

HENRY FORD

SYNAPSE

Neurosurgery

Fall 2018



A Look Inside

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LETTER FROM THE CHAIR



Dear Colleagues and Friends,

The Henry Ford Department of Neurosurgery is known for our spirit of discovery and innovation. We take on the largest challenges, relentlessly seeking out ways to advance our field and provide improved outcomes for our patients.

RESHAPING THE OPIOID DEBATE

In neurosurgery, pain management is a complex issue that requires a more nuanced approach than just restricting opioid use – which is the focus of much current policy development. The solution includes building awareness for the special challenges we face and promoting effective alternative solutions. Through many national leadership roles and initiatives, our team has worked to do this in several ways.

MSSIC: A MODEL COLLABORATIVE

Henry Ford serves as Coordinating Center for the Michigan Spine Surgery Improvement Collaborative, which links neurosurgeons, orthopedic surgeons and payers. Using an estimated 10 million data points collected from over 40,000 spine patients at 26 hospitals, we have identified and implemented best practice points that have led to significant improvement in spine surgery outcomes and patient quality of life.

INVESTIGATING ADVANCED THERAPIES

Precision medicine is redefining the standard for brain tumor treatment, giving us insight into new therapies. The Henry Ford Cancer Institute and our brain tumor research team are leading the way. In this issue, we highlight two landmark studies, both of which focus on different aspects of cancer progression. Our team also has been awarded five R01 grants by the National Institutes of Health and a Department of Defense grant, which collectively examine brain tumors, traumatic brain injury and stroke.

I would be remiss if I didn't mention the contributions of our dedicated residents. Under the direction of Dr. Beverly Walters, our residents had 21 publications in the first half of 2018 alone – outpacing 2017, which was, up until now, our best year ever.

I am proud of our team and the work they have done to advance the field of neurosurgery. I look forward to continuing our drive forward as we achieve our vision of a patient-centered, neurosurgery department of tomorrow.

STEVEN N. KALKANIS, M.D.

Professor and Chairman, Department of Neurosurgery
Mark L. Rosenblum Endowed Chair in Neurosurgery
Co-Director, Neuroscience Institute
Medical Director, Henry Ford Cancer Institute



HENRY FORD NEUROSURGERY TEAM RECOGNIZED AT ANNUAL AANS MEETING

The annual American Association of Neurological Surgeons (AANS) meeting was held in New Orleans from April 28 to May 2, Henry Ford Neurosurgery had significant representation and was recognized with several awards and honors, including the following:

AANS HUMANITARIAN AWARD

The prestigious 2018 AANS Humanitarian Award was presented to Jack Rock, M.D., FACS, Vice Chair of Education for the Department of Neurosurgery and Director of the Neurosurgery Residency Program at Henry Ford Hospital.

The award is presented annually to one neurosurgeon worldwide who is not only recognized as a luminary in his or her specialty, but, who has also made substantial efforts to make neurosurgery care more accessible in the developing world.

Dr. Rock was honored for his extensive efforts in the developing nation of Myanmar – where he has worked for years to advance neuroscience and make the field of neurosurgery more accessible in several ways.

“After my first visit there, I realized that in order to make a real impact, as small as it may be, I needed to establish a continuing presence in one location,” Dr. Rock says.

He has since made multiple trips to the country, providing education and hands-on training for neurosurgical procedures, including many firsts for Myanmar.

He led the medical team in performing the first awake craniotomy for a brain tumor in 2015, the first-ever craniofacial operation for the successful removal of a skull base tumor in 2016 and ran the first-ever neurosurgical resident “boot camp” in Yangon last year with attendees from across Southeast Asia.

AANS/CNS TUMOR SECTION CHAIR & ABNS DIRECTOR

Steven Kalkanis, M.D., was recognized as he held his final meeting and completed his term as AANS/CNS Tumor Section Chair. “It has been a great honor to serve in this capacity, and help to facilitate communication, collaboration and training as our field navigates the latest advances in brain tumor treatment,” Dr. Kalkanis says.

He also was recognized for his election as a director of the American Board of Neurological Surgery (ABNS). His six-year term began in July 2018.

Chair of the ABNS Board of Directors, Dr. Richard G. Ellenbogen, says, “We are honored and thrilled to welcome Dr. Kalkanis as one of the newest members of our board of directors. The directors who are nominated, accepted and ultimately elected to the board are elite academicians and educators. The uncompensated service Dr. Kalkanis will perform over the next six years will be focused on maintaining the highest standards of the practice of neurological surgery. As an internationally recognized tumor surgeon and leader in American Neurological Surgery, Dr. Kalkanis will no doubt contribute in significant ways.”

PRESIDENT OF AANS/CNS JOINT SECTION ON PAIN

Jason Schwalb, M.D., FAANS, FACS, was elected President of the American Association of Neurological Surgeons/Congress of Neurological Surgeons (AANS/CNS) Joint Section on Pain, where he will represent all of organized neurosurgery. Dr. Schwalb previously served as the section's Vice President, a position he held since 2015. The AANS/CNS Joint Section on Pain is a national advocacy group dedicated to advancing the role of neurosurgeons in the education, research and promotion efforts for multidisciplinary pain management.

“As neurosurgeons, we often care for patients with a great deal of pain from a variety of causes,” Dr. Schwalb says. “This requires a multifaceted approach, including pharmacological, surgical and biopsychosocial techniques. The complexity of the opioid crisis makes it critical for us to maintain our voice as patient advocates and educate providers about the various alternatives.”

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AANS 2018 MEETING HONORS: AT A GLANCE



JACK ROCK, M.D., FACS

Presented with 2018 AANS Humanitarian Award for his lifelong commitment to training the next generation of neurological surgeons and his extensive efforts in Myanmar.



STEVEN KALKANIS, M.D.

Completed term and held final meeting as AANS/CNS Tumor Section Chair.

Recognized for his appointment as a director of the American Board of Neurological Surgery (ABNS). His six-year term began in July 2018.



JASON SCHWALB, M.D., FAANS, FACS

Elected President of the American Association of Neurological Surgeons/Congress of Neurological Surgeons (AANS/CNS) Joint Section on Pain.



MARK ROSENBLUM, M.D., FAANS

Dr. Rosenblum, Henry Ford Neurosurgery Chair Emeritus, was selected as this year's esteemed Bittner Lecturer on behalf of the Section on Tumors.



LEADING THE CHARGE: HENRY FORD NEUROSURGERY HELPING TO RESHAPE OPIOID DEBATE



JASON SCHWALB,
M.D., FAANS, FACS

The national opioid epidemic has prompted pressure to reduce opioid use, resulting in legislation in many states, including Michigan, that makes it harder for neurosurgeons to provide effective pain relief to their patients.

This singular focus on opioids ignores the complexities of pain management in major surgeries. With his national advocacy work, Jason Schwalb, M.D., FAANS, FACS, co-director of the Functional Neurosurgery Program at Henry Ford, is working to increase awareness of this challenge and help to promote effective, nuanced solutions to this crisis.

“There is no question that overuse of opioids is a scourge on our society,” says Dr. Schwalb, who represents all of organized neurosurgery through his role as President of the American Association of Neurological Surgeons/Congress of Neurological Surgeons (AANS/ CNS) Joint Section on Pain. “Opioid-related deaths have increased steadily since the 1990s, largely because the danger of opioids had been underestimated and because a patient’s pain level has become a quality measure in medicine.”

SEEKING OPIOID ALTERNATIVES THROUGH MULTIMODAL PAIN MANAGEMENT

For back pain, the first line of treatment for patients without progressive neurological deficits has included physical therapy, exercise and traction as well as opioids. Until patients failed opioids, they were not considered for surgery.

“Unfortunately, when a person is on chronic opioids, they are less likely to get off them after surgical treatment of the underlying pathology,” Dr. Schwalb says. “When you’ve upregulated every opioid receptor in your nervous system, your pain perception is on high alert. By the time a patient comes in for surgery, profound changes have taken place in the central nervous system.”

In 2011, at the height of opioid prescribing, the Institute of Medicine (IOM) released a report indicating that pain control in the United States is inadequate. This report advocated for multimodal pain therapy, including alternatives such as neuromodulation.

“More work needs to be done to develop alternative care pathways to opioids,” Dr. Schwalb says.

RUSHED, FLAWED POLICY CREATES FALLOUT FOR NEUROSURGEONS, PAIN GAPS FOR PATIENTS

And yet, providing evidence for the effectiveness of these pain management alternatives is only one piece of the puzzle – given that many states like Michigan have already rushed to legislate prescribing practices before the medical community knows what the best practices are for many conditions. Legislation has ignored patients with underlying, chronic pain who then develop acute pain. In addition, this one-size-fits-all policy development doesn’t take into account the greater pain management needs for patients with more painful injuries or who are undergoing more pain-inducing major surgeries like spinal fusion.

Dr. Schwalb says, “These major procedures are very painful, and these patients need relief. If the patient cannot reach me in a timely fashion due to legal prescription restrictions, they are ensured a gap in their pain medications. This is a recipe for disaster, because it can lead to increased pain and a greater risk that a patient will try to find relief through an emergency room visit – or transition to cheaper, more readily available heroin and illicit, synthetic opioids like fentanyl.

SPEARHEADING A UNIFIED EFFORT TO ADDRESS OPIOID EPIDEMIC, MEET PATIENTS’ PAIN NEEDS

Dr. Schwalb and Henry Ford are working to address these challenges. The solutions are not easy, and require efforts at all levels to build awareness, develop data to support new care pathways and effect policy changes:

- **PAPERS AND OP-EDS:** Dr. Schwalb and his colleagues in Henry Ford Neurosurgery have been active in educating providers and the public.
- **TESTIFYING:** One key element in building awareness of the specific pain management challenges neurosurgeons face is to testify in front of the FDA and other government organizations. In his role as President of the AANS/CNS Joint Section on Pain, Dr. Schwalb is called upon to serve in this capacity.
- **REASONABLE POLICY DEVELOPMENT:** This includes setting opioid prescription benchmarks for specific types of surgeries, and setting guidelines that distinguish between opioid naïve patients and chronic opioid users.
- **WORKING WITH INSURERS:** This includes collecting data that can help to support multimodal pathways of pain management. Henry Ford has taken steps in this regard through its work as Coordinating Center for the Michigan Spine Surgery Improvement Collaborative (see related story on p. 6).

Dr. Schwalb also was recently appointed to serve as a member on the newly formed American Medical Association Pain Care Task Force, representing all of organized neurosurgery at this national level.

The AMA task force will discuss medicine’s response to the public health crisis of undertreated and mistreated pain, and has several goals, including:

- **MEDICAL EDUCATION:** Influence medical education on how to help patients suffering from pain with evidence-based treatment options and how to talk to patients about coming off their chronic opioids.
- **PAIN STRATEGIES:** Discuss strategies that may prevent or mitigate acute pain, educate physicians, and suggest specific areas of research if these strategies prevent the development of chronic pain.
- **NEUROPATHIC PAIN:** Evaluate the relative merits of declaring neuropathic pain as a distinct disease state, and provide a recommendation to the Council on Science and Public Health.

ACTIONABLE SOLUTIONS FROM OUR PROGRAM

The work that the Henry Ford pain management task force, Dr. Schwalb, Dr. Ellen Air and others on our team have done to confront the opioid crisis has advanced better practices for pain management in neurosurgery, including:

- **STANDARDIZED GUIDELINES:** Written guidelines for pain management and opioid reduction for non-cancer pain, including addiction assistance and counseling.
- **HOSPITAL EDUCATION:** This includes both providers and clinical staff. We have also implemented an analytics tool for evaluating prescribing practices.
- **PATIENT EDUCATION:** Making sure that patients know all of their options for surgical pain management.
- **PATIENT OPIOID AGREEMENTS:** These set up ground rules with surgical patients, which include not calling beyond business hours, not asking for a new prescription when there should be pills left on their old one, agreeing not to get prescriptions from multiple providers and requiring urine toxicology screens.
- **SURGICAL PROTOCOLS:** Implementing approaches before, during and after surgery that help to decrease the incidence of postoperative pain and minimize opioid use.
- **HIGH-RISK SURGICAL PATIENTS:** Identifying those patients who are at greater risk for challenging postoperative pain situations prior to surgery, such as those with behavioral health conditions, a history of substance abuse or chronic pain, or other existing pain issues.
- **PAIN MANAGEMENT SERVICES:** Expanding available services, including alternative non-medication approaches such as acupuncture and physical therapy.

MSSIC ACCOMPLISHMENTS

INNOVATIVE PROGRAM APPROACH

Links neurosurgeons, orthopedic surgeons and payers in a collaborative effort to improve spine surgery outcomes.

26 TOTAL SITES

These were added through three recruiting waves.

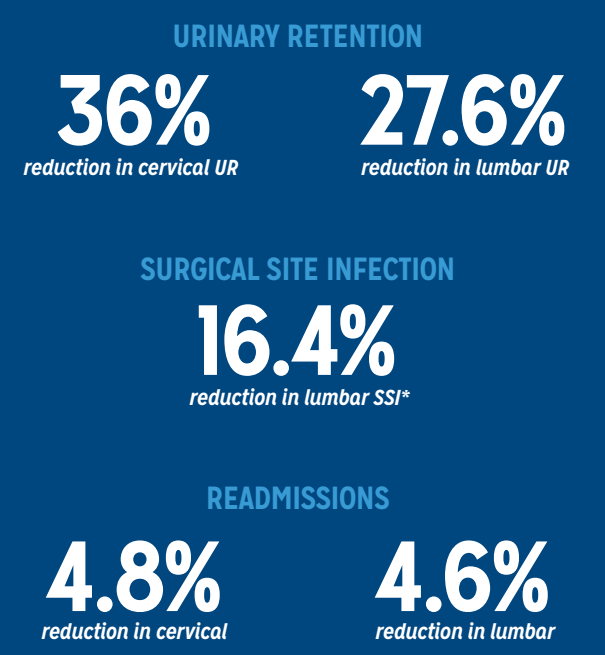
40,000 UNIQUE PATIENTS FOLLOWED

MSSIC began data collection in Spring 2014, and through March 31, 2018, participants have entered 40,063 confirmed cases into the registry.

AN ESTIMATED 10 MILLION DATA POINTS

Up to 193 possible values for each cervical spine case and 188 possible values for lumbar spine cases, in addition to patient-reported survey data.

SIGNIFICANT IMPROVEMENT IN SPINE SURGERY OUTCOMES & PATIENT QUALITY OF LIFE*



*Statistics reflect all MSSIC sites and are through 2017. Cervical SSI is already very low and remained unchanged.



MSSIC TURNS 5: A SUCCESS STORY FOR SURGEONS, PATIENTS

In Fall 2013, the Michigan Spine Surgery Improvement Collaborative (MSSIC) kicked off. This statewide quality improvement initiative aims to improve spine surgery outcomes for patients in Michigan. Henry Ford Health System is the Coordinating Center for MSSIC. Support for MSSIC is provided by Blue Cross Blue Shield of Michigan (BCBSM) and Blue Care Network as part of the BCBSM Value Partnerships program.

At the first kickoff meeting, there were seven hospital sites. Five years later, MSSIC has 26 sites and has followed 40,000 patient cases and implemented three quality improvement (QI) initiatives: Surgical site infection, urinary retention and readmissions. There are several innovative aspects of MSSIC, including:

- **MULTI-SPECIALTY FOCUS:** Collaboration of both Neurosurgery and Orthopedic Surgery specialties.
- **SCOPE:** Extensive data points are collected from all common types of surgery for degenerative spinal disease. This includes data from every part of the surgical process, from the presurgical clinical history and presentation, through postoperative care and any complications.
- **PATIENT-CENTRIC:** MSSIC's data also includes patient-reported outcomes such as pain, functional status, ability to work and other aspects that give a measure of quality of life and help show areas for meaningful improvement. These are recorded at 90 days, 1 year and 2 years.

REAL-TIME OUTCOMES DATA AVAILABLE THROUGH COMPREHENSIVE REGISTRY

"The core of MSSIC's data collection is its real-time registry," says MSSIC Director Muwaffak Abdulhak, M.D. For each site hospital, the administrative lead, data abstractors and surgeons can run queries and see outcome reports through dashboards:

- **ADMINISTRATIVE LEADS & DATA ABSTRACTORS:** They can compare their hospital against all MSSIC sites, but individual sites and patient information is deidentified.
- **SURGEONS:** They can see their own outcomes against all other MSSIC surgeons, who are deidentified. Surgeons are also the only ones who can see patient-level data, and at any time, they can review data on their own patients.

COLLABORATING FOR BETTER PATIENT CARE, MOVING TOWARD GREATER TRANSPARENCY

With this large, collaborative database, the Henry Ford team can examine variations in the registry, identify best-performing hospitals and best practices, perform site visits to top performers to identify methods that can be replicated to improve outcomes statewide, and share this information to all sites.

"We have 26 competing hospitals sharing data to learn from one another," says MSSIC Program Manager Lisa Pietrantonio. "It's a unique situation, and we've worked to build good relationships and trust."

In fact, over time, some surgeons began to share their specific site results at meetings so they could get improvement suggestions from the other centers. In a recent discussion, the consensus was that this kind of site-level transparency at meetings could be beneficial to all, provided that certain precautions were in place to protect against anyone using this information in a punitive way. In addition, some individual centers have gone one step further, performing their own visits to top sites to learn on an individual basis.

"It's exciting to see these walls come down, and it's all being done for better spine patient care, across the board," Pietrantonio says.

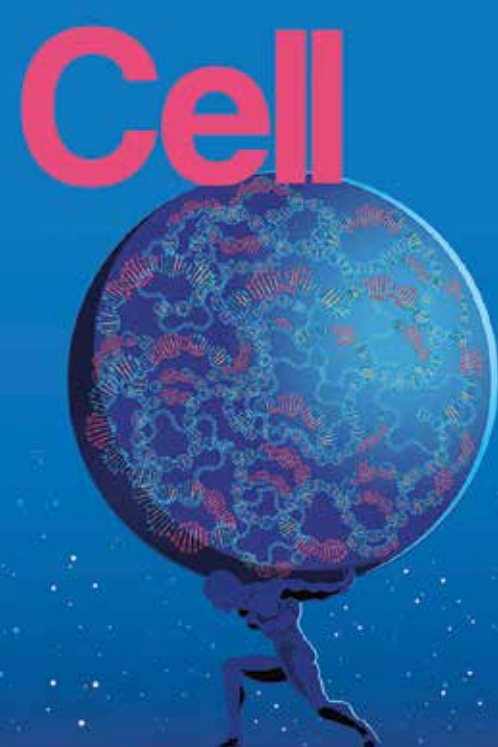
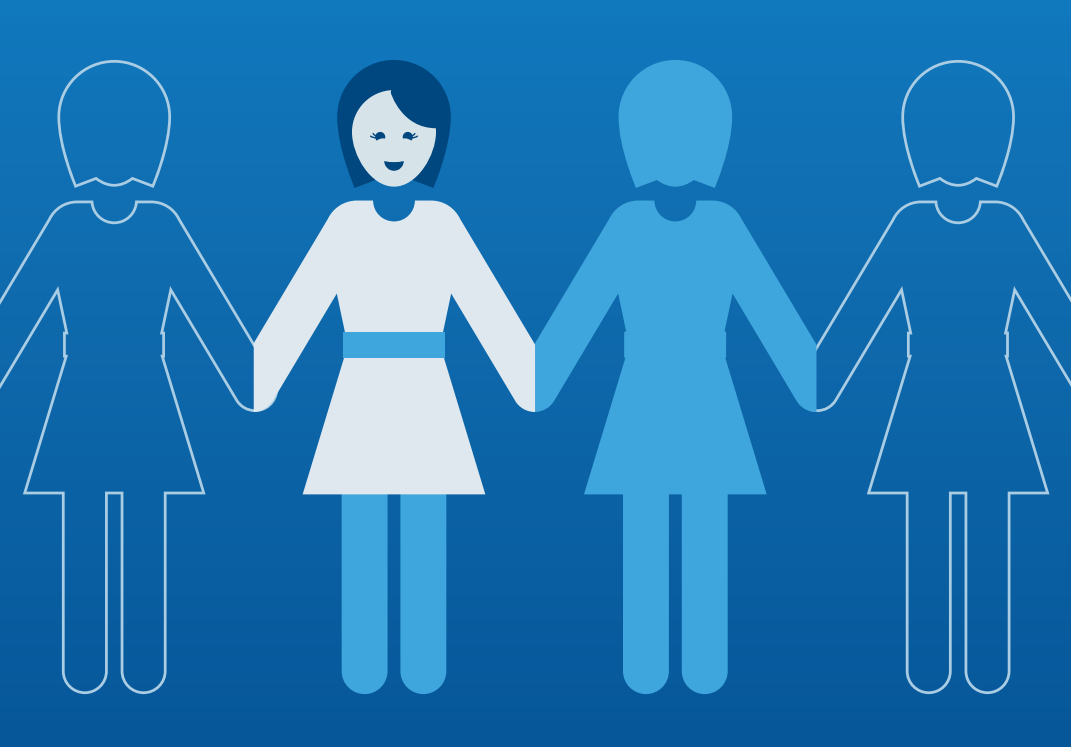
SPINE SURGERY BEST PRACTICE POINTS

"We have been able to identify some very actionable steps and make real-time, patient-centered improvements in the results of spine surgery," says MSSIC QI Nurse Lead Kari Jarabek.

The promulgation of the following best practice points has led to significant improvement in spine surgery outcomes and patient quality of life (see box at right):

- **SURGICAL SITE INFECTION (SSI):** Implementing presurgical prep changes (including CHG wipes and iodine nasal swabs) in the pre-op area and "back to basics" home/personal hygiene education.
- **URINARY RETENTION (UR):** We have found a strong correlation with early ambulation programs and post-op UR protocol/order set development and implementation. We have learned not to overtreat this problem, thereby improving patient satisfaction, length of stay and complication rates.
- **READMISSIONS:** A focus for Centers for Medicare & Medicaid Services (CMS) for a long time, readmissions has been a difficult needle to move. By analyzing the MSSIC data, we discovered that education and follow-up, especially the first 7-10 days after discharge when patients are overwhelmed, are crucial.

DISCLAIMER STATEMENT: Although Blue Cross Blue Shield of Michigan and MSSIC work collaboratively, the opinions, beliefs and viewpoints expressed by the author do not necessarily reflect the opinions, beliefs and viewpoints of BCBSM or any of its employees.



Steven Kalkanis, M.D., Medical Director of the Henry Ford Cancer Institute, with Vice President Joe Biden and Dr. Jill Biden at the national Biden Cancer Summit in Washington, D.C., on Friday, September 21, 2018. The event focused on the patient's journey, treatment through survivorship and what we must do to accelerate progress.

THE NEW ERA OF PRECISION MEDICINE: HENRY FORD CANCER INSTITUTE AND BRAIN TUMOR RESEARCHERS ARE PAVING THE WAY



"We are leading the country with our comprehensive precision medicine program, and brain tumors are the tip of the spear in that regard," says Steven Kalkanis, M.D., Chair of Henry Ford Neurosurgery and Medical Director of the Henry Ford Cancer Institute.

STEVEN KALKANIS, M.D.

By using genomic profiling to deepen our understanding of brain tumors at a molecular level, our team is revolutionizing the way we treat brain cancer.

Our precision medicine focus informs our brain tumor research, including the recent landmark studies highlighted at right. Several resources at Henry Ford support our treatment and research efforts, including:

- **HENRY FORD CENTER FOR PRECISION DIAGNOSTICS:** The national standard calls for checking 44 genes for recurrent cancer patients – our center can test for more than 500 genetic markers.
- **HENRY FORD BRAIN TUMOR BANK:** One of the three largest in the world, our tumor bank contains more than 3,000 tissue samples. We have been a major contributor to The Cancer Genome Atlas (TCGA), contributing 40 percent of the 500 glioblastoma tissues collected for analysis by the National Institutes of Health.
- **HENRY FORD MOLECULAR TUMOR BOARD:** The first and most comprehensive in Michigan to offer precision medicine consultations to all cancer patients.
- **NATIONAL PRECISION MEDICINE DATA NETWORK:** We have partnered with Syapse, a national precision medicine data network, and an elite group of health systems in the Oncology Precision Network that share aggregated cancer genomics data.

CELL: PAN-CANCER PROJECT IDENTIFIES AND TARGETS STEM-LIKE CANCER CELLS



HOUTAN NOUSHMEHR, PH.D.

A Henry Ford brain tumor research team led by Houtan Noushmehr, Ph.D., was part of the multi-institutional Pan-Cancer project. This global initiative was devoted to understanding different hallmarks of cancer by identification of the similarities and differences among the genomic and cellular alterations in 12,000 samples obtained from patients' tumors.

Featured on the cover of the April 5, 2018 issue of *Cell*, this project took advantage of a large cancer dataset from TCGA and other large-scale genomic projects to research stem cell-like (or "stemness") features of cancer cells. When differentiated cancer cells acquire mutations, they may dedifferentiate to a stem cell-like phenotype in a process known as oncogenic dedifferentiation. Like normal embryonic stem cells, cancer stem cells perpetuate themselves through self-renewal and give rise to new cell populations. Being able to identify and target stem-like cancer cells could help produce more effective treatments. Project highlights include:

- **MACHINE LEARNING:** The researchers used an innovative machine learning algorithm to extract stemness features from normal embryonic cells and their progenitors.
- **TARGETING CANCER STEMNESS:** They then trained computer models to identify similar features in cancer cells from 33 tumor types.
- **RESULTS:** This methodology showed that oncogenesis hijacks molecular mechanisms of embryonic development and abuses them to promote malignant progression.

NATURE GENETICS: NEW PDX MODEL FOR GBM REVEALS IMPORTANT ROLE THAT ECDNA PLAYS



ANA DECARVALHO, PH.D.

Glioblastoma (GBM) is the most common and aggressive form of brain cancer. Response to standard-of-care treatment is poor, with a two-year survival rate of only 15 percent. Research is beginning to provide a better understanding of the processes underlying cell-to-cell differences within GBM tumors – a crucial finding because these differences contribute to therapy resistance. The ultimate goal is to identify what pathways can be targeted to block glioma progression.

To this end, a team led by Professor Roel Verhaak, Ph.D., of The Jackson Laboratory and a Henry Ford team led by researcher Ana deCarvalho, Ph.D., tracked genomic alterations that were detected:

- In patient samples during tumor cell evolution in culture
- In patient-derived xenograft (PDX) mouse models from the cultures
- Before and after treatment in patients

New PDX Model, Tumor Progression and ecDNA

In their recent paper in *Nature Genetics*, the multi-institutional team reports that tumor progression was often driven by cancer-promoting genes, known as oncogenes, on extrachromosomal pieces of DNA:

- **NEW PDX MODEL:** Detailed analyses of the tumor cells from patient to culture to mouse revealed that, for the most part, the cells

retained the same genomic lesions. This is good news overall, as it indicates that PDX mice can provide a relatively accurate and effective experimental platform for GBM.

- **DIFFERENCES IN ONCOGENE AMPLIFICATION:** The primary caveat was the finding that in a few cases, the numbers of oncogene copies differed between tumors and the cultures and PDX mouse samples derived from them. If an oncogene is increased, or amplified, that can both cause and maintain cancer, so differences in gene amplification can be very important.
- **THE INFLUENCE OF ECDNA:** What the researchers found was that the differences were caused by oncogenes that weren't part of chromosome sequences as usual. Instead, they were on separate circular pieces of DNA, known as extrachromosomal (ec) DNA. These pieces of DNA are not found in normal cells, and cause major increases in the expression of oncogenes. More detailed investigation showed that many instances of oncogene amplification found in the glioma tumors involved ecDNA elements.

"The selective advantage conferred to tumor cells by the regulation of oncogene copy number in ecDNA has not been sufficiently addressed in interpreting results in the laboratory or in clinical trials," Dr. deCarvalho says.

"Using the GBM patient-derived models carrying ecDNA amplification of the most frequent oncogenes, we are developing and testing novel combination therapies specific for each unique tumor."



With her brain cancer, Karen Woelk didn't think she would live long enough to see her daughter get married, but thanks to the team at Henry Ford, she was able to attend the event. Six years later, she's using her newfound lease on life to pay it forward and serve others through her international ministry in Mexico.

FEATURED PATIENT STORIES: BRAIN CANCER AND EPILEPSY

The Henry Ford Department of Neurosurgery fights every day to seek out the most advanced new treatments, and it's all for our patients. Like these two who wrote to us to share their stories - and gratitude.

WHAT DOES HOPE MEAN? - KAREN WOELK

Definition of hope: Hope is an optimistic state of mind that is based on an expectation of positive outcomes with respect to events and circumstances in one's life or the world at large. As a verb, its definitions include: "expect with confidence" and "to cherish a desire with anticipation." Among its opposites are dejection, hopelessness and despair.

Yesterday, July 22, 2018, was 25 years since my initial craniotomy! I have long hoped this day would come! I remember with clarity, the first hearing of the diagnosis of brain cancer. With a 3-year-old daughter and a 5-week-old son, I was filled with despair. With your team, I was given reason to have hope.

Life always includes pain and suffering. Hope provided me with the strength to conquer despair. Hope motivated me to persevere, to journey onward, despite the obstacles blocking the trail, despite not knowing how, or when, where or why my life's story would conclude.

According to Charles R. Snyder, a psychologist, hope includes three elements: a belief, a goal and a path. The person who is hopeful believes that she will succeed. Secondly, the person has a specific goal or destination. Thirdly, the person knows the route or path she will take to achieve the desired outcome. Hope is a mindset, will and determination to believe that you'll succeed. Hope also needs a map of the route on how to achieve the desired outcome.

Hope involves faith.

It instills the will to believe, motivates a person to read sacred texts, to engage in prayer, to contemplate the mysteries of life and find answers. Hope reminds us to live a moral life - to be compassionate and

kind. Hope is spiritual, enabling us to experience wonder and delight. With hope, we can observe beauty, live in peace, be respectful to others, live purposely, and believe in the unknown. A hopeful person practices positive "self talk." Despite adversity, a hopeful person visualizes a positive outcome.

A hopeful person lives in the moment. Instead of being tormented by worry of the future, the person focuses on what she can do today to make tomorrow a reality.

Hope is not wishful thinking. Hope is an emotion, a mindset and a belief, a motivation, that despite the tribulation, despite hardship, despite the unknown last chapter of life's story, you believe that your life will have meaning and purpose. My life has not been easy but it has been good! Good for me and my family and good for those I have been blessed to be able to serve.

We have now lived for four years in Mazatlan, Mexico, working with an international ministry serving and advocating for orphans and vulnerable children (Back2back.org). I am not letting your investment in me go to waste.

As a 25-year brain cancer survivor, I want to say THANK YOU to the team that allowed me to have HOPE and created the path for my survival!

I AM SO GRATEFUL TO BE ALIVE! I am so grateful you were alongside me, guiding me, fighting for me, patiently answering question after question, giving me reason to hope to see my children graduate from high school, graduate from college and get married!

Without your talent, time, wisdom and your encouragement, I don't believe I would be alive today.



NO LONGER LIMITING MYSELF - DEBRA LINFORD

I am a 58-year-old wife, mother and recently a new grandmother! I have been a high school principal for non-traditional education for over 30 years and have suffered from epileptic seizures all of my life. I was diagnosed with petite mal seizures when I was 18 and had just started college.

My doctor attributed the seizures to the stress of college and work.

At the time, I was medicated with phenobarbital. At age 23, it was determined that I had grand mal seizures. They only occurred during sleep. Once this was discovered, I realized that I had them most of my life. The morning after a seizure, I just assumed I had the flu. I would be very nauseous, ached all over and was somewhat confused. In my late thirties, I began to have more frequent petite mal seizures; one every two months or so. With this, I looked for a neurologist that would do more than say, "Be happy that they do not occur more often than this." Yes, a doctor did say this to me!

I became a patient of Dr. Marianna Spanaki [Medical Director of the Comprehensive Epilepsy Center at Henry Ford]. She asked more questions about my pre- and post-seizure activity, what went on during my seizures, how I felt and even if I had an unusual taste in my mouth after the seizure. During our conversation, I realized my unusual feelings and behaviors were seizure-related. The panic and déjà vu were the typical pre-seizure feelings. The inability to understand what someone was saying to me as well as my inability to speak were normal post-seizure outcomes. My first appointment with her was over an hour and a half long. This was longer than all of the combined time of the doctors I had met with before.

I had been taking Dilantin, phenobarbital and Trileptal for about 20 years. Dr. Spanaki had several tests done and changed my medications over the next several years as my seizures increased in frequency. I was told that because my brain was in a state of constant recovery, I would notice memory issues. I had been blaming it on age. When I met with Dr. Spanaki in January of 2017, she told me about a procedure that I might qualify for due to the type of seizure I experienced. I had CAT scans, MRIs and a 10-day test that was able to determine the exact location where the seizure originated from.

I had minimally-invasive laser ablation in my left temporal lobe on September 13, 2017. For me, it was a miracle! In one day and out the next. I owe everything to two very special people, Dr. Spanaki for recommending the procedure and my surgeon, Dr. Ellen Air, for making it happen.

I no longer count days trying to determine when a seizure may occur or spend the next day and a half trying to recover from having as many as three seizures during the work day. I no longer have rough weekends because of having a seizure on a Friday afternoon. I no longer fear professional meetings, public speaking engagements or personal interaction with strangers, concerned that in the middle of the conversation a seizure might happen. I no longer fear that my professional colleagues will discover I have epilepsy. Now I tell them and share what has happened.

I will be forever grateful that I was blessed with the good fortune of having two wonderful doctors become a part of my life when my quality of life was becoming worse - possibly to the point of giving up my career.

My life today is significantly different than it was a year ago. I am blessed to say that my last seizure was Friday, September 8, 2017!

TO REFER A PATIENT, GO TO henryford.com/neuro or call (313) 916-1340

NEUROSURGERY NEWS AND NOTES

\$1.5M Donation Establishes New Endowed Spine Chair

The Henry Ford Department of Neurosurgery recently received an anonymous \$1.5M donation to establish an Endowed Chair in Surgical Spine Innovation in honor of Muwaffak Abdulhak, M.D. Dr. Abdulhak is a national leader in spine surgery and serves as chief of Henry Ford Hospital's spine service.

The Henry Ford spine program is making great strides in everything from the MSSIC data analytics initiative (see story on p. 6) to medical back pain and prehab clinics in conjunction with physical medicine and rehabilitation, to state-of-the-art deformity, reconstructive and minimally-invasive spine surgery.

Physicians Earn 1st Place at Regional Research Forum

At the 40th annual Southeast Michigan Center for Medical Education Research Forum in May, a team of three Henry Ford Hospital physicians earned 1st place and the Donald Dawson Medallion in the slide competition for research conducted during residency*:

MORPHOMETRICS PREDICTS OVERALL SURVIVAL IN PATIENTS WITH LUNG, BREAST, PROSTATE, OR MYELOMA SPINE METASTASES, INDEPENDENT OF HISTOLOGY.

AUTHORS: Hesham Zakaria, M.D., Lara Massie, M.D., Azam Basheer, M.D. **FACULTY SPONSORS:** Brent Griffith, M.D., Ian Lee, M.D., Farzan Siddiqui, M.D., Ph.D., Victor Chang, M.D.

*EDITOR'S NOTE: After graduating from the Henry Ford Neurosurgical Residency Training Program, Dr. Basheer has since joined our team as a senior staff physician.

Neurosurgery Resident Earns Top Teaching Honors

Travis Hamilton, M.D., was selected by the third-year medical students at Wayne State University School of Medicine (WSU SOM) as the top teacher during their clerkships across all specialties, scoring the top percentile score of all medical students surveyed. Dr. Hamilton was on his neurology rotation as a neurosurgery resident when the clerkship evaluations were performed.

WSU SOM Dean Jack Sobel and Assistant Dean Chris Steffes commended Dr. Hamilton and noted that he was "carrying on the time-honored traditions of Hippocrates in teaching the next generation of physicians."

DIVERSITY IN OUR NEUROSURGICAL TRAINING PROGRAM



In the spring of 2018, the Society of Neurological Surgeons meeting featured a seminar on Diversity in Medical Education and Neurosurgery, moderated by the first female neurosurgeon to be elected president of the American Association of Neurological Surgeons, Shelly Timmons, M.D., Ph.D. This brought the spotlight upon issues surrounding diversity in the field.

An even better event for the attendees might have been to visit the Henry Ford Department of Neurosurgery. This past year saw the leadership of two female chiefs of the residency program, with a tremendously diverse group of trainees originating not only from the United States, but from all over the world. Original homes for some of the residents and/or their families include Zambia, Jamaica, Iraq, Lebanon, Greece, Korea, Bangladesh, India, Pakistan and Saudi Arabia, although many were born in the U.S., and others are American citizens following immigration. Religious affiliations include Christian (including Catholics from the Middle East and Asia), Muslims from the Middle East and Asia, and others with no religious affiliation.

In commenting upon the benefits of this, one resident remarked, “We don’t all celebrate the same holidays, so we don’t have issues covering call on Christmas, for example. Additionally, you will find that the department as a whole respects mutual holidays equally. For instance, graduation dinner was scheduled to be outside of Ramadan so no one would be fasting.”

RESIDENT SURVEY RESPONSES

How do the residents feel about being part of such a melting pot of humanity during their training program? When asked in an

anonymous survey, “Do you enjoy the racial/ethnic diversity among your neurosurgical resident group?”, 100 percent of the residents responded positively. They then went on to elaborate, saying such things as:

“I love our group and its diversity. My great-grandparents were immigrants, so even though I am more removed from the experience, I appreciate how extra smart and hardworking my co-residents and their families who are [immigrants] had to be to get this far.”

“While we all integrate into neurosurgery in a similar fashion, our different experiences and backgrounds help us integrate on a personal level in a unique fashion.”

“Diversity brings different perspectives and different backgrounds and different solutions. It is via diversity that we learn more about ourselves as people and even what it means to be human.”

One of the most insightful remarks by a neurosurgical resident at Henry Ford was that, “Not only is our program diverse, but so is our hospital. It’s a good reflection of our macro-ecosystem here at HF. Only after this experience here at HF downtown have I been more cognizant of the general lack of diversity in most places beyond.”

ACGME PROFESSIONALISM REQUIREMENTS

The Accreditation Council of Graduate Medical Education requires that every residency training program develops what it calls “Core Competencies,” one of which is “Professionalism.” These are outlined as follows:

- Compassion, integrity and respect for others
- Responsiveness to patient needs that supersedes self-interest
- Respect for patient privacy and autonomy
- Accountability to patients, society and the profession
- Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities and sexual orientation

Henry Ford Department of Neurosurgery excels in these goals, especially the latter, thanks to the diversity of its devoted resident staff. One resident, in particular, gave this description of the atmosphere of the training program, saying, “I’ve always felt like an outsider, never really fit in anywhere – but here, everyone is so unique, I feel like the only thing I have to do to ‘fit in’ is to be myself.” Quite an endorsement!

BEVERLY C. WALTERS, M.D., MSC, FRCSC, FACS
Director of Clinical Research
Henry Ford Department of Neurosurgery

CLINICAL TRIALS

The Henry Ford Department of Neurosurgery is active in clinical research, and is currently offering these prospective enrolling trials. For more information about these or other current studies, please call (313) 916-1756.

BRAIN TUMORS

ABTC 1202: Phase I Study of MK-1775 with Radiation and Temozolomide in Patients with Newly Diagnosed Glioblastoma and Evaluation of Intratumoral Drug Distribution in Patients with Recurrent Glioblastoma

ABTC 1301: Pilot Study of MLN0128 in Preoperative Recurrent Glioblastoma (GBM) Patients

ABTC 1302: Drug Distribution and Pharmacodynamics Study of Pulsatile Lapatinib in Surgically Accessible EGFR-Amplified Recurrent High-Grade Glioma

ABTC 1401: Phase 1 Dose Escalation and Drug Distribution Study of Oral Terameprocol in Patients with Recurrent High Grade Glioma

ABTC 1403: A Phase I and Pilot Study of the Effect of rhIL-7-hyFc (NT-17) on CD4 Counts in Patients with High Grade Gliomas and Severe Treatment-Related CD4 Lymphopenia after Concurrent Radiation and Temozolomide

ABTC 1501: A Phase I Trial of Anti-LAG-3 or Anti-CD137 Alone and in Combination with Anti-PD-1 in Patient with Recurrent GBM

ABTC 1601: A Phase I Study to Determine the Safety and Tolerability of the Oral Microtubule Destabilizer BAL101553 in Combination with Standard Radiation in Patients with MGMT Promoter Unmethylated Newly Diagnosed Glioblastoma

ABTC 1602: Single-arm, Open-label Phase II Efficacy Study of First-in-class HIF2-Alpha Inhibitor, PT2385, for Patients with Recurrent Glioblastoma

ABTC 1603: Testing the Safety of Combining an Immune Stimulator (GMCI), the Anti-cancer Drug Nivolumab, and Radiation Therapy With or Without Temozolomide, in Patients With Newly Diagnosed High-grade Glioma

ABTC 1604: Phase 0/I Study of AMG 232 Concentrations in Brain Tissue in Patients with Recurrent Glioblastoma and of AMG 232 in Combination with Radiation in Patients with Newly Diagnosed Glioblastoma and Unmethylated MGMT Promoters

BGB-290-104: A Phase 1b/2 Study to Assess the Safety, Tolerability and Efficacy of BGB-290 in Combination with Radiation Therapy and/or Temozolomide in Subjects with First-line or Recurrent/Refractory Glioblastoma

Coping with Glioblastoma: A Study of Communication between Physicians, Patients, and Caregivers

DSP-7888: A Randomized, Multicenter, Phase 2 Study of DSP-7888 Dosing Emulsion in Combination with Bevacizumab versus Bevacizumab Alone in Patients with Recurrent or Progressive Glioblastoma following Initial Therapy

EAF151: Change in Relative Cerebral Blood Volume as a Biomarker for Early Response to Bevacizumab in Patients with Recurrent Glioblastoma

GBM-001: An Open-Label, Multi-center Trial of INO-5401 and INO-9012 Delivered by Electroporation (EP) in Combination with REGN2810 in Subjects with Newly Diagnosed Glioblastoma (GBM)

N-HFHS 14-04: Gliolan 5-ALA: A Multicenter Study of 5-Aminolevulinic Acid (5-ALA) to Enhance Visualization of Malignant Tumor in Patients with Newly

Diagnosed or Recurrent Malignant Gliomas: A Safety, Histopathology, and Correlative Biomarker Study

OT-15-001: Phase 3, Randomized, Open-label Study To Evaluate the Efficacy and Safety of Eflornithine with Lomustine Compared to Lomustine Alone in Patients with Anaplastic Astrocytoma That Progress/Recur After Irradiation and Adjuvant Temozolomide Chemotherapy

RTOG 1119: Phase II Randomized Study of Whole Brain Radiotherapy in Combination With Concurrent Lapatinib in Patients With Brain Metastasis From HER2-Positive Breast Cancer; a Collaborative Study of RTOG and KROG

Tg511-15-01: A Phase 2/3 Randomized, Open-Label Study of Toca 511, a Retroviral Replicating Vector, Combined with Toca FC versus Standard of Care in Subjects Undergoing Planned Resection for Recurrent Glioblastoma or Anaplastic Astrocytoma

Vigilant Observation of Gliadel Wafer Implant (VIGILANT) Registry: A Multicenter, Observational Registry to Collect Information on the Safety and Effectiveness of Gliadel® Wafer (Carmustine Implant) Used in Usual Medical Practice

IRB 9936: Validity and Reliability of Self Reported Karnofsky Performance Status

IRB 10722: NeMeRe, a Multi-Institutional Retrospective and Prospective Registry of Neoplastic Meningitis in Adults

IRB 10934: Quantification of the Blood Brain Barrier in Patients Receiving Laser Ablation Therapy

SPINE

IRB 4008: A Prospective, Randomized, Controlled Multicenter Pivotal Clinical Trial of the Artificial Cervical Disc-LP at Two Levels for Symptomatic Cervical Disc Disease

IRB 7763: Mechanomyography for Evaluation of Pedicle Screw Placement (Sentio, LLC), Grant# E12101

IRB 9165: Three-Dimensional Motion Analysis in Patients' Status Post Anterior Cervical Fusion and Cervical Disc Arthroplasty, a Clinical Study_MOTION STUDY Supported by the Mentored Clinician Scientist program of HFHS)

IRB 9413: Application of LinkView Telemedicine Device in Senior Post-operative Spine Patients

IRB 10675: The Effect of Tizanidine on Post-operative Analgesia in Lumbar Decompression

IRB 10912: Genetic Basis of Diffuse Idiopathic Sclerosing Hyperostosis (DISH)

IRB 12228: Postoperative Pain and Opioid Use Following Spine Surgery

EPILEPSY

IRB 10701: Stereotactic Laser Ablation for Temporal Lobe Epilepsy (SLATE) Study

VASCULAR

IRB 11254: Decision Support System for Predictions of Aneurysm Rupture and DVT/VTE in Aneurysm patients

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PUBLICATIONS *(continued)*

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