ST. LOUIS METROPOLITAN
MEDICINE
VOLUME 38, NUMBER 4 AUGUST/SEPTEMBER 2016

St. Louis as a Medical Technology Hub

Inside

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MACRA (Part II): It Is Coming!

By Richard J. Gimpelson, MD

A quick review:

APM is the Alternative Payment Model and **MIPS** is the Merit-Based Incentive Payment System.

In an article in the June 16 *Contemporary OB/GYN*, Charles Lockwood, MD, MHCM, believes the majority of physicians will initially choose MIPS since most physicians are familiar with some of its clinical variables. There is a composite score based on pre-determined thresholds (set up by the Department of Health & Human Services). Those physicians who score at threshold will receive no payment increase, those above the mean will get a positive adjustment on each Medicare Part B claim for the following year, and those below the mean will receive a negative adjustment. The expectation (of course) is that so many physicians will be penalized or not receive bonuses, while the high-quality physicians will receive higher bonuses. In other words, many will starve so some can eat. Doesn't it sound like a great improvement over the SGR?


Dr. Richard J. Gimpelson

Dr. Gimpelson, a past SLMMS president, is co-director of Mercy Clinic Minimally Invasive Gynecology. He shares his opinions here to stimulate thought and discussion, but his comments do not necessarily represent the opinions of the Medical Society or of Mercy Hospital. Any member wishing to offer an alternative view is welcome to respond. SLMM is open to all opinions and positions. Emails may be sent to editor@slmms.org.

Physicians opting to pursue the APM path will receive an annual five percent incentive bonus as long as they reach a threshold percentage of their Medicare payments; however, there is much more than a nominal financial risk (decision to be made by HHS). How does this compare with the SGR?

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What does MACRA look like? On the British science-fiction television show, "Dr. Who," the Macra were a race of evil, human-eating crustaceans, many of which have since gone into U.S. national politics.

HARRY'S HOMILIES©

Harry L.S. Knopf, MD

ON AGING

When friends say:
"How young you look!"
Run to the mirror to confirm
your aging visage.

It is summer: the time of new flowers and fresh fruits and vegetables. Wouldn't it be great if **we** all could renew and blossom fresh every summer? Sorry, but that is not **LIFE** for us humans. We gradually deteriorate, but tell ourselves that we are just getting better (like wine).The mirror does not lie. We do get older—and thanks for that! Staying the same or getting younger are fictional desires, but getting "older" means we are still here. The trouble with aging is all the accompanying ills. … But, never mind. We can renew ourselves mentally if we try: Read about something new. Try a new restaurant or a new travel destination. Try a new career. (Those of you thinking of retirement are advised to retire TO something else, not just from a career.) Hey, you look really good—have you been exercising your mind?

Dr. Knopf is editor of Harry's Homilies.© He is an ophthalmologist retired from private practice and a part-time clinical professor at Washington University School of Medicine.

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ST. LOUIS METROPOLITAN MEDICINE

Cover Feature: St. Louis as a Medical Technology Hub

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On the Cover: Scientists at work at the BioGenerator in the Cortex district. BioGenerator is shared lab space offered to startup medical technology companies. Since 2002, BioGenerator has supported more than 60 startup companies.

Physicians Play Central Role in St. Louis' Flourishing Medical Technology Startup Scene

By Samer Cabbabe, MD, FACS, Medical Society President

Medical Society President Samer Cabbabe, MD, FACS

The Medical Society is taking an increasing interest in medical entrepreneurship.

In recent years, St. Louis has grown as a startup scene. Nowhere is this more evident than by the increasing infusion of money from venture capital firms. In 2015, venture capital invested $176 million into area IT startups, up from $66 million in 2013. In 2015, St. Louis tech startups employed more than 1,400 people, more than double the amount in 2013.[1] St. Louis has been dubbed as the BioBelt because of the more than 400 plant and medical sciences companies that reside here. Sixteen venture capital funds have home or branch offices in the region with more than $1 billion under management dedicated to life sciences, according to RCGA.[2]

Local tech spots in St. Louis include Cortex in Midtown and the Central Business District in downtown St. Louis. Cortex is currently a hot area in St. Louis, housing companies such as Square, Pandora, TechShop, AAIA Pharma and Boeing as tenants. A three-story, $24 million building at 4260 Forest Park will be open soon to house more companies. The low cost of living and community atmosphere are major attractions for pre-funded or boot-strapped companies.[3]

Support for Startups

Multiple organizations in St. Louis have contributed to the success of the startup scene. The Missouri Technology Corporation (MTC), a public-private investment fund controlled by the state government, has helped fund some of these organizations. Part of the Missouri Department of Economic Development, the MTC helps promote entrepreneurship in Missouri and fosters the growth of emerging high-tech companies.[4]

The development of the region as a biotech startup had roots in the late 1990s. The Donald Danforth Plant Science Center and the Skandalaris Center for Interdisciplinary Innovation and Entrepreneurship both began in 2001. The Danforth Center attracts millions of dollars in grants and helps drive agricultural technology and innovation in St. Louis. Based at Washington University, the Skandalaris Center helped stimulate entrepreneur training and networking in the city. In 2008, Jim Brasunas founded Information Technology Entrepreneurs Network (ITEN) as a means of furthering the networking in St. Louis. ITEN is a nonprofit organization which helps connect and create a network of entrepreneurial support for startups in St. Louis.[1]

Arch Grants runs a global competition to identify potential entrepreneurs from any sector and provides them with equity-free $50,000 grants and pro bono support if they agree to build their business in St. Louis. Other funding mechanisms include Capital Innovators, St. Louis Arch Angels, Billiken Angel Network, BioSTL, BioGenerator and Cultivation Capital.[1]

In 2015, Cardinal Health opened a small, three-person regulatory office in St. Louis to help emerging health care companies navigate complex regulations for their products. This is only the third regulatory office Cardinal Health has opened in the country and has boosted the legitimacy of the St. Louis startup scene.[5]

AMA Partners With IDEA Labs

The American Medical Association (AMA) has teamed up with IDEA Labs, a student-run biotechnology incubator involving medical and engineering students from Washington University, Harvard University, Massachusetts Institute of Technology, the University of Pennsylvania and the University of Minnesota. In addition to the collaboration

with IDEA Labs, the AMA's innovation ecosystem also includes an expanded partnership with MATTER, Chicago's health care technology incubator, to allow entrepreneurs and physicians to collaborate on the development of new technologies, services and products in a simulated health care environment. Furthermore, the AMA has an investment as founding partner of HEALTH2047, a San Francisco-based health care innovation company that combines strategy, design and venture disciplines, working in partnership with leading companies, physicians and entrepreneurs to improve health care.[6]

Physician Involvement

Numerous St. Louis biotech startups have local physician involvement. SLMMS 2014 President Joe Craft, III, MD, is a clinical advisor for Epharmix. Its product is a portfolio of interventions that use automated phone calls or text messages to collect disease-specific data. Epharmix analyzes collected data to triage entire patient panels and send actionable tasks to medical staff.[7]

Accuronix Therapeutics was founded by Washington University Chief of Hepatobiliary Surgery William Hawkins, MD. It is a startup working to discover and develop a new class of drugs that work by selectively targeting the σ-2 (sigma-2) receptor on cancer cells to deliver cytotoxic payloads.[8] Radiologics focuses on improving the efficiency and utility of imaging in clinical research. It was founded by Dan Marcus, Ph.D., associate professor of radiology at Washington University.[9]

NeuroLutions seeks to develop a revolutionary platform of devices utilizing brain computer interface (BCI) technology, which promises to restore function to patients who are disabled as a result of neurological injury. The technology is based on research from Washington University professors Eric Leuthardt, MD, (SLMMS member), and Dan Moran, Ph.D.[10] Pacidose is a device invented by Agnes Scoville, MD, a local emergency physician. The Pacidose is a pacifier modified to allow medication dispersement from a syringe.[11]

Mary Jo Gorman, MD, has started many companies in St. Louis since 1991 including Critical Care Services, The Inpatient Care Group, Advanced ICU Care, Prosper Capital and Prosper Institute. The Prosper Institute is a nonprofit organization geared to very early stage entrepreneurs. Dr. Gorman is currently managing partner at Prosper Capital, an accelerator program in St. Louis that connects women entrepreneurs leading health care, technology or consumer product startups to capital.[12]

Medical Society Activity

The St. Louis Metropolitan Medical Society is taking an increasing interest in medical entrepreneurship. For the past two years, SLMMS has supported the IDEA Labs program at Washington University and MEDLaunch at Saint Louis University, where teams of medical and other students tackle clinical problems and develop innovative solutions. SLMMS is looking to support health care startups through our newly established Innovation Committee. Chaired by Michael Beat, MD, this committee will link physician talent with startups, so physicians can participate as researchers or investors. In addition, SLMMS members will be able to invest through a new benefit, the Medtech Community Investment Program with iSelect Fund Management, otherwise only available through third party investment firms.

It is indeed an exciting time for St. Louis as medical technology entrepreneurship flourishes. SLMMS looks forward to contributing to the growth of this innovative work in our community.

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ST. LOUIS METROPOLITAN MEDICAL SOCIETY

Mission

To support and inspire member physicians to achieve quality medicine through advocacy, communication and education.

Vision

Physicians leading health care and building strong physician-patient relationships.

Core Values

Relationships, Professionalism, Leadership, Advocacy, Education, Communication

When Breath Becomes Air

David M. Nowak

Executive Vice President
David M. Nowak

The true beauty of Kalanithi's story is that you witness this ambitious young man who is on a track to do great things, very well-planned and methodical, and must suddenly surrender himself to living with no idea of what will happen next, or how long he has to live.

In June, my wife, daughter and I had the pleasure of exploring a part of the world none of us had previously visited when we took a two week vacation to northern Europe — a cruise on the Baltic Sea that journeyed to six different countries in 14 days. Vacations should be both inspiring and relaxing and this one did not disappoint. I found Copenhagen and Stockholm bustling with energy that embraced the old and the new; Talinn in Estonia, and Kiel in Germany were quaint and charming port cities; and Berlin and Saint Petersburg renewed one's interests in the Cold War and Russian history. But the thing that inspired me most on this trip was a 228-page memoir I read on the long flight home entitled *When Breath Becomes Air* by Paul Kalanithi, MD. Published earlier this year, the recent best-seller struck me as a book that should be read by everyone, especially physicians, so I wanted to recommend it to the members of SLMMS.

Paul Kalanithi was a 36-year-old neurosurgeon about to embark on a promising career when he was diagnosed with Stage IV lung cancer in 2013. His life transforms in an instant, from doctor to patient. From there he has weaved a beautiful and thoughtful memoir of family, medicine and literature that is humorous, moving, and ultimately poignant.

Uniquely qualified to tell his own story, you learn that Kalanithi comes from a family of doctors. His father's cardiology practice moved the family from the suburbs of New York City to the desert town of Kingman, Ariz., when the author was 10 years old. He immersed himself in books, and went on to earn bachelor's and master's degrees in English literature from Stanford, followed by a master's in history and philosophy of science and medicine from Cambridge before graduating cum laude from the Yale School of Medicine. He returned to Stanford for a residency in neurological surgery and a postdoctoral fellowship in neuroscience. His training was within a few months of completion when he received his devastating diagnosis.

It's no surprise that he writes beautifully about the philosophical aspect of medicine, and neurosurgery in particular. He sees medicine as a calling more than he views it as his profession. You quickly conclude that perhaps his ultimate contribution to the world would be his writing. In fact, when he shares his diagnosis with a friend he comments "the good news is that I've already outlived two Brontes, Keats, and Stephen Crane … the bad news is that I haven't written anything."

So writing is exactly how he spent the last 22 months of his life, while bravely completing his medical training. He struggled with his diagnosis, but did not stop working. He and his wife (also a physician) wrestled with the decision to start a family in the remaining time he has left. They did, and their daughter was born eight months before he passed away. Robbed of his future with his child, he contemplated his final message to her in what becomes a beautiful passage: "When you come to one of the many moments in life where you must give an account of yourself, provide a ledger of what you have been, and done, and meant to the world, do not, I pray, discount that you filled a dying man's days with a sated joy, a joy unknown to me in all my prior years, a joy that does not hunger for more and more but rests, satisfied. In this time, right now, that is an enormous thing."

The true beauty of Kalanithi's story is that you witness this ambitious young man who is on a track to do great things, very well-planned and methodical, and must suddenly surrender himself to living with no idea of what will happen next, or how long he has to live. "It occurred to me that my long-term relationship with statistics changed as soon as I became one," he observed. "I began to realize that coming face to face with my own

mortality, in a sense, had changed nothing and everything."

When Breath Becomes Air is an affirming reflection on the challenge of facing death and on the relationship between doctor and patient, from a brilliant writer who became both. Paul Kalanithi's journey is one that should not be missed.

The theme of this issue of *St. Louis Metropolitan Medicine* is "St. Louis as a Medical Technology Hub." It's amazing to see how much the med tech industry and start up scene is thriving here, and how physicians play an important role. Your medical society has focused energy here as well, and I hope you find interesting the launch of our Innovation Committee and the offering of a new Medtech Community Investment Program benefit for our membership. As our community expands, our organization attempts to keep pace by embracing these exciting developments in medicine.

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NOTICE

St. Louis Metropolitan Medical Society General Society Meeting

Tuesday, September 13, 2016
7:00 p.m.

St. Louis Metropolitan Medical Society Office
680 Craig Road, First Floor Conference Room
Creve Coeur, MO

Nomination of 2017 Officers, Councilors, MSMA Delegates and Alternate Delegates
All members are invited to attend.

Agenda

Call to Order ► President Samer Cabbabe, MD
Nominating Committee Report ► Ravi S. Johar, MD

The committee will be recommending members for nomination to the following offices:

President Elect ► Vice President
Secretary-Treasurer ► Councilors (4)

Missouri's David Barbe, MD, Elected AMA President-Elect


Dr. David Barbe

It was a proud moment for Missouri on June 14 at the AMA annual meeting when David Barbe, MD, a Mercy family physician from Mountain Grove, Mo., was elected 2016-2017 president-elect of the American Medical Association.

Dr. Barbe will serve a year-long term as president-elect before assuming the office of AMA president in June 2017. He is the first AMA president from Missouri in 90 years.

"It is a tremendous honor and privilege to be elected by my peers to be president-elect of an organization that is dedicated to improving the practice environment for physicians, the education of our medical students and the health of the patients we serve," said Dr. Barbe. "I am eager to continue the strong work of the AMA in shaping America's health care system to better meet the needs of patients and physicians both now and in the future."

Dr. Barbe was first elected to the AMA Board of Trustees in 2009 and served on numerous AMA committees and task forces. He served as chair of the board from 2013–2014, as well as a member of its executive committee from 2011–2015. Prior to his election to the AMA Board, Dr. Barbe was a member of the Council on Medical Service, an influential committee of the AMA, and served as its chair from 2008 to 2009. As a member of the council, Dr. Barbe participated in the development of AMA policy related to coverage of the uninsured, health care system reform, Medicare reform and health insurance market reform.

Prior to becoming active at the national level, Dr. Barbe held various offices in the Missouri State Medical Association including president in 2005. He also was a longtime member of MSMA's legislative committee and a board member of the Missouri Medical Political Action Committee.

Dr. Barbe has practiced family medicine in his hometown of Mountain Grove in southern Missouri for more than 30 years. After 15 years in independent practice, he merged his medical group with Mercy Clinic. Currently, he is vice president of regional operations for Mercy Springfield Communities and oversees five regional Mercy hospitals, 90 clinic practices and more than 200 physicians and advanced practitioners in southwest Missouri and northwest Arkansas.

Dr. Barbe received his bachelor's degree with honors in microbiology and his medical doctorate from the University of Missouri-Columbia School of Medicine. He completed his residency in family medicine at the University of Kansas affiliated program (now Via Christi) in Wichita, Kan. He also received his master of health administration from the University of Missouri-Columbia.

He and his wife, Debbie Barbe, B.S.N., R.N., have two children and six grandchildren.

Other AMA Meeting Highlights

The American Medical Association addressed a wide range of current issues in health care during its annual meeting. Missouri was represented by eight physicians including SLMMS members Edmond Cabbabe, MD; Ravi Johar, MD; and William Huffaker, MD. Following are several highlights.

- **Code of Medical Ethics:** A new code was adopted after an eight-year project to modernize the code for relevance, clarity and consistency.
- **Telemedicine:** Ethical guidelines for the practice of telemedicine were adopted that permit physicians utilizing telehealth and telemedicine technology to exercise discretion in conducting a diagnostic evaluation and prescribing therapy, within certain safeguards. The AMA also passed resolutions encouraging training in telemedicine for medical students and residents, and seeking insurance parity for telemedicine.
- **Opioids:** Policies were adopted that encourage physicians to co-prescribe naloxone to patients at risk of an overdose; promote timely and appropriate access to non-opioid and non-pharmacologic treatments for pain; and support efforts to delink payments to health care facilities with patient satisfaction scores relating to the evaluation and management of pain.
- **Graduate Medical Education:** Seeking to end the shortage of residency positions, a resolution called on Congress to fund more residency positions and investigate alternative ways of funding graduate medical education.
- **Gun Violence:** Moved by the Orlando nightclub shooting which took place during the meeting, delegates passed resolutions calling for universal background checks for all firearms, and requesting Congress to authorize federally-supported research on gun violence.
- **MACRA:** Andy Slavitt, acting administrator for the Centers for Medicare and Medicaid Services, addressed the delegates and said physicians will have significant input to the new Medicare payment regulations and how they will be implemented.

See a full summary of the AMA meeting in the July-August issue of Missouri Medicine. *The above is excerpted from that summary and from AMA news releases.*

Medical Society Opposes Proposed Rule on APRNs

The St. Louis Metropolitan Medical Society has joined with MSMA, AMA and other medical societies across the country in opposing the proposal by the Veterans Health Administration that would give full practice authority to advanced practice registered nurses (APRNs).

The proposed rule defines "full practice authority" as an APRN working within the scope of VA employment would be authorized to provide services without the clinical oversight of a physician, regardless of state or local restrictions on that authority. APRNs working outside of VA facilities would remain subject to state laws on APRN scope of practice.

At its June 28 meeting, the SLMMS Executive Committee approved a statement of opposition that was submitted to the VA's public comment website. Public comment was available from the rule's May 25 announcement through July 25.

Medical societies argue that patients are best served with nurse practitioners as part of physician-led teams. The SLMMS statement reads in part:

> *Reducing or even eliminating physician involvement in the care our veterans receive would greatly lower the standard of care for the thousands of individuals who have bravely served our country. It would create a two-tiered system of care, and supersede local statutes and the regulation of health care professionals that has traditionally been within the purview of state officials.*
>
> *We recognize the important and indispensable role that nurses have as part of the health care delivery team, but their training does not prepare or qualify them to take the place of a physician. This proposed rule change will place the health of thousands of American veterans at risk, and ultimately will create more problems than it will solve.*
>
> *Patients are best served when physicians, nurses, and other health care professionals work together as part of a physician-led team, where the various skill sets work in concert with one another. We hope you will not deprive our veterans of the opportunity to receive the quality care they richly deserve.*

The full statement is posted on www.slmms.org. For more information about the question of whether nurse-practitioners should practice independently, see the column by SLMMS President Samer Cabbabe, MD, in the April-May *St. Louis Metropolitan Medicine*.

Save the Date

2016 Hippocrates Lecture

Thursday, October 27, 2016

Spazio's at Westport (New event location)
6:00 p.m. – Cocktail reception ► 7:00 p.m. – Dinner followed by lecture

Presenter:

Jay Want, MD
Principal, Want Healthcare LLC ► Chief Medical Officer, Center for Improving Value in Health

"From Volume to Value . . . to Values"

With Medicare's transition to MIPS (Merit-Based Incentive Payment System) and APMs (Alternative Payment Models), health care promises to change more rapidly than ever. According to some commentators, these are the biggest changes in physician reimbursement in a quarter century. And nothing about that is easy. Why is change in health care so hard? In this talk, Dr. Want will discuss some of the reasons why making sense isn't always enough; why the architecture of the human brain tells us to assume change is bad until proven otherwise; and how we might overcome that hardwiring to help ourselves and others adapt well.

Invitations to the Hippocrates Lecture will be mailed to SLMMS members in September.

For information, contact the SLMMS office. ◄

SCAM-Q ► *continued from page 1*

MACRA is supposed to be in full force in 2019. From 2016 to 2019 physicians are supposed to get a 0.5 percent fee schedule update each year. Beginning in January 2019, physicians may enter the APM or MIPS based on qualifications and eligibility set by HHS.

From 2020 through 2025, fee schedules remain at 2019 levels with no updates (so much for inflation).

The amount of data entry for MACRA is unknown at this time, but if MACRA is like any other government encroachment in the delivery of medical care, the amount of data entry will be voluminous and expensive. I am not aware of how much testing has been performed to show if MACRA will be beneficial to patients and physicians. This is counter to all of us who practice medicine since we believe a treatment should be carefully studied before it is utilized to enhance success and safety and reduce adverse events.

Oh well, it replaces the evil SGR, so it must be an excellent endeavor.

There is more MACRA to come, although I honestly have no idea what new plagues the feds will bring to modern medicine. ◄

CALENDAR

SEPTEMBER

5	Labor Day, SLMMS office closed
13	SLMMS Council, 7 p.m.
13	General Society Meeting, 7 p.m.
30	Signature Healthcare Foundation Annual Health Policy Forum; speaker: Elliott S. Fisher, MD, MPH, Dartmouth Institute for Health Policy

OCTOBER

11	SLMMS Council, 7 p.m.
15-16	MSMA Council Meeting, Jefferson City
27	Hippocrates Lecture, 6 p.m., Spazio's Westport; speaker: Jay Want, MD, Center for Improving Value in Health

NOVEMBER

8	SLMMS Council, 7 p.m.
12-15	AMA Interim Meeting, Orlando, Fla.
23-25	Thanksgiving Holiday, SLMMS office closed

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Chronic Care Management (CPT 99490)

Medicare recognizes the value of care coordination and management for chronic conditions

By Charlene Rioux, Primary Care Case Management

With its Jan. 1, 2015, implementation of Chronic Care Management (CPT 99490), the Centers for Medicare & Medicaid Services recognized the value of care coordination and management as a vitally important role of primary care that can lead to healthier, happier lives for patients while significantly reducing Medicare's spending over time.

Chronic Care Management (CCM) is non-face-to-face care coordination of at least 20 minutes monthly and carried out by clinical staff supervised by a physician or other qualified health care professional. Required elements include:

- Two or more diagnosed chronic diseases expected to last 12 months or until a patient expires;
- Chronic diseases that place the patient at significant risk of death, acute exacerbation/decomposition or functional decline;
- A comprehensive patient care plan must be established, implemented, revised and monitored.

Statistics

Significantly, two thirds of Medicare beneficiaries are diagnosed with two or more chronic conditions; with 14% actually diagnosed with more than six chronic conditions. These statistics are what make caring for Medicare beneficiaries so costly, and as the prevalence of their chronic illness increases so too do their ER visits, hospitalizations, re-hospitalizations and therefore costs.

Consider the following: the 33% of Medicare beneficiaries with fewer than two chronic conditions account for approximately 7% of total Medicare spending while the 14% with six or more chronic conditions account for approximately 46% of total Medicare spending.

Charlene Rioux

Charlene Rioux is president of Primary Care Case Management (PCCM), based in Cape Girardeau, providing chronic care management and care coordination services throughout the nation. She has worked in health care administration since 2007 with companies such as Catholic Health Initiatives, PCRMC and BJC HealthCare. She may be reached at 866-647-4820, or crioux@pccm.net.

For example, the average cost per Medicare beneficiary with fewer than two chronic conditions is slightly more than $2,000 annually; the average of all beneficiaries is slightly less than $10,000 annually; but the cost of individuals with six or more chronic illness is approximately $32,000 annually. With this in mind, you quickly understand the tremendous economic benefit to Medicare should CCM serve to mitigate some of the symptom severity and exacerbations associated with a patient's chronic illnesses.

33% of Medicare beneficiaries with fewer than two chronic conditions account for approximately 7% of total Medicare spending, while 14% with six or more chronic conditions account for approximately 46% of total Medicare spending.

A Patient-Centered Approach

With the implementation of Chronic Care Management, Medicare is gaining the opportunity to extend physician influence into the homes of its chronically ill beneficiaries. Through CCM, patients gain connectivity to care coordinators who can assist in determining and eliminating the real life obstacles to following their physician's direction and attaining their personal health goals.

Through their personal care coordinator, Medicare beneficiaries receiving CCM services have an active care coordinator who facilitates the ongoing assessment of medical, functional and psychosocial needs while ensuring they receive all recommended preventive care services in a timely manner. Annually and upon any care transition, medications are reconciled and reviewed for adherence, potential interactions, barriers and self-management abilities.

CCM provides for management of care transitions between and among health care providers and settings, including referrals to other providers and for follow-up after an emergency department visit or discharge from a hospital or skilled nursing facility. Referral to and coordination of care from home health agencies and homes and community-based providers is also included. Transitional care management is key to the reduction of readmissions post discharge.

Comprehensive Patient Centered Care plans, a requirement of CCM services, must be based on a physical, mental, cognitive, psychosocial, functional and environmental assessments/ re-assessments. The comprehensive plan of care must include:

- All health issues
- A problem list
- Expected outcome and prognosis
- Measurable treatment goals
- Symptom management
- Planned interventions and identification of the individuals responsible for each intervention
- Medication management
- Community/social services ordered
- A description of how services of agencies and specialists outside the practice will be directed/coordinated
- A schedule for periodic review
- When applicable, revision of the care plan

This care plan must be provided to the patient in a written or electronic format and be available electronically at all times to all care team members.

Supervision

In its effort to promote the utilization of CCM by primary care for non-RHC and non-FQHC practices, CMS provided an exception under Medicare's "incident to" rules permitting clinical staff to deliver CCM services. This should be incident to the services of the billing provider under general supervision (rather than direct supervision). Interestingly, for RHC and FQHC, presently the direct supervision standard is still applicable for CCM services.

CCM Provision Requirements

A patient's consent for CCM service must be secured before furnishing the service. Patient consent requires documentation in the medical record of specific acknowledgements and authorizations. Requirements are as follows:

- Inform patient they have the right to accept or decline services
- Inform patient of services included in CCM
- Inform patient that Medicare insurance benefit will be billed monthly for their CCM services and co-insurance and deductibles do apply to this service
- Inform patient that their health information will be shared with other members of their care team for care coordination purposes
- Inform patient that only one provider may furnish them CCM services at a time
- Inform patient that they have the right to revoke their authorization and terminate the service at any time

CCM Service Requirements

- Documentation Requirements:
  - A structured clinical summary that includes patient's demographics, problems, medications and medication allergies
  - Structured data must be recorded in a CMS-certified EHR
  - A comprehensive patient-centered care plan addressing all health issues
- Access to Care:
  - 24 hours a day, 7 days a week and 365 days a year patient access to care coordination services
  - 24 hours a day, 7 days a week and 365 days a year access to the patient's care plan for the entire care team
  - Management of care transitions post discharge from hospital, emergency room and skilled nursing facilities
  - Routine appointment availability with a member of the patient care team
  - Enhanced communication opportunities with patient and care team by means of telephone, secure messaging or secure email

As you can see from the requirements for provision of CCM, Medicare places a maximum emphasis on the availability of patient information to all care team members at all times. Access to correct up-to-date patient information when necessary and in a contextualized format can make a tremendous difference allowing a CCM participant to be engaged in any and all interventions. Without this context and access, a missed opportunity for advancement of a patient's personal health goals, or, worse, an avoidable ER visit or hospitalization may result.

Immediate access to the care team and the up-to-date patient care plan truly empowers the Medicare beneficiary utilizing CCM services to be accountable and engaged in their ongoing personal and health care goals leading to better outcomes and increased communications across the health care spectrum.

CCM in the Practice or Outsourced

CMS requirements for CCM are realistic expectations but do not take into consideration the financial constraints or risks associated with implementing a new program in the practice.

Reimbursement to providers is approximately $42 per patient per month for provision of CCM services.

The additional revenue associated with CCM reimbursement may offset the cost of hiring an employee in the practice who manages the entire CCM program and can focus on meeting the requirements for CPT code 99490. This particular financial investment leaves the practice at risk should the in-house program not meet CCM requirements, in part, due to the

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St. Louis' Thriving Medical Technology Industry

Universities, Investment Capital, Entrepreneur Support Fuel Growth

By Ben Johnson and Colleen Ward, BioSTL

The St. Louis region has seen substantial growth in the number of new startup companies, especially in the medical technology sector. With the top-ranked Washington University School of Medicine and a pre-eminent vaccine center at Saint Louis University; corporate leaders Mallinckrodt, MilliporeSigma and Monsanto; and major hospital systems Ascension, BJC, Mercy and SSM, St. Louis is a world leader in bioscience research and development. Leveraging these strengths and the startup support ecosystem that has been built over the past decade, researchers, physicians, professors and industry professionals have been taking new ideas and trading in their current careers for a new one—entrepreneur.

History

While St. Louis is home to premier institutions and corporations, it historically struggled to translate its innovative, early-stage discoveries into commercially-focused new firms and accompanying jobs. In the late 1990s, several regional analyses confirmed St. Louis' potential to establish a nationally competitive bioscience cluster. These studies recommended the region take advantage of its academic and corporate bioscience assets to create a 21st-century knowledge economy.

Following these reports, in 2001, William Danforth, MD, (SLMMS member), chancellor emeritus of Washington University in St. Louis, launched a regional coalition, which later became known as BioSTL, to execute the recommendations of the early planning studies and serve as catalyst for successful growth of an emerging bioscience cluster. Guided by corporate, university and philanthropic leaders, BioSTL continues to this day to help steer a strategy of creating bioscience companies and developing regional resources needed to support entrepreneurs.


Ben Johnson


Coleen Ward

Ben Johnson is vice president of programs and Colleen Ward is communications manager with BioSTL. They can be reached at 314-880-8877, email bjohnson@biostl.org or cward@biostl.org. The organization website is www.biostl.org.

Building Blocks

Key resources for successful startups include entrepreneur support, facilities, science and business experts, and a continuum of investment capital. Ten to fifteen years ago, St. Louis lacked many of these resources, but now has a plethora.

One key entrepreneur support organization, especially for medical technologies, is BioGenerator (the venture development arm of BioSTL). BioGenerator was created in 2002 to advise and invest in St. Louis life science companies. Over time, it added a comprehensive suite of programs to address many challenges faced by bioscience startups. Today, BioGenerator offers multiple, stage-specific investment funds to de-risk early-stage technical and business concepts and drive companies to major financing events. These funds are complemented by programs targeted at recruiting and supporting talent, pre-investment grants and coaching, providing physical facilities and research equipment, and support for raising co-investments and follow-on capital. BioGenerator has been instrumental in commercializing research and creating successful startups—investing over $13 million into more than 60 companies and helping to attract about $25 for every dollar invested.

Today, BioGenerator offers multiple, stage-specific investment funds to de-risk early-stage technical and business concepts and drive companies to major financing events.

In 1998, St. Louis had only one incubator with lab space for science startups, the Center for Emerging Technologies (CET). Since, the region has developed new districts that cluster many

The BioGenerator Labs in the Cortex district offer complete wet lab facilities for startups.

new non-profit and for-profit facilities into nodes of innovation. The Cortex Innovation Community, founded in 2002, is a 200-acre innovation hub located in midtown St. Louis that provides state-of-the-art research facilities along with flexible office space for bioscience and tech startups. The BioGenerator Labs, located in the Cortex district, is a first-of-its-kind wet lab facility, well-furnished with scientific equipment and instrumentation. It currently houses more than 50 early-stage bioscience companies who share lab and office space at little to no cost. In Creve Coeur, the BRDG Park district houses startups and major corporate research groups. The Helix Center is home to many ag and biomedical startups.

With 40 local universities and colleges that graduate over 27,000 students annually, the St. Louis region has a wealth of talent. Washington University is the sixth-best medical school in the country as ranked by *U.S. News & World Report*, which also ranks SLU's John Cook School of Business #7 for entrepreneurship. Bioscience startups require industry expertise to navigate challenges faced during product development, approval and commercial launch. With major Fortune 500 companies like Monsanto, Express Scripts and Centene recruiting experienced candidates to the region, startups can capitalize on a plethora of diverse talent.

Over the past 15 years, more than $1 billion has been invested in St. Louis bioscience startups. One advantage St. Louis companies have is the fact that the region is very capital efficient—your dollar goes further here than it does in Silicon Valley. Several new venture capital firms have raised funds and invested in the region. Current firms actively investing in medical/bioscience companies include RiverVest, Cultivation Capital Life Sciences, BioGenerator, and the St. Louis Arch Angels. Most recently, Lewis & Clark Ventures announced a new $100+ million fund along with $25 million from Express Scripts to invest in medical technology innovations. To be successful, St. Louis companies must ultimately compete for national sources of capital; more than 100 investors from outside the region have deployed capital into St. Louis life science companies.

Exponential Growth

Growing from only a small number of known startups in 2000, there are currently more than 300 bioscience startups located in the region. In 2015, the number of health care-related companies receiving venture capital increased more than 200%; BioGenerator's portfolio raised nearly $140 million; and a number of other companies in the region raised capital between $5 million and $45 million. According to a report from BioEnterprise, outside of the coastal venture capital hubs, St. Louis ranked fourth in terms of investment dollars attracted in 2015.

Growing from only a small number of known startups in 2000, there are currently more than 300 bioscience startups located in the region.

Recent fundraising successes include:

- **MediBeacon**, a maker of proprietary, non-invasive, real-time monitoring systems for kidney function, gastrointestinal permeability and other light-activated diagnostics, announced a $22 million financing last year.
- **Vasculox**, an immune-oncology company developing anti-CD47 antibodies for the treatment of solid and hematologic cancers, raised a reported $45 million.
- **Galera**, a company developing small molecule enzyme mimetics to treat cancer and associated complications, has raised over $60M in financing over the past few years.
- Additional companies—including **Advanced ICU Care**, **Veniti Medical** and **Veran Medical Technologies**—all received substantial follow-on venture financings in 2015.

Converting Your Ideas into Companies

With the growth of St. Louis' startup ecosystem, many resources assist entrepreneurs in conceptualizing ideas for new ventures. While the BioGenerator is already a leading resource for the creation of new medical startups, BioSTL and BioGenerator recently launched the new BioSTL Fundamentals program to support entrepreneurs at the very first stages of commercialization. Fundamentals is a business coaching program that supports founders and novice life sciences entrepreneurs through one-on-one, customized business learning for each participant. The program offers a "Life Science Entrepreneur's Roadmap," which covers the basics of company creation from incorporation to intellectual property and beyond. Fundamentals also offers seminars for those interested in applying for federal, non-dilutive grant dollars

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St. Louis' Thriving Medical Technoloy Industry *continued from page 15*

(SBIR and STTR) to advance early-stage research and development companies. Semi-annual seminars provide further, in-depth training on proposal writing.

For those beyond the concept phase, CET's Square One program provides hands-on, 10-week training designed for first-time business owners. With emphasis on developing a strong business model, this process introduces entrepreneurs to the local ecosystem of support, challenges them to test assumptions about their business idea, connects them with mentors, and helps identify next steps in launching their business. ITEN also provides in-depth support to companies at the intersection of health care and information technology, and Arch Grants provides cash grants to attract and retain companies and talent to the region.

Even if you do not yet have a business idea, you can still connect into the innovation ecosystem in St. Louis as a mentor, advisor, or investor. Venture Café—a weekly gathering on Thursday nights where more than 500 people connect, collide and learn from each other through various programming—provides a good, initial place to join the community.

Looking Forward

With the momentum in its startup ecosystem, the St. Louis region is poised for even greater growth. The medical technology sector is a large part of the region's current success and is sure to be key in our region's future. With such a large concentration of medical experts, researchers, physicians and talented business people, there are unlimited possibilities on the number of new ventures just waiting to be created.

SLMMS Launches Innovation Committee

Recognizing the need to collaborate with the growing number of biotechnology incubators in St. Louis and the abundance of new health care products emerging from them, the SLMMS Council in May enthusiastically approved the formation of a new Innovation Committee sponsored by the Medical Society.


Dr. Michael Beat

The Innovation Committee was proposed by first-year SLMMS Council member Michael Beat, MD, who has also been appointed as the committee's chair. Also appointed to serve on the committee were SLMMS Vice President Chris Swingle, MD; SLMMS 2014 President Joseph Craft, III, MD; medical student member Ramin Lalezari (representing the IDEA Labs program at Washington University; and medical student member Andy Hayden (representing the MEDLaunch program at Saint Louis University).

"The St. Louis entrepreneurial biomedical ecosystem is booming, and creating new products, devices and applications every month," said Dr. Beat. "This area's high concentration of world-class medical professionals and scientists is attracting an increasing amount of interest and venture capital from the larger business community."

"Seeing these companies work to make health care better and more affordable, there is a growing desire on the part of area physicians to help drive this new culture of health care innovation," he continued.

SLMMS has laid the groundwork for establishing this committee over the past year, as a recognized sponsor of Washington University's IDEA Labs and Saint Louis University's MEDLaunch programs, and now through a recently announced member benefit in partnership with iSelect (see accompanying story). The next logical step is to better position the society to foster relationships between the innovators and the metropolitan physician community.

This summer, the Innovation Committee has created a target list of more than 20 biotech organizations, and has developed a survey asking for their perspective on how SLMMS physicians could offer expertise and assistance to positively impact the evolving entrepreneurial landscape. The committee also plans to survey the SLMMS membership, and also target certain specialties related to opportunities brought forward by incubator organizations.

"Our objectives include creating a method by which interested SLMMS physicians can announce their clinical interests, talent and expertise, and serving as the 'go-to place' for new startups or recently established companies to source local physician talent," explained Dr. Beat. "We want to encourage and assist SLMMS members to make contributions to this next generation of medicine."

Initially, the Innovation Committee has been formed as an ad hoc committee of the Medical Society. It will be evaluated over time to determine if establishing a permanent committee is appropriate, per the SLMMS bylaws.

MEDTECH COMMUNITY INVESTMENT PROGRAM

INFORMATION SESSIONS FOR SLMMS MEMBERS

Come to a small group discussion with representatives of iSelect Fund Management to learn more about this exciting new opportunity for SLMMS members:

Thursday, August 25 – 5:30 p.m.
or
Tuesday, August 30 – 5:30 p.m.

SLMMS Office Conference Room
680 Craig Road, Suite 308, St. Louis

Space is limited. RSVP to Liz Webb at 314-989-1014, ext. 108, or lizw@slmms.org.

Medtech Community Investment Program – New Benefit for SLMMS Members

The growth of the medical technology sector in St. Louis has created an opportunity for the St. Louis Metropolitan Medical Society to provide a new member benefit, the **Medtech Community Investment Program**, made available through a unique partnership with iSelect Fund Management, LLC. Based in St. Louis, iSelect invests in early stage technology-enabled ventures throughout the United States, particularly companies that are bringing innovation to health care. Its iSelect Fund allows accredited investors to assemble a diversified portfolio of the country's most promising emerging growth companies.

The Medtech Community Investment Program consists of three primary components:

(1) **Discounts**: SLMMS members receive preferential pricing through the iSelect Affinity Program and will be able to invest directly in companies that iSelect sources, including medical technology and other industry-specific early stage companies.

(2) **Education**: iSelect will develop educational programs for SLMMS members to introduce new technologies emerging from local entrepreneurs, as well as other relevant topics applicable to medical practices and early stage venture investments.

(3) **Involvement**: SLMMS physicians will have the opportunity to participate in iSelect Fund Selection Committees utilizing their unique medical experience, and those who participate can earn additional carried interest in iSelect portfolio companies.

"iSelect recognizes that doctors can provide keen insights into the modern health care market," explains J. Carter Williams, iSelect president & CEO. "The Medtech Community Investment Program is designed to work directly with these expert partners to integrate their industry and market insights into the iSelect investment process, communicating with key industry leaders to accelerate the most promising opportunities. We also hope that SLMMS members will, via the portfolio companies, discover interesting technologies, products and services to put to use in their own practices."

iSelect regularly presents programs with leaders of startup companies. In July, SLMMS members and others in the technology community heard a presentation on Antegrin Therapeutics which is developing new drugs for pulmonary fibrosis and other fibrotic conditions. Pictured, J. Carter Williams of iSelect, Antegrin CEO George Capps, and Michael Beat, MD, SLMMS Council member and chair of the new Innovation Committee. Watch your SLMMS email for announcements of future presentations.

It is important to note that SLMMS will not be vetting these potential investment opportunities, but may provide necessary medical and professional expertise to iSelect in its evaluation process. Simultaneous with the launch of this benefit, the SLMMS Council approved the formation of a SLMMS Innovation Committee to serve as the key point of contact for this new program (see article on facing page).

To learn more about iSelect Fund and the benefit available to SLMMS members, contact the SLMMS office or Dan Schaub, iSelect chief operating officer, at 314-288-7855 or dschaub@iselectfund.com.

Take Advantage of Your Patients!

Wearable devices offer the opportunity for continuous monitoring and health reminders

By Jerrie K. Weith, MBA, FHFMA, CMPE

As physicians, you are probably a little tired of hearing about "patient engagement." It's as if the entire world has decided that until they reminded you, you were oblivious to the fact that when your patients feel engaged in their overall health, they have better health outcomes!

From a *Medical Economics* article Jan. 22, 2015:

> *Most patients embrace responsibility for managing their health and view this approach as better quality care. A 2010 survey found that 79% of respondents were more likely to select a provider who allows them to conduct health care interactions online, on a mobile device, or at a self-service kiosk. One study found that many would even pay for such online services.*

Many of you have already implemented portals in your journey to comply with Meaningful Use requirements, allowing online communication and appointment scheduling. Some of you have installed patient registration kiosks or implemented use of iPads in the registration process. This truly does engage your patients in the **administrative** functions in their care. But aren't we missing out on a very easy way to engage patients? Wearable health monitoring.

Mr. Smarr likens his dedication to how we monitor our automobiles. "We know exactly how much gas we have, the engine temperature, how fast we are going. What I'm doing is creating a dashboard for my body."

Jerriw K. Weith

Jerrie K. Weith, MBA, FHFMA, CMPE, is president and lead consultant with Healthcare Management Alternatives, Inc. HMAI works with physicians and hospital-affiliated practices to boost their bottom lines. Jerrie is also adjunct faculty with Maryville University College of Health Professions, and vice president of education for MGMA of Greater St. Louis. Want more info or have questions on the article? Contact Jerrie at jkweith@autlook.com, www.hmai.cc, or 618-779-5508.

Yes, in our practices, we have an excellent opportunity to take advantage of our patients' avid interest (passing or not) in smart technology. Even though the following is from a 2012 article in *Information Week*, it hits the nail on the head:

> *Devices worn on or close to the body are expected to produce the most ground-breaking innovations, according to IMS Research, the research partner of Wearable Technologies, and Theo Ahadome, senior analyst at IMS Research. "There is increasing clinical evidence of the value of continuous physiological data in managing chronic diseases and monitoring patients' post-hospitalization," Ahadome said. "As a result, a growing number of medical devices are becoming wearable, including glucose monitors, ECG monitors, pulse oximeters and blood pressure monitors." Ahadome added that the latest figures projected for wearable technologies speak volumes about where the sector is headed. The market for wearable technologies in health care "is projected to exceed $2.9 billion in 2016, accounting for at least half of all wearable technology sales," he said.*

We could have patients as engaged in their health status as is astrophysicist and computer scientist, Larry Smarr. In a 2015 *Washington Post* article, it was reported that he has been tracking 150 of his health parameters for 15 years! Why? Mr. Smarr likens his dedication to how we monitor our automobiles. "We know exactly how much gas we have, the engine temperature, how fast we are going. What I'm doing is creating a dashboard for my body."

So what's the point? How can we take advantage of our patients' interest in their health? Embrace those wearable health devices!

- What if while your nurse was taking vital signs, she recorded the average daily steps from the patient's Fitbit? Use this information as an opportunity to encourage your patients to undertake healthier lifestyles.
- Do you have patients who tip your scale at every visit? Maybe you could recommend an app like "My Fitness Pal" and encourage them to track their weight using technology. Many people are turned off by writing in a journal, but don't realize that an app is the same thing—just on their phone. Perhaps the convenience of the electronic app is enough to motivate.
- Do you have diabetic patients who really struggle with monitoring their blood sugar? Perhaps a wearable device is the right thing to keep them on track.

- Sometimes the "normal" clinical approach just doesn't work. Migraines and "unexplained chronic headaches" are examples. Those Cefaly bands look goofy, but if there is some way it relieves those headaches, is that an improvement for your patients?
- Wearable garments are next! In the current marketplace, they are generally only used in fitness specialties, but they are forecasted to soon be of interest to the general population.

You may consider this a passing fad, but technology, like it or not, has encompassed all parts of our lives, from simple messaging to relationships! What's the forecast for wearable health devices? The table below shows their growth in numbers.

But your patients will be much less enthusiastic if you don't acknowledge and encourage their health efforts. "Getting the data is much easier than making it useful," said Deborah Estrin, a professor of computer science and public health at Cornell University in New York.

"While not the standard, there have been very recent efforts to integrate this wearable data with several electronic medical record systems (EMRs) by adding interfaces between many wearable devices and their systems. E-Clinical Works, Epic, and Carolina EMRs are the leading EMR technology providers driving this effort," said Derrick Weisbrod, a health IT expert with Healthcare Technology Advisors and an MGMA of Greater St. Louis Business Partner member.

You will be able to take advantage of your patient's interest in these gadgets by discussing their efforts with them. Your patients may want to use one device when another would make a greater difference in their overall health and quality of life. By partnering with your patients, you can both reap the benefits of our technology-driven health care world.

Growth in Number of Wearable Devices

DEVICE CATEGORY	2013	2014	2015	2016
Smart Garment	10,000	100,000	10.1 million	26 million
Sport Watch	14 million	18 million	21 million	24 million
Smart Wristband	30 million	20 million	17 million	19 million
Other Fitness Monitor	18 million	20 million	12 million	15 million
Chest Strap	11 million	12.1 million	8 million	7.3 million
TOTAL MARKET	73.01 million	70.2 million	68.1 million	91.3 million

Worldwide wearable electronic fitness device shipments forecast. Source: Gartner, October 2014; http://www.gartner.com/newsroom/id/2913318.

Chronic Care Management *continued from page 13*

evolving needs of the practice as staff workloads increase/change and uncontrolled staffing shortages. There is a definite risk to relying on in-office clinical staff to provide consistent CCM services that will meet CMS billing requirements.

The financial investment goes beyond the hiring and managing of staff to include IT and documentation investments. Many practices are investing in a portal specifically built for CCM to meet all billing and documentation requirements as most EHRs do not have CCM templates available.

On the other hand, an outsourced CCM company providing this service holds the financial risk of investment into a CCM portal and CCM staffing. A CCM company also manages the responsibility of staying abreast of any regulation updates related to CMS reimbursement for CCM.

This is an important decision requiring research and time before implementing the best fit program for a practice.

Future Health Endeavors

Chronic Care Management and Care Coordination is an effort to close the gap of future health endeavors to improve overall population health in America.

Early adopters of CCM and Care Coordination will have a competitive advantage as health care evolves, quality metrics become more stringent and more importantly, as fee-for-service reimbursement transitions to value-based reimbursement.

Ob-Gyn Society Recognizes Resident/Fellow Research Papers

Residents and fellows from the area's three ob-gyn training programs showcased their research papers at the St. Louis Ob-Gyn Society's annual scientific meeting on May 3. Programs represented were Mercy, Saint Louis University and Washington University.

From the peer-reviewed papers submitted, eight were chosen for presentation and the top three papers received awards. Following are excerpts from the abstracts of the eight papers. For more information, contact Ob-Gyn Society members Andrew Galakatos, MD, (SLMMS), galakatos@wudosis.wustl.edu, or Gilad Gross, MD, ggross@slu.edu.

First Place – President's Award

Correlation Between Tobacco Smoking and Diagnosis of Interstitial Cystitis on Cystoscopy With Hydrodistension in a Prospective Cohort of Patients With and Without Interstitial Cystitis

N.F. Rockefeller, MD; I. Marcu, MD; J. Gavard, PhD; C. Miller, MSW; G. Vazirabadi, MD; R. Nieto; P. Yeung, MD; M. Holloran-Schwartz, MD; A. Steele, MD; F. Leong, MD; M. McLennan, MD; E.C. Campian, MD; from Obstetrics, Gynecology and Women's Health, Saint Louis University

Objectives

The correlation between tobacco smoking and interstitial cystitis (IC) is unclear. We hypothesize that patients with cystoscopic findings associated with IC including glomerulations have a higher rate of tobacco smoking.

Methods

Patients scheduled to have routine procedures involving cystoscopy or cystoscopy with hydrodistension (CwHD) were all consented to undergo CwHD as part of the study. The surgeon performing CwHD was asked post-procedure to evaluate whether the patient should be diagnosed as having IC or not. Images were de-identified, batched and each set was individually reviewed by a panel of three urogynecologists. Each panel member was asked to note the presence of glomerulations in each quadrant and to determine whether the images had findings consistent with IC based on his/her clinical expertise. Of the 269 women initially consented, 219 finished the study, provided complete data sets and were included in the analysis. Statistical analysis comparing smoking vs. procedure for which patient was initially scheduled (cystoscopy vs. CwHD), pre-procedure physician expectancy of IC, diagnosis of IC by physician performing CwHD, and vs. cystoscopic findings was performed. Associations were assessed by $\chi 2$ tests using SPSS v23.0 for Windows. $P<0.05$ denoted statistical significance.

Results

No significant association was found between smoking and the procedure for which the patient was initially scheduled or physician expectancy of IC before the procedure. A significantly higher proportion of patients who were diagnosed with IC after CwHD were smokers, compared with patients who were diagnosed without IC (26.0% vs. 13.5%, $p<0.05$). Women whose image review composite diagnosis for IC across a panel of three reviewers was positive had a significantly higher proportion of smokers than women whose image review composite diagnosis was negative (27.3% vs. 15.1%, $p<0.05$). Women whose image review composite glomerulations category was >10 glomerulations in three or four quadrants had a significantly higher proportion of smokers than women with no glomerulations (33.3% vs. 14.1%, $p<0.05$).

Conclusions

While previous studies have shown mixed results regarding the association between smoking and IC, our results show a significant relationship between cystoscopic findings after CwHD and smoking status. Previous studies have made use of questionnaires to assess IC. To our knowledge, this is the first study to evaluate the relationship between cystoscopic findings after CwHD and smoking.

Second Place – Editor's Award

Obese Women Experience Impaired In Vitro Decidualization Compared to Lean Women

Maureen B. Schulte, MD; Claire Stephens, PhD; Jui-He Tsai, PhD; Kelle Moley, MD; from Washington University

Objective

Obese women (BMI ≥ 30) are three times more likely to suffer infertility than women with a normal BMI. The objective of this study was to investigate the difference in endometrial receptivity between normo-ovulatory lean and obese women.

Study Design

Normo-ovulatory women with regular menses and proven fertility were consented. They underwent an endometrial biopsy; patients with BMI ≥ 30 were considered obese and BMI ≤ 25 were considered lean. Endometrial stromal cells were

exposed to 1 mM medroxyprogesterone acetate and 0.5 mM cAMP for nine days to induce decidualization. The mRNA expression levels of prolactin and IGFBP1 were measured by quantitative RT-PCR. The fold change in gene expression between non-decidualizedand decidualized samples was calculated using the comparative cycle threshold method with the housekeeping gene, ribosomal protein 36B4, as the internal control. Student t-test was used for statistical analysis to stratify endometrial decidualization by BMI.

Results

The fold change in gene expression of markers of endometrial decidualization prolactin and IGFBP1 exhibit a statistically significant decrease in obese patients as compared to lean. Recent studies suggest that endometrial disturbances in PCOS patients are distinct from those in obese women. Here, we are presenting data that confirms that obesity alone perturbs endometrial receptivity.

Conclusions

By controlling the in vitro hormonal environment and measuring markers of endometrial decidualization, we found that obese women have ESCs that have reduced ability to undergo normal decidualization. We hypothesize that impaired autophagy is the mechanism responsible for the decrease in decidualization and experiments are ongoing to prove this hypothesis.

Third Place – Community Award

Manual vs. Electric Vacuum Aspiration for Pregnancy Termination Between 10-14 Weeks: A Randomized Trial

Jaclyn M. Grentzer, MD, MSCI; Colleen McNicholas, DO, MSCI; Tessa Madden, MD, MPH, from the Division of Family Planning, Department of Obstetrics and Gynecology, Washington University

Objectives

To evaluate the difference in operative time between manual vacuum aspiration (MVA) and electric vacuum aspiration (EVA) in women undergoing surgical abortion between 10.0 and 13.6 weeks. We also compared the number of conversions between methods and assessed participant satisfaction.

Study Design

Participants were randomized to MVA or EVA and underwent the procedure using the standard practice in our setting. Intra-operatively, we collected data including procedure time (from start of cervical dilation to completion of uterine evacuation). Post-procedure, participants completed a survey assessing satisfaction with the procedure on a 4-point rating scale. An intention-to-treat analysis was performed.

Results

A total of 130 participants were enrolled and randomized, 66 to MVA and 64 to EVA. Median procedure times were similar between the two groups; MVA 150.0 secs (range 72-538 secs) and EVA 145.5 secs (range 54-416 secs). This difference was not statistically significant (p=0.18). Mean procedure times were 173.3 (SD 81.6) and 154.2 (SD 67.7) seconds for MVA and EVA, respectively. There was one conversion from MVA to EVA and zero from EVA to MVA. Participants reported no significant differences in satisfaction (mean score: EVA 3.5, SD 1.6; MVA 3.4, SD 1.6; p=0.85).

Conclusion

There is no difference in operative time between MVA and EVA between 10.0 and 13.6 weeks gestation. Participant satisfaction was similar between groups.

Additional Presented Papers

- **Genetic and Therapeutic Targeting of the Receptor Tyrosine Kinase Discoidin Domain Receptor 2 Inhibits Invasion and Metastasis in Ovarian Cancer**

  Laura Divine, MD, Department of Obstetrics and Gynecology, Washington University

- **Standard External Doppler Fetal Heart Tracings vs. External Fetal ECG in Premature Gestations – A Pilot Study**

  Kristina McCormick, MD, Department of Obstetrics, Gynecology and Women's Health, Saint Louis University

- **The Incidence of Occult Malignancy Encountered During Uterine Surgery of Benign Indication**

  Teresa A. Hilgers, MD, Department of Obstetrics and Gynecology, Mercy Hospital St. Louis

- **Blood Pressure Trends for Severe Postpartum Hypertension**

  Katy Burton, MD, Obstetrics, Gynecology and Women's Health, Saint Louis University

- **Obesity Induced Oocyte Mitochondrial Defects Are Partially Prevented by Supplementation With Co-Enzyme Q**

  Christina E. Boots, MD, Department of Obstetrics and Gynecology, Washington University

Alliance Installs 2016-17 Officers

By Gill Waltman and Sandra Murdock

Members of the SLMMS Alliance met on May 13 at the Missouri Athletic Club West for the installation of 2016-17 officers. MSMA Alliance President Jana Wolfe from Battlefield, Mo., was the installing officer.

An invocation by outgoing co-president Millie Bever preceded the ceremony. Sandra Murdock was elected co-president, joining Gill Waltman who is serving a second term. Sue Ann Greco is president-elect. The incoming vice presidents are Angela Zylka, membership and legislation; Carrie Hruza, health; and Gill Waltman, foundation. Also re-elected were Kelly O'Leary as treasurer, Jean Raybuck as corresponding secretary, and Jo-Ellyn Ryall, MD, as parliamentarian. Appointed positions are Dianne Joyce as community outreach director, and Claire Applewhite as special projects coordinator.

Millie Bever, who is moving to the Kansas City area with her husband Grant Bever, MD, was recognized by the membership for her many years of service to the SLMMS Alliance. She will continue to serve the Alliance at both the local and state levels from her new home across the state.

National AMA Alliance Annual Conference

The theme of the AMA Alliance annual meeting in Chicago, June 11-14 was "Focus on the Future." AMA Alliance President Julie Newman presided over the sessions. Barbara Hover of Springfield and Kelly O'Leary of St. Louis were workshop presenters as the Alliance launched its national health focus on the Opioid Abuse Epidemic.

Missouri is well represented in national level positions: Sue Ann Greco was elected to the national Alliance board of directors and chair of internal communications; Mary Shuman is secretary for the Alliance Health Education Initiative; Jana Wolfe is a member of the Affiliate Relations Committee; and Barbara Hover is chair of the Opioid Abuse Epidemic education project and committee member to the Legislation and Public Policy Committee.

Loyola Academy Students Recognized

A cake ceremony was held at Loyola Academy on May 19 to celebrate the sixth and seventh grade students and their teachers who participated in the various health-related events provided by the Alliance in the past school year. The programs, organized in collaboration with Loyola staff members, included *Smoking Is Not for Me* and *Voices of Excellence*.

SLMMS Alliance 2016-17 officers: front row, from left, Jean Raybuck, Gill Waltman, Sandra Murdock; back row, from left, installing officer MSMA Alliance President Jana Wolfe, Sue Ann Greco, Kelly O'Leary, Dianne Joyce, Angela Zylka. Not pictured: Claire Applewhite, Carrie Hruza and Jo-Ellyn Ryall, MD.

Coming Events

CAbi Fashion Shows

Thursday, Aug. 25, 6:00 p.m.
Saturday, Aug. 27, 2:00 p.m.
Home of Carrie Kreutz
Proceeds benefit the Alliance.

MSMA Alliance Fall Conference

Wednesday, Sept. 21–Thursday, Sept. 22
Hilton Promenade at Branson Landing

SLMMS Alliance October Meeting

Thursday evening, Oct. 6

Welcoming new members and recognizing past presidents.

Kelly O'Leary will address opioid and substance abuse in our area.

Annual Holiday Giving Party

Friday, Dec. 9
Home of Sue Ann Greco

For information about any of these programs contact Angela Zylka, angelazylka@gmail.com; Sandra Murdock, sesandram@aol.com; or Gill Waltman, grh@slu.edu.

Susan J. Nelson, MD

Susan J. Nelson, MD, a board-certified pediatrician specializing in infectious diseases, died May 12, 2016, at the age of 68.

Born in Chicago, Dr. Nelson received her undergraduate degree from Oberlin College in Oberlin, Ohio, and medical degree from Washington University School of Medicine. She completed her internship, residency and fellowship at St. Louis Children's Hospital.

She was an instructor in clinical pediatrics at St. Louis Children's Hospital, and was on staff there as well as Barnes-Jewish Hospital, St. Luke's Hospital, SSM Health St. Mary's Hospital, Mercy Hospital and Missouri Baptist Medical Center.

Dr. Nelson joined the St. Louis Metropolitan Medical Society in 1986.

SLMMS extends its condolences to her children, Adam and Aisha.

Benjamin Milder, MD

Benjamin Milder, MD, a board-certified ophthalmologist, died May 16, 2016, at the age of 100.

Born in St. Louis, Dr. Milder received his undergraduate degree and medical degree from Washington University, and then completed his internship at Jewish Hospital-St. Louis and his residency at the University of Chicago's Billings Hospital. He served as a major in the U.S. Army Medical Corps at Hines Hospital in Chicago from 1944-1946.

He was a clinical professor of ophthalmology at Washington School of Medicine, and had a private practice. Dr. Milder authored or co-authored numerous articles and medical texts, including the award-winning *The Fine Art of Prescribing Glasses Without Making a Spectacle of Yourself*. He was also a published poet.

Dr. Milder joined the St. Louis Metropolitan Medical Society in 1943 and became a Life Member in 1992.

SLMMS extends its condolences to his wife, Jeanne Milder; his children, Michael Milder, MD; Barry Milder, MD; Morton Milder and Rabbi Laurence Milder; his nine grandchildren and 10 great-grandchildren.

Joseph A. Swope, MD

Joseph A. Swope, MD, an internist who specialized in occupational medicine, died June 10, 2016, at the age of 90.

Born in Philadelphia, Dr. Swope received his undergraduate degree from Temple University and his medical degree from Saint Louis University. He completed his internship at SSM Health St. Mary's Hospital. He served in the U.S. Navy Medical Corps in the Pacific from 1944-1946.

He established his practice in south St. Louis and served on the staff of the former Lutheran Hospital and St. Anthony's Medical Center.

Dr. Swope joined the St. Louis Metropolitan Medical Society in 1961, and became a Life Member in 2007.

SLMMS extends its condolences to his children, Catherine Swope, Sally Tague, Dr. Susan Swope, David Swope and Joseph Swope; his 13 grandchildren and one great-grandson. Dr. Swope was preceded in death by his wife, Patricia, and son, Stuart.

Melanie R. Mueth, MD

Melanie R. Mueth, MD, board certified in internal medicine and palliative medicine, died June 24, 2016, at the age of 44.

Born in Belleville, Ill., Dr. Mueth received her undergraduate degree from Southern Illinois University-Carbondale, then earned her medical degree and completed her internship and residency at Southern Illinois University School of Medicine in Springfield, Ill. She also earned an MBA degree from Webster University.

She was medical director of the Palliative Medicine Service at Christian Hospital and leader of the North Region Team of BJC Hospice. Prior to becoming a palliative medicine physician, she was vice president and chief medical officer of Christian Hospital, and a hospitalist. She also was an instructor at Washington University School of Medicine.

Dr. Mueth joined the St. Louis Metropolitan Medical Society in 2004, and served as a SLMMS Councilor from 2005-2007.

SLMMS extends its condolences to her husband, Manish Mathur, MD; and her children Dev, Dhruv and Vahn Mathur.

Science Fair Winners Showcase Talent

The Medical Society is pleased to recognize the scientific work of middle and high school students each year by sponsoring the Health and Medicine category of the Greater St. Louis Science Fair.

A team of SLMMS members and friends judged the Health and Medicine entries and chose eight winning projects. Creators of the winning entries received awards in the form of college savings account contributions and gift cards. The awards are funded by the Medical Society's charitable foundation, the St. Louis Society for Medical and Scientific Education (SLSMSE).

(Right) SLMMS judges at the Science Fair, from left, Greg Webb; Holly Kodner, MD; Ravi Johar, MD; student member Vivek Gulati; Ralph Graff, MD; Alan P.K. Wild, MD; and Liz Webb.

SCIENCE FAIR ENTRANTS CREATE EXPERIMENTS USING THE SCIENTIFIC METHOD TO PROVE OR DISPROVE A HYPOTHESIS. WINNERS FOR 2016 AND THEIR AWARDS ARE:

Honors Division

Lauryn Garner
Clayton High School
"The Impact of Visual Aids on Patient Education"

Aditya Cowsik
Clayton High School
"Identification of Physical Markers and Minimal Training Set for Breast Cancer Diagnosis via Neural Networks"

11th Grade

Daria Clucas
St. Joseph's Academy
"The Effect of Temperature on Luminol"

10th Grade

Charumati Deeljore
Gateway Science Academy Middle and High School
"The Effects of Aldehydes on Heart Rates"

9th Grade

Kashish Gupta
Lafayatte Senior High School
"The Effect of Cooking Food on Vitamin C Levels"

8th Grade

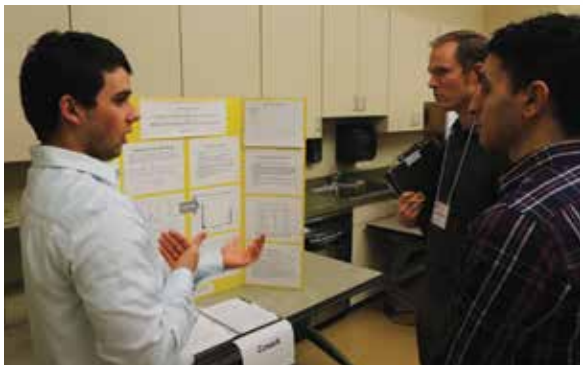
Sabriya Jalal
Al Salam Day School
"Feel the Burn – Antacids"

7th Grade

Samiya Sajid
Al Salam Day School
"Vitamin C in Orange Juice"

6th Grade

Midge Reschke
St. Austin School
"Squeeze the Day"



Clockwise from top left:

Lauryn Garner, Honors Division

Aditya Cowsik, Honors Division

Kashish Gupta, 9th Grade

Samiya Sajid, 7th Grade

Honoree photos courtesy of Academy of Science St. Louis.

Eric Scott Baggstrom, MD
660 S. Euclid Ave., #8058, 63110-1010
MD, Univ. of Texas, Houston, 1995
Born 1968, Licensed 2004 ► **Active**
Cert: Internal Medicine

Miguel E. Cannon, MD
3009 N. Ballas Rd., #100-B, 63131-2322
MD, Saint Louis Univ., 1987
Born 1954, Licensed 1988 ► **Active**
Cert: Family Practice

David M. Crane, MD
17300 N. Outer Forty Rd., #200, 63005-1364
MD, Univ. of Missouri-Columbia, 1995
Born 1967, Licensed 2000 ► **Active**
Cert: Emergency Medicine

John R. Groll, MD
3009 N. Ballas Rd., #100-B, 63131-2322
MD, Univ. of Illinois, Chicago, 1988
Born 1962, Licensed 1989 ► **Active**
Cardiovascular Disease

John G. Helton, MD
1918 Grayson Ridge Court, 63017-8740
MD, Univ. of Alabama, 1995
Born 1969, Licensed 1996 ► **Active**
Internal Medicine

Shyam S. Ivaturi, MD
4850 Lemay Ferry Rd., #210, 63129-1576
MD, Gandhi Medical College, India, 1989
Born 1966, Licensed 2001 ► **Active**
Cert: Critical Care Medicine, Internal Medicine

Sonali Jain, MD
8860 Ladue Rd., #100, 63124-2068
MD, Armed Forces Med Coll. Univ. of Pune, India, 1999
Born 1977, Licensed 2011 ► **Active**
Obstetrics & Gynecology

David F. Knight, MD
11475 Olde Cabin Rd., #200, 63141-7129
MD, Saint Louis Univ., 2004
Born 1978, Licensed 2009 ► **Active**
Diagnostic Radiology

Kristin S. Oliver, MD
12855 N. Forty Dr., #380, 63141-8657
MD, Southern Ill. Univ., Springfield, 1993
Born 1967, Licensed 1994 ► **Active**
Family Practice

Rebecca D. Peck, MD
3009 N. Ballas Rd., #100-B, 63131-2322
MD, Washington Univ., 1986
Born 1960, Licensed 1992 ► **Active**
Cert: Dermatology

Gustavo A. Villalona, MD
1465 S. Grand Blvd., 63104-1003
MD, Universidad Iberoamericana Med. Sch., Santo Domingo, 2004
Born 1981, Licensed 2015 ► **Active**
Cert: Pediatric Surgery/Surgery

Harry L. Wadsworth, MD
3009 N. Ballas Rd., #100-B, 63131-2322
MD, Texas Tech Univ., 1983
Born 1957, Licensed 1991 ► **Active**
Endocrinology, Diabetes & Metabolism

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