.”

Remembering the sweetness of Doug’s caress, she added, “They would be touched, and by that touch, healed.”

“Done,” Luna said. “We’ll do that and more.”

It was happening far too quickly.

"No. *I'll* do it, and you'll fund it. No corporation will ever hijack my life's work again."

"You'll need more than money," Luna countered. "You'll need business-savvy people. But you'll be in charge of medical strategy, with veto power over..."

The monitor flickered, then blacked. Luna's staticky voice came through O'Brian's wristpad.

"WLS is jamming my stream."

At the same time, piercing alarms sounded and various screens displayed strobing red icons. The doorbell rang and the security monitor showed two thickset men. When they didn't get an immediate response, they banged on the door.

O'Brian spoke into his wristpad, "We're trapped, Luna. I'm going to need extraction."

He turned to Maria.

"We can make this happen. Are you coming with me?"

Maria looked around her apartment, filled with memories of her life with Doug, and her many hours of caring for her patients.

Then she took down the vidcard of Doug cuddling Watson.

"Let's go," she said. "We've got lives to heal."

**THE END**



### **Sally Wiener Grotta**

Sally Wiener Grotta is a full-time award-winning freelance writer, photographer and speaker. Among her numerous books are the novels *The Winter Boy* (a 2015 Locus Award nominee) and *Jo Joe* (selected as a Jewish Book Council Network book). Her hundreds of stories, columns, essays and reviews have appeared in scores of magazines, newspapers and journals, such as *American Heritage*, *Popular Science*, *North Atlantic Review*, *When Women Awaken*, *Islands*, *The Robb Report*, *PC Magazine*, *The Philadelphia Inquirer*, *Woman's Day*, and many others. Her current fine art photography project *American Hands*, for which she is creating narrative portraits of traditional tradespeople, has received more than three dozen grants, and the exhibits have been seen by over a quarter million people.

Sally has traveled on assignment throughout the world to all the continents (including three trips to Antarctic), plus many exotic islands (such as Papua New Guinea and Madagascar), covering a wide diversity of cultures and traditions. Her far-ranging experiences flavor her stories and presentations with a sense of wonder and otherliness, plus a healthy dose of common sense. A popular speaker who has appeared in venues large and small throughout North America, as well as on radio and TV, Sally has a reputation for stimulating energetic, meaningful discussions about storytelling, the business of writing, photography and how to use creativity to build bridges in our increasingly divisive society. A member of SFWA and The Authors Guild, Sally is co-curator for the Galactic Philadelphia SF&F author reading series and co-chair of The Authors Guild's Philadelphia Area Chapter. Connect with Sally at [www.SallyWienerGrotta.com](http://www.SallyWienerGrotta.com), [www.facebook.com/SallyWienerGrotta](https://www.facebook.com/SallyWienerGrotta) and Twitter: @SallyWGrotta.

## About Jefferson

### Thomas Jefferson University and Jefferson Health

We are dedicated to educating tomorrow's professionals through transdisciplinary and experiential learning designed for new and emerging fields; discovering new treatments that will define the future of clinical care; and providing exceptional primary through complex quaternary care. Combined, we have more than 30,000 employees, including 8,400 full/part-time students, 4,600 faculty, 6,100 physicians/practitioners and 7,400 nurses. We are the second largest employer in Philadelphia, and annually dedicate more than \$288 million in charitable care and community benefit. Our regional economic impact is more than \$6.5 billion.

### Thomas Jefferson University

Thomas Jefferson University, which merged with Philadelphia University in 2017, is a professional university with ten colleges, three schools and more than 160 undergraduate/graduate programs that span architecture, business, design, engineering, fashion and textiles, health, science, social science and more. U.S. News & World Report (northern region) ranks us as the 5th most innovative university and among the best in value. We are nationally ranked in emergency management, graphic design, interior design, fashion, primary care, physician assistant studies, physical therapy and research and strategic leadership. Our fashion programs are ranked 7th in the world and 3rd in the U.S. by Fashionista, and have been named among the world's best by CEOWORLD magazine and Business of Fashion.

### Jefferson Health

Jefferson Health has grown from a three-hospital academic health center in 2015 to a 14-hospital health system. It includes seven Magnet<sup>®</sup>-designated hospitals; one of the largest faculty-based telehealth networks in the country; and the NCI-designated Sidney Kimmel Cancer Center. Thomas Jefferson University Hospital continues its national record of excellence with recognition from U.S. News & World Report. In 2018-19, it ranked among the nation's best in 10 specialty areas, with two in the top five — Ophthalmology (Wills Eye Hospital #2) and Orthopedics (Rothman Institute at Jefferson and the Philadelphia Hand to Shoulder Center #4). Magee Rehabilitation Hospital – Jefferson Health ranked the 13th best hospital in the nation for Physical Rehabilitation.

## About Kaleidoscope Health & Care

Kaleidoscope brings people together to improve health and care.

As a social enterprise we find new ways to overcome old barriers. We enable constructive conversations on difficult topics, using inspiring events to encourage clarity of purpose and rigorous problem-solving. Our approach to collaboration is systematic, evidence-based and cost-effective. Part of our mission is to start conversations that we think aren't happening elsewhere.

In 2017 we launched Writing the Future, at the time the world's largest health short story prize. Inspired by science fiction, writers were asked to consider how health and healthcare in the UK will look in the year 2100. Our aim was to start a conversation about the long-term future of health, a topic we think is rarely discussed but crucial to helping us invest more wisely and be more realistic about change. 2100 is sooner than you think.

To find out more about Writing the Future or our work visit [kaleidoscope.healthcare](http://kaleidoscope.healthcare).