Missouri Medicine

The Journal of the Missouri State Medical Association www.msma.org/Missouri-Medicine May/June 2016

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- Harvey M. Tettlebaum, JD, and his staff at Husch Blackwell for producing the Medical-Legal Section.
- MSMA leadership and members for their support of *Missouri Medicine*.
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In publication since 1904, Missouri Medicine, a peer-reviewed, award-winning medical journal printed on acid-free paper, is indexed by MEDLINE, the National Library of Medicine, and is linked to PubMed Central, which is the U.S. National Institutes of Health digital archive of biomedical and life sciences journal literature. Missouri Medicine can be found on EBSCOhost databases, which provides researchers with the ability to search full-text articles, and are the most-used, premium online information resources for tens of thousands of institutions worldwide, representing millions of end-users. Missouri Medicine also provides featured content for www.medhelp.org,world's largest online health community that reaches more than 140 million users worldwide each year.

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"We Get By With a ~~Little~~ Lot of Help From Our Friends"

Honoring Missouri Medicine's *Editorial Board & Editors*

by John C. Hagan, III, MD

In the 14 years *Missouri Medicine* has been publishing theme issues, 100% of the selected academic departments have eagerly accepted the opportunity to produce a collection of scientific papers and relevant editorials.

The Beatles proclaimed in a song from their iconic 1967 album "Sgt. Pepper's Lonely Hearts Club Band" that John, Paul, George, and Ringo got by with a little help from their friends.

We're proclaiming that *Missouri Medicine* gets by with a lot of help from our friends. In this issue, we honor the distinguished members of our Editorial Board and Contributing Editors, especially those who have served for five or more years. The Missouri State Medical Association and its Committee on Publication have authorized a program of formal recognition of these distinguished physicians and appropriate awards will be bestowed during the year. I would like to acknowledge my job as Editor would be impossible without their gracious and expert assistance.

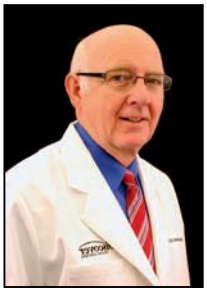
The Editorial Board conducts rigorous peer-review of scientific articles. *Missouri Medicine* is distinguished and unique among top state medical journals for being indexed by MEDLINE and EBSCOhost databases; our scientific content is linked with PubMed Central. *Missouri Medicine* has a national footprint, and our articles regularly appear in national media and are referenced in leading, high-impact factor medical journals. Without our stellar Editorial Board we would be ordinary - not extraordinary - in the pantheon of state medical journals. Indeed an appropriate "thank you" is long overdue.

Editorial Board members are selected, as specific need arises, by recommendations of their MSMA peers based on professional reputation, service to MSMA, and the medical community, and willingness/ability to peer-review and contribute in numerous ways to keep our *Journal* the highest quality. Many of these physicians have contributed scientific articles, editorials, perspectives, and opinion pieces, and assisted with liaison to the six excellent Missouri medical schools and regional medical societies. Some have coordinated theme issues. Collectively our Board and Editors are extremely proud that in the 14 years *Missouri Medicine* has been doing theme issues, 100% of the selected academic departments have eagerly accepted the opportunity to produce a collection of scientific papers and relevant editorials.

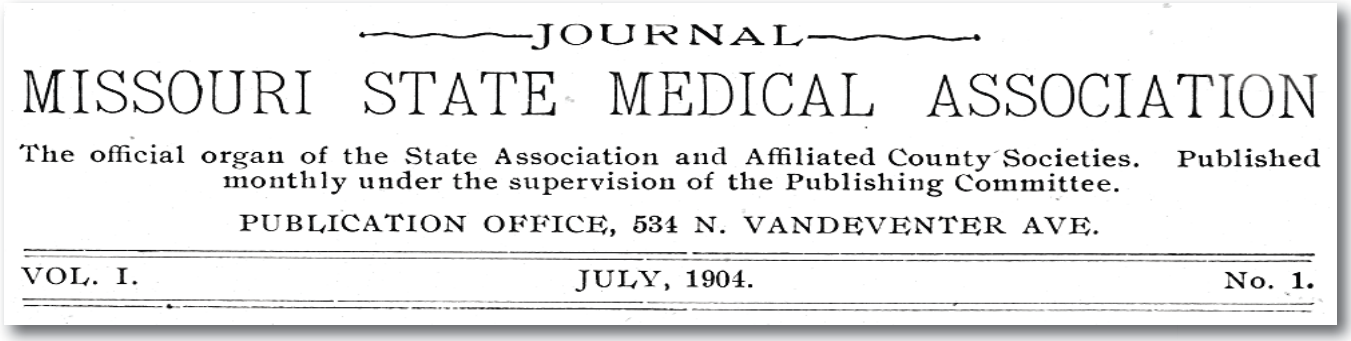
Our longest serving Board member is the esteemed Internist John S. Daniels, MD, who in 2016 will have completed three decades of service. John is a meticulous, discriminating peer-reviewer, and unstinting in his willingness to improve the presentation and content of deserving manuscripts. His excellent reviews are returned within a week, sometimes within 24-48 hours. Our most published author is Art Gale, MD. At *Missouri Medicine* things move by "Gale Force." Art has authored numerous thoughtful Editorials and Perspectives, penned several books, and established the annual Art Gale Freedom of Expression Award to stimulate and honor outstanding articles published in *Journal*. Medicine has no finer advocate than Dr. Gale.

As Editor, and on behalf of the leadership of MSMA, I thank each and every one of them for their time, expertise, enthusiasm, manuscripts and articles. We also welcome our newest contributing editor, former UMKC medical school Dean Betty M. Drees, MD (see Membership News, page 178), and newest Board members: Gregory R. Galakatos, MD-Orthopedics, C. Daniel Kingsley, MD-Hematology & Oncology, Katherine R. Lichtenberg, DO-Public Health, Michael L. O'Dell, MD-Family Practice, Elizabeth A. Piontek, MD-Urology, and Pradeep Sahota, MD-Neurology.

While science and technology change, excellence is timeless. On the following page we reproduce the premier cover of *Missouri Medicine*, Volume 1, Number 1, July 1904 as a tribute, not only to our present and recent Editorial Board member and Editors, but for all those who have served with distinction in the 112-year history of our nationally recognized publication.



John C. Hagan, III, MD, FACS, is a Kansas City ophthalmologist and *Missouri Medicine* Editor since 2000. He is a multi-year Super Diamond Contributor to MMPAC.
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- MSMA leadership and members for their support of *Missouri Medicine*.
- MSMA staff for assistance, support, and archival research.

The Drawbacks of Rate-Your-Doctor Medical Transparency

by Mathew S. Isaac, PhD



Encouraging physicians to try to get glowing reviews may skew treatment in unhealthy ways.



Mathew S. Isaac, PhD, is an Assistant Professor of Marketing, Albers School of Business and Economics, Seattle University, Seattle, Washington.
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Vanderbilt University Medical Center recently announced a big change that most marketers would probably applaud. Vanderbilt plans to publicly share the results of patient surveys—including reviews and ratings of individual physicians and practices—on its website. This initiative follows similar efforts at the University of Utah Health Care, Piedmont Healthcare, Wake Forest Baptist Health, and many others.

As a marketing professor, I should be thrilled about the movement to increase transparency in health care. No discipline embraces the philosophy of customer centricity more than marketing. Gaining access to a rich repository of information about providers that can be used to make more-informed decisions would certainly appeal to consumers. Maybe it could even help reduce those long wait times at the doctor's office.

Unfortunately, in an era where patient-satisfaction scores could determine funding from governmental programs and even affect health providers' own compensation and job security, the urge or need to get positive reviews may give providers an incentive to make choices that are not always in their patients' best interests. Providers may feel extra pressure to comply with patients who plead for a certain drug advertised on TV, or who demand a prescription for antibiotics to treat their common cold. Imagine if you knew that saying "no, you don't need it" would result in a negative review and even negative scrutiny or attention at your workplace?

A recent report by bioethicists at the Hastings Center noted that "good ratings depend more on manipulable patient perceptions than on good medicine." This means that fancy hospital gowns and convenient parking may influence satisfaction scores more than the provision of sensible, high-quality and medically necessary care. In fact, the Hastings Center report notes that "the pressure to get good ratings can lead to bad medicine."

For instance, physicians may needlessly prescribe medications, order diagnostic tests, and perform invasive

After all, patient-centered medicine and patient-satisfaction-centered medicine are not the same.

procedures that are not only expensive but may actually harm patients by exposing them to radiation, side effects or other complications. This may explain the surprising association that researchers from University of California Davis observed between high levels of patient satisfaction and mortality rates. Apparently, when providers perform discretionary services—such as a CT scan for an ordinary headache—to appease their patients, the risk of potential adverse effects increases.

Proponents of health care systems publicly sharing ratings often argue that patients already use third-party online reviews to make health care decisions but are limited by the relatively small samples on sites such as Yelp or Healthgrades.com. Their claim is that by disclosing ratings on their own websites, health systems can give their constituents better data with which to make better decisions.

While I agree that having more patient ratings increases the reliability of a provider's average rating, a large body of research in social and cognitive psychology has found evidence that negative information wields much more influence than positive information on evaluations and choices—resulting in a negativity bias.

This means that a faceless consumer without just cause who spews venom online from behind a keyboard or smartphone has the power to affect the decisions of many other prospective patients. True, this could happen today on a site like Yelp, but the likelihood of encountering a vitriolic and even patently false review would spike as the sheer number of reviews increased on a provider's own website. The negativity bias also suggests that a few glowing reviews won't be able to offset a single scathing one.

Finally, what about the potential impact that revealing every single patient review would have on health care providers? Isn't the public disclosure of every inane comment or complaint online an easy way to demoralize and possibly humiliate a hardworking and competent health care provider? I worry what the long-term effect might be on provider motivation, job satisfaction and turnover.

Assuming that the transparency train has already left the station, there are ways health care systems can make the transition smoother.

- Report numerical patient-satisfaction scores only, but be more judicious when sharing qualitative comments, especially those contained in "outlier" reviews that may not reflect the views of the majority—and perhaps implement a policy not to report the top and bottom 10% of scores and accompanying reviews.
- Keep close tabs on provider morale and motivation before and after shifting to a more transparent model.
- Most important, recognize what patient satisfaction surveys can and cannot reveal about the health system's overall performance. They may be great at identifying if the front desk staff is friendly or if a doctor has an impeccable bedside manner, but they can't reveal whether patients' health ailments are being competently treated. After all, patient-centered medicine and patient-satisfaction-centered medicine are not the same.

Practice in a health model of the future.

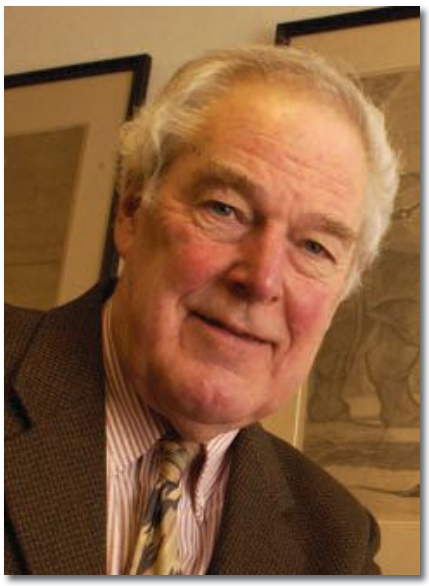
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- Plastic Surgery
- Podiatry
- Psychiatry
- Pediatrics
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- Pediatric Endocrinology
- Pediatric GI
- Pediatric Hem/Onc
- Pediatric Internal Medicine
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- Pediatric Surgery
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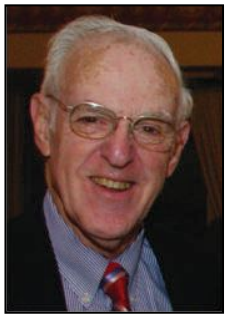
John Wennberg, MD: The Influential Doctor Who Blames Physicians and Fee-For-Service Medicine for the High Cost of Health Care

Obama Care is Based on His Research

by Arthur Gale, MD

According to John Wennberg, MD, a Dartmouth professor and researcher, the fundamental cause of high health care costs is fee-for-service medicine. Eliminate fee-for-service and costs will come down. Wennberg's theories have influenced elitist Washington policy makers and the framers of Obama Care.

Primarily because of Wennberg's theories payments to doctors and hospitals will be made through bundled payments to Accountable Care Organizations (ACOS). There will be shared savings. Doctors and hospitals will no longer be paid on volume. Their payments will be based on quality or "evidence-based medicine." The care of patients is to be integrated and coordinated. The piecemeal cottage industry of doctors practicing fee-for-service medicine in private offices will become a relic of the past. Under Wennberg's utopian scheme health care costs will finally be brought under control.



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Wennberg was an obscure clinical investigator when he began his research at Dartmouth Medical School In the late 1960s. At that time he discovered that children (including his own) living in Waterbury Center Vermont had a 20% rate of having their tonsils removed. In the adjacent town of Stowe the tonsillectomy rate was 60%. This threefold geographical difference in surgical procedures had a major impact on Wennberg, and formed the basis for his subsequent research over the next forty-plus years.

Weinberg later found that tonsillectomy rates varied as much as eleven-fold; hemorrhoidectomy rates five-fold; hysterectomy, and transurethral resection of the prostate (TURP) varied three-fold from the highest to the lowest areas. Wennberg published the results of his studies in his 2010 book, T*racking Medicine*.[1]

Wennberg says that he does not place the entire blame for these practice variations solely on physician greed or as he puts it "physicians cynically rubbing their hands together every time a patient walks in the door." He does cite other lesser factors including professional guidelines. He has criticized prominent teaching hospitals including Massachusetts General and Cedars Sinai in Los Angeles for overuse of resources.

Wennberg also places great emphasis on personal choice and shared decision-making as an important means of decreasing unnecessary procedures and tests. In fact he named the foundation supporting his research "The Foundation for Informed Decision-Making." Shared

Fee-for-service small businesses have survived and flourished because they work and are trusted by consumers.

decision-making between doctors and patients is now routine and has been for decades. This is due to changes in our culture. Patients rightly want to be more autonomous and better informed. Doctors are far less paternalistic. Surgeons discuss with patients the risks and benefits of every procedure and informed consent is mandatory.

In the 1990s Medicare, in an effort to cut costs and unnecessary surgery, developed a pilot program requiring second opinions for cataract surgery, carotid endarterectomies, and other surgeries. The second opinion program found that less than 1% of surgeries were not indicated. The program was ultimately abandoned because it cost more money than it saved.[2] The program showed that the overwhelming majority of doctors were doing the right thing for their patients. They weren't doing unnecessary surgery or performing unnecessary procedures,

Wennberg should have known about this government program. Maybe he did. Either way he ignored its conclusions and he still believes that patients are getting too many tests and too much unnecessary surgery. In order to test Wennberg's hypothesis it would have been far simpler and less costly to require second opinions before any invasive procedure than to undertake the radical restructuring of the entire health care system and the destruction of fee-for-service medicine. But for Wennberg less is more. While most experts think there will be a shortage of doctors in the future Wennberg thinks that there are already too many doctors.

In 2010 the Wennberg group published the Dartmouth Atlas which shows geographical areas of high and low medical resource utilization for Medicare patients.[3] For example he contrasts low cost "good" medical practice in the upper Midwest at for example the Mayo Clinic with high cost utilization areas in the South. He recommends that other areas of the U.S. should emulate the best practices of the upper Midwest.

In 2014 researchers at the renowned Brookings Foundation published a report highly critical of Wennberg's research and the Dartmouth Atlas.[4] The Brookings study found that variations in the costs of health care in different geographical areas and in different hospitals were not due to over utilization. Instead they were due to variations in socioeconomic factors and the general health of the patient population being treated. In sum the high cost areas doctors and hospitals treated sicker patients than in the low cost areas and therefore utilized more medical resources.

But the damage had already been done. The economist Peter Orszag, Obama's chief health care adviser and the main architect of Obama Care was a great admirer of Wennberg's work. Orszag is the consummate Washington insider who moves seamlessly between academia, Washington and Wall Street. He was a leading member of the political caste of unelected elitist "experts" who wield enormous top down power formulating health care policies that affect all Americans including doctors.

One author wrote: "By the time Orszag became head of the Congressional Budget Office in 2007 he was carrying the Dartmouth charts to Congressional meetings preaching to anyone who would listen about elimination of fee-for-service and advocated evidence-based medicine as cures for rising medical costs."[5] Shortly thereafter Obama appointed Orszag to be head of the Office of Management and Budget where he could then implement Wennberg's theories. Orszag became a forceful member of Obama's advisers and was obsessed with the Wennberg's thesis of comparative effectiveness as a means of reducing costs. The Dartmouth team had projected that correcting for practice variation across the country could lead to savings approaching $700 billion or up to 30% per year of all Medicare spending![6]

This arbitrary figure was the clincher which sold Obama and his other advisers on Wennberg's proposals. Orszag argued that America's health care system needed nothing less than a complete overhaul. After selling his plan to Obama and his team Orszag left government and took a job with a Wall Street firm where he made close to $4 million per year (presumably paid on a fee-for-service basis).[7]

Orszag's projected $700 billion dollar savings was always a pipe dream, and Obama and his other elitist advisers should have known this. Obama himself later admitted that while the Affordable Care Act increases coverage it does not address costs.[8] Future generations will have to address this problem.

In the epilogue of his book *Tracking Medicine* Wennberg effusively praises all of the Affordable Care Act's provisions

that he helped inspire: Accountable care organizations, bundled payments, shared savings, comparative effectiveness research, constraints on fee-for-service medicine, integrated and coordinated care, and shared decision-making.

Recent studies have already shown that, contrary to Wennberg's thesis, at least two of the changes - coordination of care: the formation of hospital networks and, integration of care: the ownership of physician practices - not only do not reduce costs but actually increase costs.[9 10]

Despite the lack of evidence that the radical changes championed by Wennberg cut costs, hospital administrators, insurance company executives, doctors, nurses, and the entire Medical Industrial Complex are complying with the changes without objection.

Wennberg's theories have also spawned some very profitable Wall Street companies. Health care is the country's largest and most profitable industry. Wall Street has been positioning itself to take a big role in health care and has been looking for lucrative investments. Wennberg's theories gave one venture capital fund the opportunity to earn huge profits.

When the foundation that supports Wennberg's research teetered on the brink of bankruptcy a venture capital company stepped in and formed Health Dialog to be run on a for profit basis by Wennberg's son David. The health insurance industry led by Blue Cross was one of the first investors in Health Diolog. The American Hospital Association soon followed suit. Both organizations have already made millions of dollars in profit from their investments. Health Dialog is a consulting firm that applies Wennberg's theories "by giving insight and coaching in high quality and cost effective care." It has become one of the fastest growing health services firm in America. Health Dialog has been sold and resold with significant profitability to investment companies.[11] It is currently owned by the Rite Pointe Corporation.

Health Dialogue donated $110 million and gives royalties to Wennberg's research foundation. These financial ties to industry have enriched Wennberg, his son, and his foundation. They also constitute a blatant conflict of interest that taints and undermine the conclusions of his research. These conflicts of interest are especially noteworthy because the fundamental goal of Wennberg's research has been to expose conflicts of interests in others, viz., doctors.

It is overly simplistic to say that high health care costs are due to fee-for-service. They are caused by multiple factors including massive inefficiencies and waste in hospitals, high administrative costs of insurance companies and outrageous uncontrolled drug pricing by the pharmaceutical industry. Also the introduction of new technologies and breakthrough treatments for cancer, heart disease, hepatitis, and other maladies which have prolonged lives in ways that were unimaginable in the past come at a steep price.

Obama himself has stated that small businesses are the backbone of the economy.[12] The vast majority of businesses in this country are small businesses. They are the bedrock of our capitalistic, American free enterprise system and of its freedom-loving citizens. When a person calls a plumber or electrician or takes his car in for repairs there are always potential and real conflicts of interest. Consumers are well aware of these conflicts of interest. They can never be completely eliminated. Yet fee-for-service small businesses have survived and flourished because they work and are trusted by consumers.

Practicing medicine is intensive work like the above mentioned trades. Eliminating fee-for-service and private practice, and placing doctors on assembly lines where they are employees of vast corporate entities won't lower costs. It will just siphon money to large corporations and their investors, lower the quality of care delivered to patients, and make physicians more frustrated, burned out, and depressed.

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MM

The "Devil in the Details"

by Alexander R. Hover, MD

What we don't want is simply shifting risk to physicians without a thoughtful strategy that really understands the potential for unintended consequences with stringent incentives at the individual physician level.

MACRA 2015 creates payment models that reward quality and safety in health care. Much is yet to be written in rule-making. Part B payments for physicians will be impacted by measures in quality and utilization with an 18% potential swing in part B payments as of 2022. The utilization measure are "very high priority" and to be "OIG suitable." We must understand the implications of MACRA 2015 and provide physician perspective in rule-making.

Introduction

The irony of Congress passing a permanent fix to the sustainable growth rate on April Fool's day last year is just impossible to pass without comment. Some feel the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) was the Devil's own bargain.[1] I feel that MACRA extended valuable changes started in the 2010 Patient Protection and Affordable Care Act, particularly the national strategy to improve quality and safety of health care.

The change in payment models embedded in MACRA is intended to pay for quality and safety. Patients value high quality care and that is exactly what physicians want to deliver. Alignment of those two desires hopefully improves on our current fee for service payment model. MACRA is Medicare's attempt to consolidate multiple disjointed programs for quality and payment. The intention is a more comprehensive program for health care modernization, reduced administrative burden, reduced provider reporting, and alignment of payment with value. Value being defined as quality over cost where quality is measured as satisfactory outcomes and absence of harm. Improving quality and safety or reducing cost adds value from the payer perspective.

Physicians, legitimately, worry that it is easier to simply shift risk than to design a payment system that truly pays for high value care. If MACRA rule-writing process actually incorporates the input of practicing physicians, so much the better. If this turns out to simply a nod in the general direction of practicing physicians and Medicare continues working mainly with multi stake holder groups and major payers, physicians may be no better off. Realistically, practicing physicians may be several tiers from representation on the multi stakeholder groups affecting Medicare decisions.

MACRA and the SGR

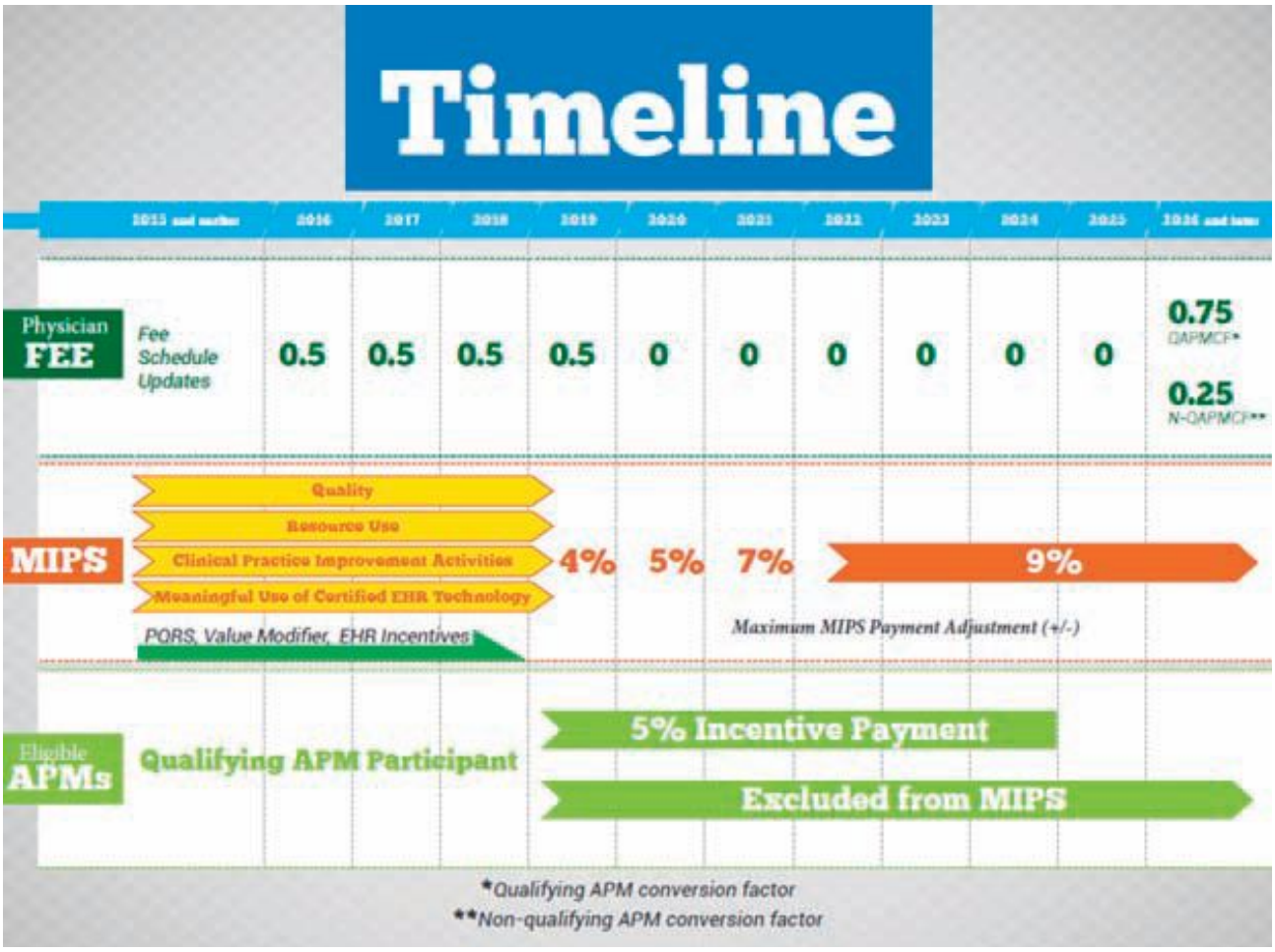
So what does MACRA bring to replace the sustainable growth rate and traditional fee for service? MACRA rules have yet to be completed. My read is that they are clearly designed to move Medicare and, by *force majeure*, commercial payers to payment models that are more population based and, hopefully, recognize value. MACRA consolidates several Medicare programs; meaningful use, value-based payment modifier, and physician quality reporting system into the Merit Based Incentive Payment System, and authorizes a measure development plan to support the new consolidated program.[2] Physician Medicare Part B payments will be modified annually by a composite score based on physician measurement in four domains including;

1) quality,
2) clinical practice improvement,
3) resource use, and
4) "meaningful use of EHR technology."

Notably, a menu of "qualifying clinical practice improvement activities" has yet to be written.



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Physician payment proposed measures for 2016 are published[3] and a compendium of potential measures may be viewed at a CMS website.[4] Measure priorities for new physician quality measures are

1) patient reported outcomes,

2) communication and coordination of care and treatment with other providers, and

3) appropriate utilization.

Measures will be proposed for comment in peer reviewed journals. However, MACRA allows Medicare to use "non consensus" measures. How much of physician and specialty input may be bypassed is unclear. Measures will also come from Choosing Wisely and US Preventive Services Task Force for reduction of utilization. The language in regard to development of utilization measures reads "very high priority" and "OIG suitable". If that doesn't give you a chill and reason to be engaged, don't bother to read the rest of this perspective.

The final rules for physician payment under Part B of Medicare are to be completed by November 1, 2016. We should pay attention to a new multi-stakeholder groups and a new Medicare committee on physician payment. Each has a differing membership and charge from Medicare. MACRA authorized the Physician-Focused Payment Model Technical Advisory Committee to advise on proposed alternative payment models. The committee is comprised mainly of physician executives and is chaired by Jeffrey Bailet, MD, President, Aurora Health Care Medical Group. Another new multi stakeholder group has been convened by Medicare and charged broadly with shaping alternative payment models. The Health Care Payment Learning and Action Network is to "develop common approaches to core issues such as beneficiary attribution, financial models, benchmarking, quality and performance measurement, risk adjustment, and other topics raised for discussion, and create implementation guides for payers, purchasers, providers, and consumers." A 24-member guiding committee provides executive leadership and includes 11 physicians. Dr. Frank Opelka; chair of the AMA-sponsored Physician Consortium for Performance Improvement is a member which I view as favorable. While not wishing to disparage physician involvement in any federal groups,

the Medicare staffing, resources, and organizational memberships listed for the committees suggests to me a higher weight to the Health Care Payment Learning and Action Network.

Merit-Based Incentive Payment System

Merit-based incentive payment system is the measurement guided plan for the bonus or penalty part of Part B payments beginning 2019. The merit-based incentive physician payment system in MACRA is primarily budget neutral so there will be winners and losers. There is some new money authorized to be distributed for "exceptional performance" during the period of 2019 to 2024. It should be an eye opener that there is an 18% potential swing in part B payments as of 2022. Physicians in first year of Medicare billing, "low volume" and "qualified professionals" are exempted from merit-based incentive physician payment system as individuals. "Qualifying Professionals" definition is still pending, but there will be criteria to include Patient Centered Medical Home providers and those in "advanced payment models" bearing substantial risk." Below is the current published timeline for implementation.

The federal government creates a bewildering array of new multi stakeholder groups with each new law and regulatory release. Each has its own army of federal staff, and attendant consultants to create new programs, new regulations, and new metrics. Is that a help forward or likely to worsen the plight of the beleaguered physician? The current programs moving to value based purchasing were the subject of an AMA-sponsored independent study by the Rand Corporation published in 2015.[5] The good news is summarized as, "In our sample, alternative payment models had not changed substantially how physicians delivered face-to-face patient care." The bad news is, "Physicians perceived that, by and large, most alternative payment models had increased both the quantity and the intensity of physician work." The researchers noted that, "physicians not in leadership roles reported significant discontent, largely resulting from the increased burden of documentation required in alternative payment models."[5]

The point is that we will see new payment models, but they may not necessarily be better unless we are engaged in rule-making. Currently some high value services are not paid for under fee for service. Shifting to alternative value-based payment could be an improvement. What we don't want is simply shifting risk to physicians without a thoughtful strategy that really understands the potential for unintended consequences with stringent incentives at the individual physician level. Important concerns for physicians include:

1) ethical concerns with financial incentives at the physician level that may not necessarily distinguish between appropriate utilization from simply restricting care,

2) the complexity of distinguishing physician controlled care decisions from patient characteristics and compliance, and,

3) sample size and valid risk adjustment that can actually distinguish statistically significant "inter provider" differences that warrant the substantial payment penalties authorized by MACRA.

Conclusion

What should be our strategy to engage with the regulatory rule making, which group should we try to influence, how are we to help adapt small group practice, how to predict unintended consequences, and how best to speak with the physician perspective? The AMA guide to physician-focused alternative payment models seems fairly well balanced.[6] The key principles of the AMA recommendations are

1) flexibility for payment models based on condition, specialty, and organization,

2) adequate and predictable payment,

3) physicians should control what is measured for accountability for cost and quality.

Certainly, it is critical for organized medicine to have a seat in the multi stakeholder groups advising Medicare. Intuitively, our ability to influence large stakeholder groups is probably more valuable than individual comments. However, physicians representing us on the stakeholder groups need to be well informed on the impact on practice by all of us. This is the time to be active as an individual and as part of organized medicine!

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MM



7 Lessons Learned During a Military Career

by Michael L. O'Dell, MD

My acceptance to University of Kansas School of Medicine (KUMCSOM) for the class beginning in 1974 remains a high point in my life. Then, as now, I enjoy learning, although now this acquisition is more a matter of pleasure and habit. But gaining acceptance was a matter of competing for a future and dream of being a physician. The challenge had expanded my knowledge, and I savored the reward for those efforts. The receipt of an acceptance letter brought new questions and answers to seek, such as, how was I going to pay for this? My answer to this question was to become a Navy Medical Corp Officer, a decision that has enriched me beyond my imagination at the time.

Lesson 1 There Are at Least Two Sides to Every Story

Some reading this may have been embroiled in the turbulent Vietnam War era and the protests that marked this time. As I explored options to pay for my education, the Armed Forces health scholarship program was quite attractive. But I was a young adult making a decision the year before the fall of Saigon that ended the war in 1975. Many of my peers viewed military service as something to be avoided. The conduct of the war was being questioned as events such as the My Lai massacre were being covered by the press. Much of my generation viewed the military and its leadership very negatively. The more I looked, though, I saw a Navy that, while somewhat demoralized, remained ahead of the nation in integration, had a long and honorable history, and an officer corp committed to leadership. This second side of the story won me over and I accepted a commission and scholarship.

Lesson 2 The Profession Comes First

KUMCSOM in 1974 was a three-year, year-round curriculum. It was grueling, and thankfully the school was able to return to a four-year curriculum not long after my graduation. Navy scholarship recipients were expected to attend Navy Officer Training School during summer break after their first year, but there was no such break at KUMCSOM at the time. I contacted the Bureau of Medicine in Washington. The response was clear. They reminded me they wanted a doctor; they could teach me officer basics later, I was to keep at my studies. Given all the roles physicians have available to them today, it is good to remember that first we are doctors.



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Lesson 3

The Profession Must Meet the Needs of the Community

Having finished medical school and an intern year, I hoped to finish my residency in family medicine before beginning my active duty years. I had remained at KUMCSOM and was delighted with the training I was receiving. Nonetheless, I received orders to report to San Diego for an abbreviated version of my long overdue officer training and then was to report to 29 Palms Marine Corp Air Ground Combat Training Command, 3rd Tank Battalion. Somehow I had missed that the Navy provides medical care to the Marines, and gone were my hopes of being close to an ocean beach. The Navy needed well-trained General Medical Officers, and my residency would have to wait. As a profession, and in our training programs, meeting the needs of our community should held as important.





On Reserve Duty at Pearl Harbor in 2004.

Lesson 4

What You Wear Commands Respect

In 1980, I was transferred to San Francisco. I loved being in San Francisco! But resentment from the Vietnam War still ran deep. Our Command's advice was should not wear our uniform in public areas in San Francisco so as to avoid harassment by those who still held deep negative feelings. One day, due to a crippled car, I had no choice but to be in uniform on public transportation back to home. An older gentleman, crooked in the back, raised himself as high up as he could and saluted me stating "Afternoon, sir!" It turns out he was a World War I veteran as we spoke afterward. I have not since returned a salute with such pride!

Lesson 5

When Money Isn't Involved, Skills Are Well Recognized and Used

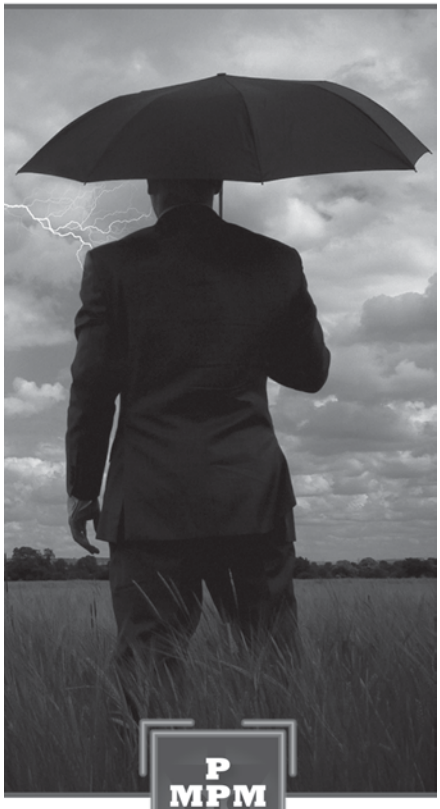
Marines can be their worst enemy in peacetime. For instance, a game of flag football one afternoon quickly turned rough enough that I left the game with a shoulder dislocation (and I had played a year of college football on scholarship without an injury!). Various mischief and activity had me engaged in relocating shoulders, caring for femur fractures, managing pre-term neonates requiring ventilation, and seeing 30+ patients a day in clinic. My practice was not restricted according to specialty training, and there were none of the accompanying privilege fights common to most civilian medical staffs. I have come to view many of these fights as less about competence and more about who captures the billing. My Navy Medicine specialty colleagues were happy for me to apply my full training and skills and to assist me when I asked for help. In these days of talk about having staff work to the top of their license, we could ask that physicians be allowed to do the same.

Lesson 6

Spouse as Commanding Officer

I was satisfied with and enjoyed my work in the Navy immensely. But my obligation was ending, and it was time to consider returning to residency. Any thoughts of pursuing a Navy residency ended when, on a trip back to Kansas City, my wife lost (she threw it away!) her ticket for the flight back to San Francisco. The Mojave Desert at 29 Palms, California, had not been a great experience, and San Francisco with a one-year-old wasn't much better for her. And there was that Master's Degree program she had left and wished to finish. My Commanding Officer spouse had spoken. I had permanent change of station orders to Kansas City. But, I lobbied successfully to remain in the Reserves.

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Dr. O'Dell with tentmates deployment to the first gulf war, on the far left with M16 in hand.

Lesson 7

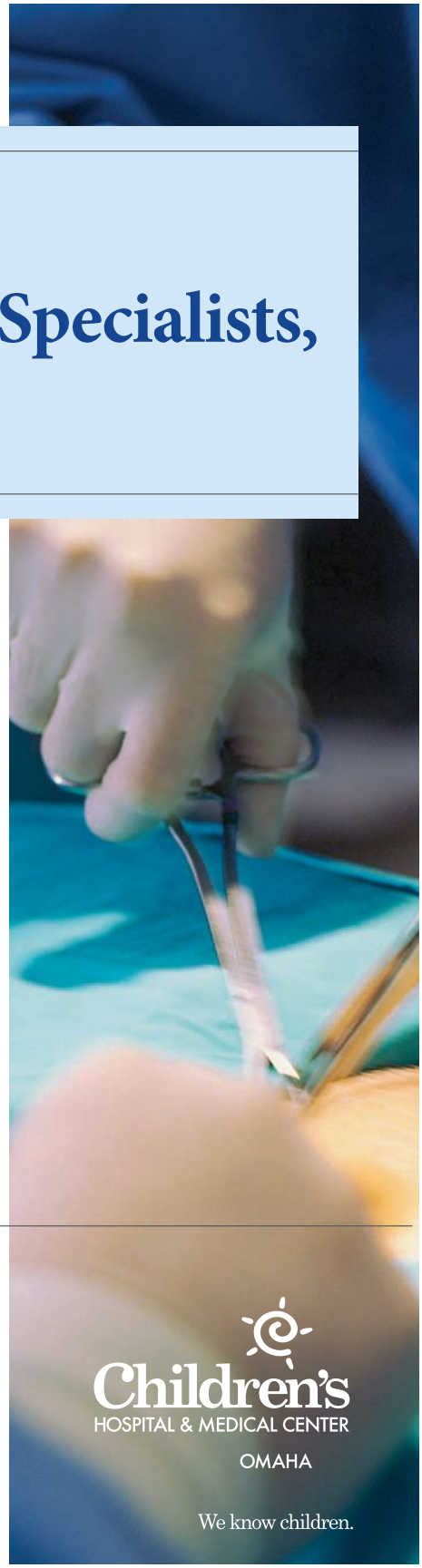
Doc is Not the Same as Doctor

The Hospital Corpsman is the backbone of Navy Medicine. Those not familiar with their training and skills can think of them as a combination of paramedic, nurse, public health officer, and mental health professional. Most importantly, they go where physicians may not go, into combat. The hospital corpsman assigned to a Marine Corp unit or SEAL team is usually affectionately called Doc. The Marines and SEALs protect their Doc and rely on Doc when they are injured. You can learn the meaning of Team by watching a corpsman in his unit, and you can certainly learn top-of-the-license. I owe a debt to the corpsmen I with whom I have worked.

Conclusions

The lessons I have learned from serving as a Navy medical officer are numerous and extend well beyond the seven above. I am grateful for my officer's commission and the opportunities serving presented to me. My military ID now states Retired, but the lessons learned remain useful and fresh every day. **MM**

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A Symbol of Commitment:
MU School of Medicine Expansion Reflects Medical School's Mission

by Linda Headrick, MD, Weldon Webb, MA & Derek Thompson, MA

The University of Missouri, CoxHealth, and Mercy health systems of Springfield are addressing a critical shortage of physicians in the state and nation by adding a second MU School of Medicine clinical campus in Springfield. As part of the expansion, MU broke ground on July 9, 2015, on a $42.5 million Patient-Centered Care Learning Center in Columbia. These changes will make it possible for the MU School of Medicine to increase its medical school class size from 96 to 128 students.

While the building will provide first- and second-year medical students with a new educational home when it opens in 2017, the Patient-Centered Care Learning Center is more than just a new state-of-the-art facility: It's a tangible symbol of the MU School of Medicine's mission to provide education that focuses on the patient in every aspect.

Dr. Headrick speaks at the July 9, 2015, groundbreaking ceremony on for the Patient-Centered Care Learning Center in Columbia. The center will provide space to train patient- and family-centered physicians.



Linda Headrick, MD, (above), is the senior associate dean for education and Helen Mae Spies Professor of Medicine at the MU School of Medicine. Weldon Webb, MA, is the associate dean for the Springfield clinical campus implementation at the MU School of Medicine. Derek Thompson, MA, is a media relations coordinator for MU Health.
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"This new medical education building was designed with input from our students and faculty, as well as from the community, and it will provide a wonderful space for us to train patient-centered physicians," said Linda Headrick, MD, senior associate dean at the MU School of Medicine.

The goal of the project is to train more physicians for Missouri by expanding the class size of the MU School of Medicine and adding an MU clinical campus in Springfield. Starting in June 2016, eight to 12 MU medical students will complete their last two years of training in Springfield. By August 2017, 32 additional medical students will be admitted to MU every year as a result of the expansion. By 2020, there will be a total of 64 third- and fourth-year medical students based in Springfield.

Southwest Connection

Before attending the MU School of Medicine, third-year medical student Andrew Osborn, MSMA member since 2014, worked as a medical scribe for CoxHealth in Springfield. Having worked in the area, Osborn feels that students will receive an intimate, hands-on education in Springfield.

"I had the privilege of working for a year in the Emergency Department at Cox, and I have seen firsthand how ample the opportunities are for learning from patients and medical professionals alike," Osborn said. "I think the medical students in Springfield will be able to get a very dynamic and hands-on education, as there will be a much smaller number of medical students and residents in the clinics compared to the university system here in Columbia. It will be a great opportunity to gain familiarity with a wonderful community and patient-base, as well."



The Patient-Centered Care Learning Center, seen here in an artist's rendering from an area southwest of the medical school, will connect the school with the larger MU campus.

The project will provide more than 300 additional physicians for Missouri, add more than $390 million annually to the state's economy and create 3,500 new jobs. Those physicians will in turn reach thousands of patients in communities throughout the state.

"Our medical students are going to serve thousands and thousands of patients, families and their communities," Headrick said. "That is the goal of the medical education program at the University of Missouri: to educate physicians to provide effective patient-centered care for the people of Missouri and beyond. That goal drives everything we do, and that's what this project is all about."

As associate dean for the Springfield clinical campus implementation, Weldon Webb worked closely with CoxHealth and Mercy health systems to make the clinical campus a reality.

"CoxHealth and Mercy could not be better partners in our mission of improving the health of all Missourians," Webb said. "Their unyielding support of this project and their dedication to improving the health of their community has been instrumental in bringing the Springfield clinical campus and class expansion to fruition."

A Symbolic Structure

Not only is the Patient-Centered Care Learning Center a symbol for the commitment MU has for the people of Missouri, but it is also a symbol of its commitment to attracting and educating top medical students.

When planning for the construction of the center, MU enlisted the services of Christner Inc., a St. Louis-based planning and programming firm, to determine the amount of space needed to support current and future needs.

Representatives from Christner such as Rachel Kerr surveyed and shadowed medical students and MU School of Medicine leaders. The experience allowed her to get an understanding of the learning activities that currently take place in the medical school in order to maximize the new space to meet the needs of students.

"At one point, I almost started crying as the students talked about how phenomenal the program is," Kerr said. "I was blown away by the idea of patient-based learning and how much it's focused on the patients and on collaboration."

Throughout the planning process, it became clear to Kerr how much MU School of Medicine leaders valued the students' input. It compelled her and her colleagues to design a space that would help the students maximize their education.

"Throughout the programming process, which ultimately informs the design of the building, we wanted to make sure that every decision we were making really supported the idea of patient-based learning. The title of the building is not just a title."

For Kerr, she now thinks of the MU School of Medicine as one of the best in the country for teaching medical students to interact with patients, their families and the health care team.

"If I ever need a doctor, I'm going to find one that's been trained at Mizzou or somewhere who uses a similar patient-based learning method," Kerr said. "This experience gave me so much respect for how they're taught. This isn't just about the students themselves and their experiences. It's about what's going to happen later. The experiences they're getting will make them better doctors, and they will be able to touch lives in a more profound way."

Local Leadership

Andrew L. Evans, MD, MSMA member since 2003, has been appointed associate dean and chief academic officer for the medical school's Springfield, Missouri, clinical campus and associate professor of clinical medicine.

Evans, a hospitalist at Mercy Clinic Springfield since 2003, is board-certified in internal medicine. He is a fellow of the American College of Physicians and a senior fellow of the Society of Hospital Medicine. As associate dean for the Springfield clinical campus, he engages Columbia and Springfield leaders to provide strategic direction and vision. He also ensures that the educational programs in Springfield align with and support high quality, effective patient-centered care.

Evans has been an active member of the medical staff in all three health systems involved with the MU medical school expansion. He also has held administrative positions in all three organizations. Evans had a prior faculty appointment at the MU School of Medicine from 2001 to 2003.

A Missouri Heritage

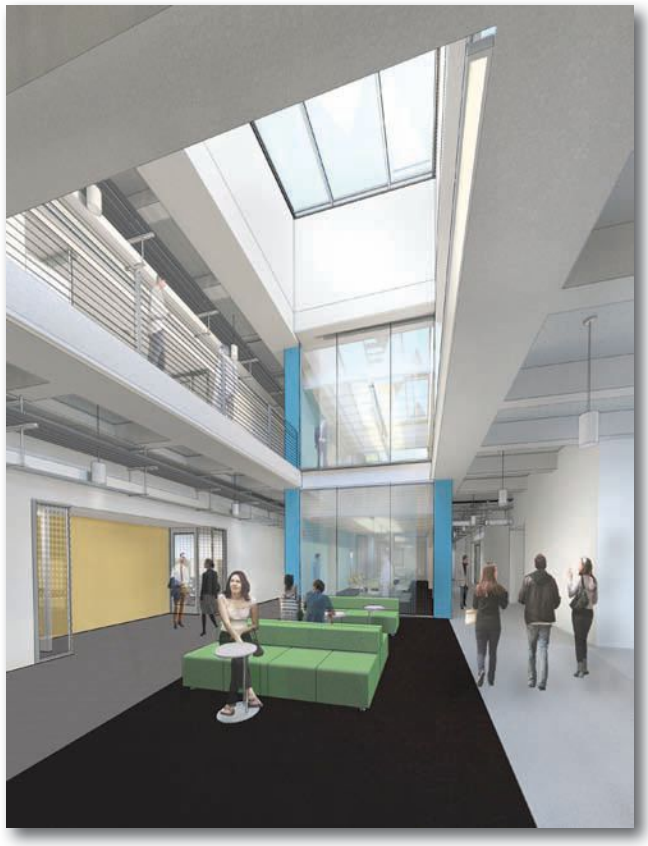
"MU School of Medicine leaders want to create a space that has a heritage that is uniquely Missourian," said Adam Cohen, an architect with Kansas City-based firm BNIM. "We took that idea and incorporated historical touches to represent that heritage."

When the doors to the Patient-Centered Learning Center open in 2017, visitors will be greeted with a dose of Missouri heritage. The front steps of the building will be made of a Carthage marble material quarried in the southwest Missouri town. The stone was quarried in the late 1920s and was installed in Kansas City's Power and Light Building in 1931. The marble was removed during a remodeling of the building in 2014, and will be installed at MU as construction is underway.

"We worked to acquire reclaimed wood that was sourced from Missouri," Cohen said. "We found pine floorboards from a general store in Hannibal, Missouri, that legend has it Mark Twain had frequented. We have white oak and red oak from various mid-Missouri barns. There's walnut from a wagon factory that burned down in Knox City, Missouri. There's hickory from a shoe factory in Palmyra, Missouri. We will recondition and polish this wood and put it in each of the six elevator lobbies in the building."



Nearly 100 University of Missouri medical students, such as third-year medical student Molly Johnson, showed their support for the MU School of Medicine expansion project by participating in the July 9, 2015, ground-breaking ceremony.



When planning for the design of the Patient-Centered Care Learning Center, project leaders sought the input of medical students. Many students placed natural light, such as the light seen in this rendering, high on their list of features to include.

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Innovative Curriculum Prepares Medical Students for a Lifetime of Learning and Patient Care

by Bruce Dubin, DO

The Evolution of "A Modified Systems – Application Based Approach."



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Two years ago, Kansas City University of Medicine and Biosciences (KCU) adopted a new curriculum model with the goal of best preparing medical students for a lifetime of future learning and patient care. In developing the model, KCU identified the necessary skills and competencies of highly proficient physicians and established the following eight principles:

1. Medical schools have a social contract to train future physicians at the highest level possible to care for their patients. In fewer than four years of medical school, student doctors will care for a patient who is someone's "mother, father, son, daughter or child." As physicians, we owe our patients the best we can give.
2. Physicians work through a formulated differential diagnosis, thus problem-solving and critical thinking are key elements of the educational model.
3. Graduates of medical schools must be skilled in self-taught learning so they can continually update their skills for the 40 to 50 years of their practice life.
4. The role of medical informatics, especially access to medical information and guidelines at the bedside or "point of service," must be developed in medical school graduates for their future practice life.
5. In terms of the basic biological sciences, future medicine will become increasingly personalized with the growth of immunology, genomics, and proteomics.
6. The practice of medicine must incorporate humanistic and ethical domains. Faculty must include these precepts as part of the medical student training process.
7. The educational pedagogy utilized in teaching must incorporate how modern medical students best learn. The learning patterns of millennials are very different from those of students who matriculated prior to 1990.
8. Core competencies (now part of entrustable professional activities) must be incorporated.

With the addition of these eight principals, modern medical curricula were reviewed to ascertain which models or hybrids might best serve the KCU pedagogy. Concepts within the following modern curricula models were considered. Best practices from each model were then incorporated into the development of the KCU educational model.

The Classic Discipline-Based Medical School Curriculum

Modern medical education began when Johns Hopkins developed the standard four-year medical school curriculum in the early 1900s. It consisted of two years of pre-clinical basic science study and two years of clinical study. Some remnants of this model remain today. Essentially, students take a variety of basic science classes during the pre-clinical years, with some occasional clinical medicine incorporated as well. Courses are lecture-based in their delivery. Most of the basic science courses are taught throughout the two pre-clinical years. In anatomy, a student may be studying the brachial plexus, and in the physiology class the next hour, studying the renin – angiotensin system. The third hour may consist of a lecture on obstetrics. In other words, this approach includes a lot of different courses on variable topics over time with many exams. Considerations of the discipline-based model include:

- Many highly qualified physicians were trained with this model.
- It is not very student – subject centric. A number of class disciplines occur at the same time.
- The four-year curriculum from this model presents optimal time for medical student education.
- Students often have difficulty understanding why they are training in the basic sciences, given no real clinical correlation in the classic model.
- Lectures incorporated by this model are less efficient in terms of learning. Since a lecture is passive knowledge acquisition rather than active learning, it does not train a student in critical thinking / problem-solving. An active learning process would provide better learning and problem-solving.

The Systems-Based Curriculum

In the late 1950s, Case Western Reserve Medical School developed what is now the most commonly used curriculum model in the U.S. Case realized that contextually, student learning could be enhanced if some disciplines were closely correlated at the time of delivery. For example, students can better grasp the complexities of physiology and anatomy if they are taught concurrently or in close proximity to each other. Think of learning the physiology of absorption and microanatomy of the GI tract together. It makes for better understanding. Thus, students in the pre-clinical years learn each organ system, moving from one organ to the next over a two-year time span. While studying a particular organ system, a student is tasked to learn all the basic science and clinical science of that system. The systems-based model is more student-centric and provides good-quality education. There are some important areas of concern:

- In a school with full cadaveric dissection, it's hard to keep a cadaver in good condition for two years. Some schools have gotten around this by front-loading anatomy as an early course (a problem if you are a systems education theorist, as it defeats that purpose); or they have moved away from dissection to plastinated or computer-based anatomical instruction.
- The sequencing may prevent good correlative learning. Many diseases are multi-system / multi-organ. Diabetes is an easy prototype. If a clinical lecturer discusses diabetic renal disease, and a student hasn't yet studied the renal system, learning is more superficial and mostly rote memorization, rather than deeper understanding.
- Sequencing is especially a problem in teaching pharmacology. Suppose that ACE inhibitors and beta-blockers are introduced in the renal system as part of the treatment of hypertension. If a student has not studied the physiology of the heart / cardiology system yet, he / she will not comprehend the concepts of pre-load or after-load as they might apply.
- This model still does not address the needs of critical thinking or active learning by moving away from a lecture-based (passive knowledge acquisition) system.

Problem-Based Learning

Physicians solve problems. That's what we do. A patient comes to us with a "chief complaint," a problem. We develop a differential diagnosis and then a treatment plan. The introduction of problem-based learning (PBL) by McMaster University Medical School in Canada in the late 1960s was a major conceptual breakthrough in physician education. Medical schools adopting PBL ideas began to concentrate more on active learning and problem-solving. Classic PBL utilizes small

groups (usually 10 – 12 students) and a facilitator. All participate in solving the problems presented by the case, an active learning process. True PBL has students design their own learning objectives (usually not a component of most schools that claim they are using PBL), and students engage in case- based education. Most PBL curricula move from organ system to organ system (just like the Systems-Based Curricula), and it takes two years to complete the entire list of all organ systems. Considerations of PBL for possible adaptation to the KCU model were:

- It is a very expensive model to use. A class of 150 students would require 12 or more facilitators. It also requires a great number of "break-out" rooms, in which small groups can meet.
- It is subject to the vagaries of the group dynamic. Some groups work well together, others don't.
- In most cases, the model still follows the same two-year systems schedule, thus the problems remain with "fractionated learning" in multi-organ disease and with understanding pharmacology (essentially applied physiology) in the absence of a broad grasp of the physiology of all systems at the time of learning.
- A major strength is the emphasis on solving problems through clinical cases. The model helps develop critical thinking skills through an active learning and problem- solving process, if the cases are designed correctly.

The KCU Curriculum Model

Based upon a review of the strengths and weaknesses of the previously described models, the new KCU curriculum model evolved. It is a "Modified Systems – Application Based" curriculum model. A condensed description follows.

Year I

- Cellular Mechanisms is the first introductory course that is taught. With students coming from myriad undergraduate and graduate school backgrounds, this course serves as a review of undergraduate cell science, biochemistry and fundamental genetics. It helps to get the first-year student body on a uniform platform that faculty can build upon.
- A primer in immunology follows. This short course is front-loaded based upon student feedback and previous exam performance.
- Following these two introductory courses, students move through all the systems in Year I, with concentration upon cadaveric anatomy, physiology, clinical biochemistry, immunology and genetics. The previously mentioned problem of cadaveric preservation over two years is solved, since the full cadaveric dissection begins in mid-September and ends in May. Also, the correlative learning of organ- based physiology and anatomy is preserved with this model — a goal of the systems-based learning process.
- From the end of May and through the end of June, students are introduced to Mechanisms of Disease. Basically, this is an introductory pathology course that centers upon pathology and microbiology fundamentals. It incorporates both "patho-genetics" and "immune-genetics."
- Primary Care Clinical Medicine (PCM) is a course on the fundamentals of patient history-taking, communication skills and physical examination, which occurs throughout the entire first year of medical school. At the end of the first academic year, students have demonstrated their ability to perform a full history and physical examination, as well as master basic clinical skills. High-fidelity simulators, standardized patients and early patient encounters are all utilized in student training.
- Medical Informatics, is a course taught by our librarians and faculty. This course encompasses the entire first year. During the first six weeks of medical school, student doctors are trained in both accessing and evaluating the medical literature and important database resources. After the introductory six weeks, students are assigned to small groups throughout the year. Each group is required to present "Grand Rounds" to all classes and campus faculty, based upon a case report given to them from New England Journal of Medicine. The standard for their presentation is that of a PGY-1 resident or higher. Students must teach themselves the requisite material for their case (the material they present isn't part of their coursework until Year II and beyond), and the presentation must include an update on the basic science, research, practice guidelines, ethics and patient education materials for the case topic. During the presentation, members of the immediate audience, or those observing the presentation on the Internet (Grand Rounds are broadcast live on YouTube at "KCU Grand Rounds "), may submit questions for the panel to answer. This course helps students in becoming lifelong learners.

- The course Osteopathic Principles and Practice is taught throughout the first year as a regular part of the curriculum. Basic landmarks are correlated to anatomic study as part of the osteopathic manipulation training.
- A yearlong medical ethics course provides case-based and lecture materials in both the realm of applied medical bioethics and medical jurisprudence.

Year II

- In dealing with the previously mentioned sequencing issues of systems-based learning, KCU bypasses the related problems by repeating all of the systems again in Year II. A quick one- or two-hour review of the basic sciences is followed by the pathology of any particular organ system. After the pathology section, the clinical portions of the system are presented along with the pertinent pharmacology. Students now understand the multi-system diseases and pharmacology better, since they have the requisite framework of anatomy, biochemistry and physiology. Thus, the sequencing problem is ameliorated.
- The PCM course in Year II concentrates on clinical skills, differential diagnosis and, now, clinical order-writing and treatment plans. Students are given clinical cases in small groups. The groups are required to establish a differential diagnosis based upon the case scenario and write admitting orders or treatment plans. They present their work to the entire class and all clinical faculty. Students must defend their decision-making and explain / justify the orders presented. Clinical skills are further enhanced with simulators and standardized patients, as well as with patient encounters.
- As mentioned earlier, the introduction of PBL by McMaster University was a significant breakthrough. The concept of critically thinking about and resolving problems is paramount to what a physician does. During the latter part of Year I and during Year II, a transition occurs in our classroom presentations. Rather than using lecture-based material, students are given very precise reading assignments for knowledge acquisition during time off. While in the classroom, faculty present case vignette problems. This is done with the entire class in an interactive manner. Students are called upon in the classroom, and iClickers are utilized as part of the vignette presentations. This form of teaching helps establish PBL critical thinking and the ability to form a differential diagnosis without the huge faculty demands for facilitators and breakout space.
- Osteopathic Principles and Practice, as well as Medical Ethics, continue as part of Year II as well.

Years III and IV

Years III and IV follow the basic clinical format of most medical schools. On another note, however, honors rotation tracks have been developed in pediatrics, internal medicine, surgery, orthopedics, and obstetrics/gynecology. These tracks are designed for students who excel and are certain about the residency path they wish to pursue. Each track takes twelve students per year. Enhanced rotation opportunities provide extra course work, and didactics are available for these honors students.

Other Honors Programs

KCU also has honors programs in Global Medicine and Military Medicine. These special tracks occur over three-and-a-half years of school and add 20 to 25 contact hours per semester. The Global Medicine track is for students who see career paths in that venue, and the Military Medicine track is for students on Health Profession Scholarship Programs who have a future career in the military. Elements of the tracks include international experience and a research component for the global students; the Military Track includes extra training in trauma surgery in the field with military physicians.

Does This Modified Systems – Application Based Curriculum Model Work?

Medical schools (both osteopathic and allopathic) that have incorporated parts of this curriculum model have demonstrated higher performance on their national board scores.

In the courses where case vignettes and modified PBL-style teaching have occurred, student performance has been higher. Clinical faculty have reported increased student outcomes with differential diagnosis and interactions with standardized patients. In the summer of 2016, the first cohort of KCU students who have trained using this curriculum will sit for their national boards. It is anticipated that this curriculum model will demonstrate even higher performance.

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KANSAS CITY
MEDICAL SOCIETY

Kansas City Medical Society: Leadership, Innovation, Advocacy

The Kansas City Medical Society (KCMS) is enjoying a renewed energy with vibrant programs, growth in membership, and engaged leadership.

In 2015, under President Michael O'Dell, MD, we focused on three strategic priority areas of our mission statement—**Leadership, Innovation** and **Advocacy**. We have built a package of member programs around these themes while also improving services to members:

Leadership—Helping physicians build leadership skills for today's health-care environment, where physicians often serve in management roles or on collaborative teams.

Innovation—Equipping physicians with education on best practices and emerging trends in health care, helping to prepare them for the changes on the way.

Advocacy—Providing the physician voice on issues impacting the practice of medicine and the health of the community.

History

Now celebrating its 135th year, KCMS was founded on December 2, 1881, by a group of local physicians concerned about public health issues, medical quackery, and the need for medical education. Early successes included campaigning against dumping of raw sewage in the Missouri River and reducing unsanitary conditions from sewage in the streets. KCMS assisted the City of Kansas City in its pre-pasteurization inspection program. We also were a prime mover in forming the region's leading blood bank, the Greater Kansas City Blood Center. KCMS helped bring health coverage to the community in leading the establishment of Blue Cross Blue Shield of Kansas City. We lobbied for a state-supported medical school in Kansas City which resulted in the 1971 opening of the University of Missouri-Kansas City School of Medicine and its innovative six-year program that combines undergraduate and medical studies. More recently, KCMS was a partner in the creation of MetroCARE, which combines donated physician care with safety net clinics to improve access to medical care for low-income, uninsured residents of Jackson, Clay and Platte counties.

Originating as the Jackson County Medical Society, the organization in the late 1980s expanded and we now represent the entire Kansas City metropolitan area, with members from Missouri as well as Kansas. In 2016, KCMS has been discussing and thinking about future collaborations. KCMS has been involved in discussions about the uninsured and underserved patients, and has been working with Metro Care and Wy Jo Care, the area's project access programs, to explore how physicians can help assure our community's future needs are met.

KCMS has also formed a Collaboration Task Force to explore what the physicians in our five counties and two states need from organized medicine.



2016 KCMS President
Stephen Salanski, MD



2016 President-Elect
Joshua W. Mammen, MD, PhD

Educating and Informing Physicians

KCMS is helping physicians understand the changing health-care payment landscape. In September 2015, we held a "Getting 2 Value" conference that brought together national and local experts to discuss the coming transformation to value-based care. National speakers were Paul Grundy, MD, MPH, director of global health-care transformation for IBM, along with Marci Nielsen, PhD, MPH, the CEO of the Patient-Centered Primary Care Collaborative; they discussed the patient-centered medical home. Representatives from Blue Cross Blue Shield Kansas City described their work

on the patient-centered medical home, as well as payment innovations under Medicare Advantage programs and the Medicare and CHIP Reauthorization Act (MACRA). More than 80 Medical Society members and other interested stakeholders attended. This was followed up by program this May on population health management presented by Scott Conard, MD, a Texas-based pioneer in using data to promote improved patient health.

Our annual meetings provide both education and networking while celebrating the accomplishments of the year. At this occasion, we honor our members and community partners with the Lifetime Achievement Award, the Friend of Medicine Award and Member Awards. We choose exciting and appealing settings for the annual meeting. Our 2015 meeting was held at the spectacular new Kauffman Center for the Performing Arts. This September, the 2016 annual meeting will be held at the newly renovated and enlarged World War I museum. Both of these venues should be must-sees on your next visit to Kansas City.



The 2015 KCMS annual meeting at the Kauffman Center for the Performing Arts.

Advocacy

The long-standing concern of KCMS for community health issues carries on with our advocacy work today. We have supported the Kansas City Tobacco 21 initiative which seeks to raise to 21 the legal age to buy tobacco products. The Institute of Medicine estimates that Tobacco 21 policies can reduce youth smoking by up to 25%. So far, Kansas City, Mo., and five other cities in the metropolitan area have passed Tobacco 21 ordinances.

KCMS joins with MSMA and the Kansas Medical Society in supporting statewide advocacy efforts. Our board in 2015 provided recommendations to the Missouri Board of Healing Arts on the supervision and training of the new practitioner category of Assistant Physician.

Member Services

KCMS has expanded our membership numbers and extended our reach in the community through the introduction of a partnership program. Partnerships allow hospital medical staffs and group practices to enroll all of their physicians as members, and partner with KCMS on events and programs. This gives us an instant connection with a much larger audience of physicians. With partnerships and other membership campaigns, we have increased our membership to over 3,000 today.

Cover from the *Kansas City Medicine* magazine.



One of our services of which we are most proud is the re-launch of our member journal, *Kansas City Medicine*. Each issue is packed with a mix of clinical information articles, features on trends in medicine, plus news on Medical Society activities. Topics covered in 2015 included cardiac care, family practice, physician leadership, medical education, work-life balance, and more. Thanks to the leadership of our editor, Charles W. Van Way, III, MD, for spearheading our journal.

It is an exciting time for the Kansas City Medical Society. We are striving to be the resource that helps position physicians to thrive in health-care system of today and the future. This will require developing ourselves as leaders, and understanding and mastering the payment environment. Through this, we also will continue to make the physician voice heard in policy issues, and advocate for measures that can improve the health of our community. **MM**

Life After Medicine: A Time to Smell the Roses

by Douglas B. Bogart, MD



I practiced cardiology in Kansas City from 1977 to 2012. I can say without reservation that I would choose the same profession again if I were able to start over. When I was contemplating retirement, many of my friends said that I wouldn't be able to survive without medicine. Now after nearly four years of retirement I can say unequivocally that I am truly enjoying my life after medicine. Certainly I miss the interaction with patients and colleagues but retirement has given me time to do things that I never seemed to accomplish while I was working.

I was nearly 67 years old when I retired. I had always been concerned that if I worked too long my skills would deteriorate. Doctors Hagan and Kupfer have previously discussed this issue.[1,2] They have addressed some of the potential concerns regarding quality of care that may apply as a physician becomes older. Since there is no conclusive data regarding clinical outcomes related to the age of the physician, retirement is a personal decision for each doctor. There is a delicate balance between the clinical expertise and technical skills acquired through years of practice and the inevitable age-related decline in physical stamina, dexterity and cognitive function. It can also be very difficult to recognize our own imperfections. With these things in mind, I wanted to emulate Ted Williams who hit his 521st home run on his very last at bat. I certainly was not the Ted Williams of cardiology, but I ascribed to his philosophy. During this thirty-five year period of practice, medicine had defined my life. I believed the time was right to start a new phase in my life.

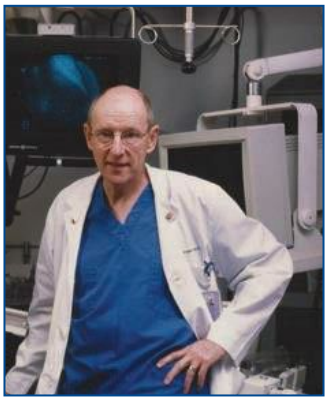
While I was certainly not the best husband or parent, I tried to keep my family as the focal point of my life. I have more time now and have attempted to be even more focused on my family and more involved in their lives.

In contemplating how to have a meaningful life in retirement, I thought I should build on the things I had enjoyed during my time in practice as well as some of the things I had continually procrastinated. I had always maintained a regular exercise program and since we had moved to Colorado upon retirement, there were ample trails to hike and bike. I began hiking two to three hours every day while living in Colorado. While Colorado was beautiful, the winters were quite cold, so I now walk and bike along the ocean close to my home in Florida. I have also added pickleball to my exercise regimen.

I had always wanted to re-establish some of the friendships from high school, college and medical school that had faded over the years. I have been able to renew many of these relationships which has been very gratifying.

In addition, I felt it was essential to keep my mind busy.

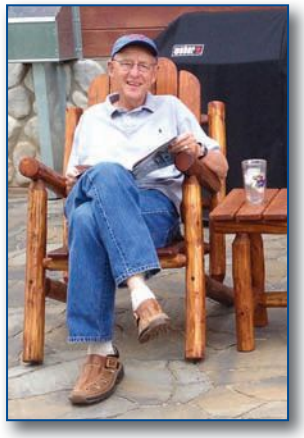
After retirement I learned to play bridge and now play a couple of times a week. This has been an excellent game for me with plenty of mental challenges.



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Reading medical books and medical literature had been an integral part of my life, but I had always wanted to read for pleasure as well. This was another opportunity afforded by retirement. I began to read books on the history of the United States, Europe, Russia and the Middle East. In addition, I read many of the classical best sellers and biographical books that had always eluded me.

The Bible was a book that I had never read but it was always on my "to do" list. Upon retirement I began a daily reading program for the Bible and now have read it several times. Many of passages in the Bible that I learned in Sunday school as I child, I had forgotten long ago. Besides the Bible I found several authors who have helped me expand my spiritual awareness. Some of these authors are C.S. Lewis, A.W. Tozer, G.K. Chesterton, Tim Keller, and Henry Blackaby. As I read these books I often wondered how my interpersonal relationships would have differed if I had started this program 50 years earlier.





	Life during Medicine	Life after Medicine
Family Activity	Be the best family member I could be	Be the best family member I can be
Physical Activity	Regular exercise by running, biking and walking	Regular exercise by walking, biking and playing pickleball
Intellectual Activity	Continued study to keep current in my specialty	Reading material I choose, studying the Bible and playing bridge
Identity (Who I am)*	A physician	A person who wants to serve others
Importance (How I Matter)*	By helping patients and working with other physicians	By donating my time and financial support for my community and church
Impact (My place in Life)*	Trying to be the best physician I could be	Trying to fulfill my commitment to my community and church

*Adapted from Rick Warren, *A Purpose Driven Life*

During this time I found a book that had been given to me by a patient several years earlier, Rick Warren's *The Purpose Driven Life.*[3] The goal of this book is to delineate God's purposes for our lives.

Warren describes three basic issues that people struggle with during their lives. These are their identity (who they are), their importance (do they matter) and their impact (their place in life). Medicine had been the perfect solution as it had provided all three for me. As I read and pondered on this, I started to realize that there was more to life than working for accomplishments to be highlighted in my obituary. If I were to have a successful retirement I had to re-invent myself with a new identity, new importance and a new impact. I finally understood that God should be at the center of this "new me."

Since practicing medicine is a service type profession, it follows that I would be drawn to service type activities. As physicians, we devote the majority of our practice time attempting to solve the problems of our patients. I now try to donate time and financial resources to my community, church and organizations dealing with world problems and disasters. Table I summarizes my goals during my time practicing medicine and now in retirement.

In summary, Ecclesiastes 3:1 says "For everything there is a season, a time for every activity under heaven." My time after medicine has been a time to smell the roses. I have been able to pursue many of the things I enjoyed while I was working but now have more time to devote to them. More importantly, I have been able to develop other intellectual and spiritual pursuits. This facilitated my developing faith in God. I don't think this would have ever happened without time to read, study and meditate. I have tried to develop a life goal template that can serve to guide me as I move forward. I am certain I will fall short in many of my aspirations, but in retirement as in practicing medicine one needs to attempt to adhere to a well thought out plan.

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MSMA Members in the News

Read more about what our members are doing at www.facebook.com/momedical

Betty M. Drees, MD, MSMA member since 2000, and a Board Certified Endocrinologist, has joined the *Missouri Medicine* Board as a Contributing Editor. She is a member of Alpha Omega Alpha and Phi Kappa Phi honor societies and is a Fellow in the American College of Physicians. She is a past Chair of the Governing Council of the American Medical Association (AMA) Section on Medical Schools. She is currently a Professor of Medicine at University of Missouri - Kansas City, and on the staff of several Kansas City area hospitals. She is a member of the Board of Trustees at Research Medical Center. Dr. Drees was Dean, UMKC School of Medicine from 2003 to 2014.



University of Missouri - Kansas City Dean and MSMA member Steven Kanter, MD (right) poses with bronze sculpture commemorating Betty M. Drees MD's (left) distinguished tenure as Dean of the UMKC School of Medicine.

Medical School Deans are MSMA Members

One of the goals of MSMA is to advocate for medical education. The Missouri State Medical Foundation (MSMF) has loaned nearly $12 million over the past 55 years to more than 2,000 Missouri medical school students. Over the past ten years, MSMF has funded the MSMA Scholarships for Missouri medical schools. Last year, 45 Missouri medical school students received MSMA Scholarships totaling $112,500.

MSMA is pleased to have all of the Deans of the medical schools as members, including Philip Alderson, MD, Saint Louis University; Patrick Delafontaine, MD, University of Missouri – Columbia; Bruce Dubin, DO, Kansas City University; Steven Kanter, MD, University of Missouri – Kansas City; David Perlmutter, MD, Washington University; and Margaret Wilson, DO, A.T. Still University.



Edward Barns, MD, FACS, is seeing patients at the new Lake Regional facility, and in Lebanon. He joined MSMA last year. Thank you!



Michelle Dew, MD, MSMA member since 2007 of Kansas City, was the keynote speaker at "Heart-to-Heart Health Forum for Women."



The community in Fulton is very fortunate to have a wonderful physician like Kimetha Fairchild, MD, at their new clinic, and so is MSMA to have her as a member since 2013.

Congratulations to MSMA members Joseph Forand, MD, and Christopher Bowe, MD, on their new medical center grand opening Both have been MSMA members since the 1980s and continue to lead the charge.



Congratulations to Jason Gault, DO, MBA, on his new position at Marshall Surgical Associates. Thank you for being an MSMA member since 2014.

Drs. Margaret E. Gibson and Jon D. Schultz, of Kansas City, presented at the Annual Conference of the Society of Teachers of Family Medicine, in Minneapolis, Minn., April 26, on Establishing a Sports Ultrasound Curriculum in a Primary Care Sports Medicine Fellowship and Residency Program. Together, they have been MSMA members for more than five years.

Richard Hellman, MD, MSMA member since 1976, was recently selected to receive his second "Distinguished Reviewer" award from the American Diabetes Association and the Editorial Board of *Diabetes Care*. This is the second year in a row that Dr. Hellman has received this award.



Lent Johnson, MD, of Hannibal, MSMA Past President and current Delegate to the AMA, received his recertification from the American Board of Family Medicine. He has supported MSMA as a member since 1982.

Septic Shock Secondary to a Urinary Tract Infection with *Pediococcus Pentosaceus*

by Amneet Hans, MD, Jeet Mehta, MD & Rebecca R. Pauly, MD

To the best of our knowledge, this is the first case report that describes the successful use of piperacillin/tazobactam to treat septic shock and acute kidney injury in a patient whose urine culture was positive for the organism *Pediococcus pentosaceus*.



Amneet Hans, MD, (above) just received her MD from the University of Missouri - Kansas City. Jeet Mehta, MD, is a Resident Physician in Internal Medicine/Pediatrics at the University of Missouri - Kansas City School of Medicine. Rebecca R. Pauly, MD, MSMA member since 2015, is in Internal Medicine at the University of Missouri-Kansas City School of Medicine.
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Abstract

We present a case of a urinary tract infection secondary to *Pediococcus pentosaceus* causing septic shock and acute kidney injury in a 70-year-old male. We demonstrate successful treatment with a 10-day course of piperacillin/tazobactam. Recently, *Pediococci* have been found to be the cause of opportunistic infections in humans.[1] This has posed a challenge to treating infections caused by this species because it has been found to be resistant to multiple antibiotics, including glycopeptides.

Case Presentation

The patient is a 70-year-old male with a past medical history of benign prostatic hyperplasia (BPH), Type 2 Diabetes Mellitus, hypertension, depression, and alcohol abuse. He presented to the emergency department from home after his family called paramedics because they had not heard from him in three days. He was found to be hypotensive with a blood pressure (BP) of 91/52 mmHg, tachycardic with a heart rate (HR) of 123 beats per minute, and tachypneic with a respiratory rate (RR) of 24 breaths per minute. Temperature was 98.8 °F. He had altered mental status and was admitted to the intensive care unit due to concern for septic shock.

White blood cell count was 13,700 cells/mcL (81.2% granulocytes, 6.2% lymphocytes, 12.1% monocytes, 0.4% eosinophils, and 0.1% basophils) on admission. Basic metabolic profile (BMP) revealed a sodium of 123 mmol/L, potassium of 4.8 mm/L, chloride of 84 mmol/L, bicarbonate of 13 mmol/L, glucose of 615 mg/dL, blood urea nitrogen of 156 mg/dL, and creatinine of 7.52 mg/dL. The patient's baseline creatinine was 0.8 mg/dL four months prior to admission. Urinary catheter was placed, and at least 2.5 L of urine were drained. Urinalysis revealed 10-25 white blood cells, 2+ bacteria, minimal squamous cells, and trace leukocyte esterase. Upon admission, two sets of blood cultures and one urine culture were obtained. On physical exam, the patient was arousable, but confused. His head was normocephalic and atraumatic. Pupils were equal, round, and reactive to light, and he had normal conjunctiva. Oral mucosa and skin were dry. On cardiac exam, he was tachycardic (HR 123 beats per mintue) with no murmurs. Respiratory exam revealed clear lungs. Gastrointestinal and genitourinary exams revealed a palpable distended bladder with tenderness to palpation. There was no rebound or guarding. External genitalia appeared normal. The patient required hydration with intravenous fluids (sodium chloride 0.9% 150mL/hr) and was started on vasopressors (norepinephrine 15mL/hr). He was empirically started on

broad-spectrum antibiotics, including vancomycin and piperacillin/tazobactam, as there were multiple possible sources of infection.

On day two of admission, the patient was found to have right elbow swelling which was concerning for a possible additional source of infection. Orthopedic surgery was consulted, and the patient underwent arthrocentesis of the right elbow olecranon bursa. The aspirated fluid appeared slightly cloudy and revealed a negative gram stain, no crystals, and 100 WBCs/mm.[3] The fluid culture was subsequently negative. The patient was also found to have a 14x9cm stage two sacral decubitus ulcer with evidence of necrosis and well-defined wound edges that drained moderate serosanguinous fluid. Wound care was consulted and appropriate management was provided; wound culture was not done. On day four of his hospital stay, the patient no longer required vasopressors and was transferred out of the ICU onto the medical telemetry floor. At this time, vital signs were stable with a BP of 131/79 mmHg, HR 95 beats per mintue, and RR 18 breaths per minute. BMP revealed a sodium of 136 mmol/L, potassium of 3.1 mmol/L, chloride of 103 mmol/L, bicarbonate of 21 mmol/L, glucose of 142 mg/dL, blood urea nitrogen of 14 mg/dL, and creatinine of 0.86 mg/dL.

Urine culture from admission revealed a final result of *Pediococcus pentosaceous* (100 CFU/HPF). Vancomycin was discontinued due to lack of activity against this organism. However, piperacillin/tazobactam was continued for coverage of the organism. No susceptibilities were available at our institution. The patient received a total of 10 days of piperacillin/tazobactam (3.375 grams IV every 8 hours with appropriate dosage adjustment for renal function). Repeat urinalysis and urine culture were done on day 5 with a clean catch sample. There were 0 squamous epithelial cells, 0-2 white blood cells, and no bacteria. Repeat urine culture was negative. Both of the blood cultures obtained from admission were negative. Renal ultrasound was performed to rule out hydronephrosis, calculi, or mass that could be a nidus for infection. The right kidney measured 10.1cm (normal 9-14cm), and there was mild right-sided hydroureter with the proximal ureter measuring 1.36cm. No echogenic calculi or mass was visualized. The left kidney measured 11cm (normal 9-14cm) and appeared normal with no hydronephrosis, mass, or echogenic calculi. Urology was consulted during admission due to the patient's uncontrolled urinary retention from BPH and recommended that a foley urinary catheter be placed and changed monthly upon discharge. On the day of discharge, the patient's white blood cell count was 9,200 units/mcL, and he was no longer hypotensive (BP 125/71 mmHg), tachycardic (HR 89 beats per minute), or tachypneic (RR 18 breaths per minute). The patient's translocational hyponatremia was likely secondary to elevated glucose levels on admission and was corrected appropriately throughout his hospital course. BMP revealed a sodium of 136 mmol/L, potassium of 4.1 mmol/L, chloride of 97 mmol/L, bicarbonate of 25 mmol/L, glucose of 107 mg/dL, blood urea nitrogen of 12 mg/dL, and creatinine of 0.87 mg/dl, which was back to baseline.

It was concluded after the initial urine culture grew *Pediococcus pentosaceous* that the patient had developed septic shock and acute kidney injury secondary to a complicated urinary tract infection with contribution from urinary retention from symptomatic BPH. The infection was successfully treated with a 10-day course of piperacillin/tazobactam.

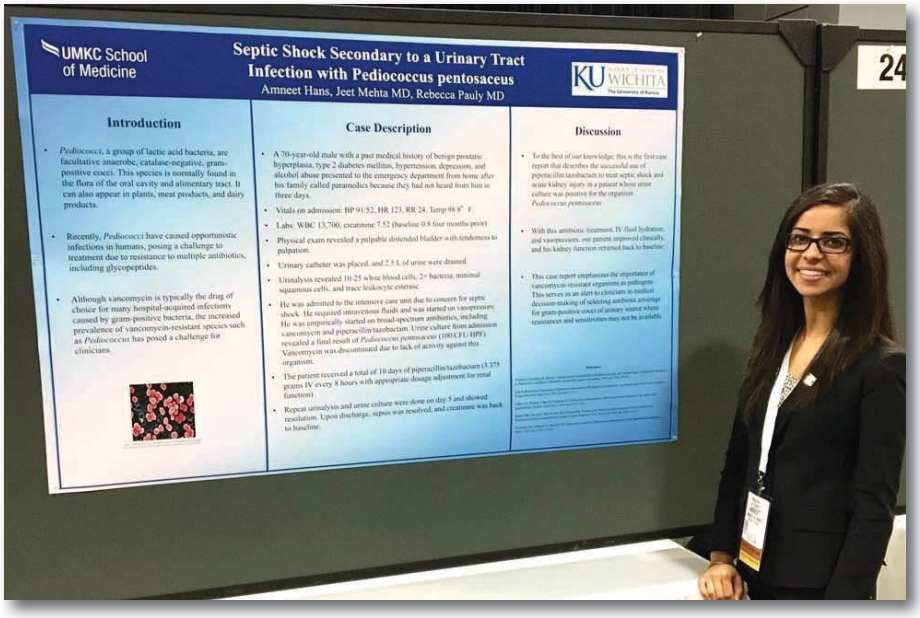
Discussion

Pediococci, a group of lactic acid bacteria, are facultative anaerobe, catalase negative, homofermentative, gram-positive cocci. This species is normally found in the flora of the oral cavity and alimentary tract in both healthy and immunocompromised individuals.[1] They can also appear in plants, dairy products, alcoholic beverages, meat, and have been used as probiotics in the food industry.[2] Recently, the organism has been isolated from intraabdominal and perirectal abscesses and from peritoneal fluid.[3] *Pediococci* grow on blood agar and produce either alpha-hemolysis or no hemolysis.[3] The organism is known to cross-react with Group D streptococcal antisera, which is why it may be misidentified at streptococcal species.[3]

The genus *Pediococcus* is currently known to contain the five species *Pediococcus acidilactici*, *Pediococcus damnosus*, *Pediococcus dextrinicus*, *Pediococcus parvulus*, and *Pediococcus pentosaceus*.[4] Recently, these vancomycin-resistant organisms have been known to cause opportunistic infections in humans. The prevalence of glycopeptide-resistant bacteria is likely secondary to the increased use of these antibiotics therapeutically.[4] Two *pediococcus* species in particular, *pediococus acidilacticia* and *pediococcus pentosaceus*, have been increasingly isolated from various human specimens over the last decade. These organisms have been found to be resistant to a multitude of antibiotics.

Antibiotic susceptibility has been extensively performed on 36 clinical strains of *Pediococcus spp*. isolated from blood and stool cultures.[1] This study found that all strains of *pediococcus spp*. were moderately susceptible to penicillin G, imipenem, gentamicin, and netilmicin. Other active drugs against Pediococcus spp. included clindamycin, erythromycin, daptomycin, ramoplanin, rifampin, and chloramphenicol. All isolates of P. pentosaceus were resistant to novobiocin, while all strains of P. acidilactici were susceptible to novobiocin. Furthermore, all of the *Pediococcus* strains were resistant to tetracycline, and minocycline was only slightly more active.[1]

Septic Shock Article Wins Poster Contest



Amneet Hans, author of this article, received the first prize for her student research poster presentation at the 2015 Kansas Chapter of the American College of Physicians meeting in Wichita.

Hans received the award for her poster, "Septic Shock Secondary to a Urinary Tract Infection with Pediococcus Pentosaceus." Jeet Mehta, MD '15, contributed to the research, and Rebecca Pauly, MD, professor of medicine and associate dean of faculty development, served as faculty mentor and a co-author.

Hans also won the National Student Abstract Competition at the American College of Physicians meeting in Washington, D.C.

Several case reports have been published regarding various antibiotics that have been known to successfully treat infections caused by *Pediococcus spp*. Atkins et al. reported a case of catheter-related bacteremia in an infant who had undergone multiple gastroschisis surgeries and was treated with ticarcillin/clavulanate.[3] The culprit organism was determined to be *Pediococcus pentosaceus*, and it was resistant to vancomycin. A second case regarding bacteremia caused by *Pediococcus pentosaceus* occurred in a woman with pancreatitis, diabetes, and multiple abdominal surgeries. Interestingly, this patient's blood cultures (two on separate occasions) grew *Pediococcus pentosaceus* while the patient was on a prolonged course of vancomycin. The patient was treated with ampicillin, to which the organism was determined to be susceptible.[5] *Pediococcus acidilacticia*, the second species of *Pediococcus* known to cause clinical infections, was isolated in a patient with metastatic adenocarcinoma of the gallbladder. Despite treatment with vancomycin, ciprofloxacin, metronidazole, and caspofungin, the bacteremia persisted. However, after switching from vancomycin to daptomycin and continuing daptomycin for 36 hours, the bacteremia resolved and the patient improved clinically.[2]

Summary

Our case report describes a complicated urinary tract infection secondary to *Pediococcus pentosaceus* causing acute kidney injury and septic shock. We demonstrate successful treatment with a ten-day course of piperacillin/tazobactam. With this antibiotic treatment, IV fluid hydration, and vasopressors, our patient improved clinically and his kidney function returned back to baseline. Although vancomycin is typically the drug of choice for many hospital infections caused by gram-positive bacteria, the increased prevalence of vancomycin-resistant species such as *Pediococcus* has posed a challenge for clinicians. The increased number of *pediococcal* infections is likely due to the widespread use of glycopeptides antibiotics.[2] This case report emphasizes the importance of vancomycin-resistant organisms as pathogens. This serves as an alert to clinicians in medical decision-making of selecting antibiotic coverage for gram-positive cocci of urinary source where resistances and sensitivities may not be available. To the best of our knowledge, this is the first case report that describes the successful use of piperacillin/tazobactam to treat septic shock and acute kidney injury in a patient whose urine culture was positive for the organism *Pediococcus pentosaceus*.

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Substance Use in Women of Reproductive Age

by Jackie Herzberg, MD, Breton Barrier, MD, Debra J. Sprague, MA & Daniel C. Vinson, MD

Among women of childbearing age, the prevalence of substance use and lack of understanding of risk of use is most relevant in women with intended pregnancies and in women with significant risk of pregnancy, but perceived low risk of pregnancy.



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Abstract

Using anonymous exit questionnaires in a university OB/GYN clinic, of 165 pregnant women reporting on drinking prior to pregnancy, 26% screened positive for hazardous or harmful drinking. Among 153 non-pregnant women age 50 or younger, 39% screened positive. Of those, 85% had no plans to change their alcohol consumption, as most believed their drinking levels were not risky; 80% had a significant risk of becoming pregnant, but 85% believed pregnancy was unlikely.

Introduction

Alcohol, tobacco, and illicit drug exposures before and during pregnancy pose serious health risks for women of reproductive age and, if pregnant, to their unborn children.[1,2] While most women attempt to discontinue substance use after learning they are pregnant, half of all pregnancies are unplanned and women often do not realize they are pregnant until 4 to 6 weeks after conception.[3]

In 2012-13, among pregnant women ages 15-44 in the United States, in the past 30 days 15.4% reported smoking, 9.4% drank alcohol, 2.3% reported having five or more drinks on at least one occasion, and 5.4% reported past-month use of illicit drugs.[4] Among women in the same age group who were not pregnant, the rates of past-month use were significantly higher: 24.0% smoked, 55.4% drank alcohol, 24.6% reported at least one episode of binge drinking, and 11.4% reported use of illicit drugs.[4]

Unintended pregnancy, defined as unplanned, untimely, or unwanted, affects 51% of pregnancies in the United States.[5] Among women with unintended pregnancies in the U.S. in 2008, 54% had not been using contraception, 41% reported using it inconsistently, and only 5% had used some contraceptive method consistently.[6]

While rates of unintended pregnancy and substance use are known, less is known about women's perceptions of the risk of pregnancy and risks of substance use, specifically among women who are at high risk of pregnancy but perceive a low risk, or women with risky drug or alcohol use who are attempting to become pregnant. Aligning perceived risk with actual risk through sufficient education is important, as behavior is influenced by perceived risk.

Methods

Study Design

The research team engaged the clinical nursing supervisor and the clerical staff supervisor in the University of Missouri Obstetrics and Gynecology (OB/GYN) clinic to plan questionnaire design, sampling, and recruitment. A questionnaire used in our general medical outpatient clinics was adapted for this study based on literature review and subsequent research questions. We added questions about contraception choices, perceived risk of pregnancy, barriers and motivators to change, and changes in substance use by women who are currently pregnant. The clinic team reviewed and approved the questionnaires and the blended team collaborated on how best to implement

Table 1
Results from survey.

	Non-pregnant women	Pregnant women
Total number	153	165
Age: Number providing data	153	153
Mean and median	31 and 30	27 and 27
Standard deviation	8.3 years	5.6 years
Range, and Interquartile range	15 to 50, 24 to 37	17 to 40, 22 to 31
AUDIT-C: Number providing data	152	161
Number (%) with positive AUDIT-C	60 (39.2%*)	43 (26.1%)**
Illicit drug use: Number providing data	153	164
Number (%) using more often than monthly	4 (2.6%)	9 (5.5%)**
Tobacco use: Number providing data	153	163
Smoked prior to pregnancy, but not now	Not applicable	32 (19.4%)
Current use: Number (%)	33 (21.6%)	20 (12.1%)

* All percentages use the total sample size (153 or 165) as the denominator.

** Pregnant women were asked about their alcohol and drug use "before this pregnancy."

data collection into the existing clinic workflow. This study was approved by the University of Missouri IRB, Health Science Section, including surveying patients ages 13 through 17.

Participants

All patients scheduled for visits with their OB/GYN physician were verbally recruited for this voluntary study by the clerical staff when they arrived. Women were excluded if staff could readily determine that they were in acute distress or possibly in labor. Staff asked each patient to complete the questionnaire after the clinic visit and before leaving, informing them that the questionnaire was anonymous and participation voluntary. The front of the tri-folded questionnaire included the same study information.

Data were collected from July to October 2013. With a short explanation, clerical staff handed each patient two versions of the questionnaire, one for women who knew or suspected they were pregnant and the other for women who were not pregnant. Since many women in OB/GYN clinics are seen frequently, the staff asked each patient if she had already filled out the survey and only gave the surveys to women who had not yet completed one. Each participant chose the form she thought was appropriate for her situation, completed it without assistance from staff, sealed it in a provided envelope, and returned it to the designated collection basket.

Measures

The questionnaire for pregnant women had 19 questions with 52 possible responses. The questionnaire for non-pregnant women had 17 questions with 54 possible response options. Both versions covered methods of contraception used or reasons for not using any. The questionnaires included the three consumption questions (the AUDIT-C) from the Alcohol Use Disorder Identification Test to screen for hazardous or harmful drinking[7,8] and one question about tobacco use. Use of drugs was assessed with one question that asked both about use of illicit drugs and non-medical use of narcotic pain medications: "How many times in the past year have you used a street drug or used narcotics for non-medical purposes?"[9,10]

The questionnaires asked the patient whether she had talked with her health care providers "in the past year" about her substance use. The version for pregnant women uniquely asked questions about substance use before and during the pregnancy, and plans for continuing or resuming after pregnancy. The questionnaire for non-pregnant women uniquely asked her perception of her probability of becoming pregnant. On both questionnaires, the year of birth was asked, but no data on race, ethnicity, or socioeconomic status were collected.

Both versions of the questionnaire asked about motivators for and barriers to changing alcohol consumption: "What motivates you to cut down or quit drinking?" and "If you don't plan to cut down or quit drinking, what led to that decision?" Each question was followed by a list of possible answers, and respondents were asked to "check all that apply."

The questionnaires were designed to be easy to read, at a sixth grade level or below. Copies of the questionnaires are available from the corresponding author.

Data were keyed in twice. Descriptive statistics, Spearman correlations, and chi square analyses were done in Stata version 12.

Because of the frequency of unintended pregnancy and opportunity for intervention in gaps between perceived and actual risk, we compared typical contraceptive failure rates among non-pregnant women with each woman's perception of her likelihood of becoming pregnant. We asked each woman if she planned to change her drinking in the next month and her perceptions of motivators and barriers for cutting down or quitting.

Results

Women being seen in residents' or attending physicians' clinics were eligible and 43% of women seen from July to October 2013 completed the questionnaire. A common reason for non-completion, especially among pregnant patients, was that the patient had already been seen during data collection. No data were collected on women who chose not to complete the survey. A total of 358 completed questionnaires were collected (See Table 1).

Figure 1
Contraception Use Compared to Typical Failure Rates Among non-pregnant women

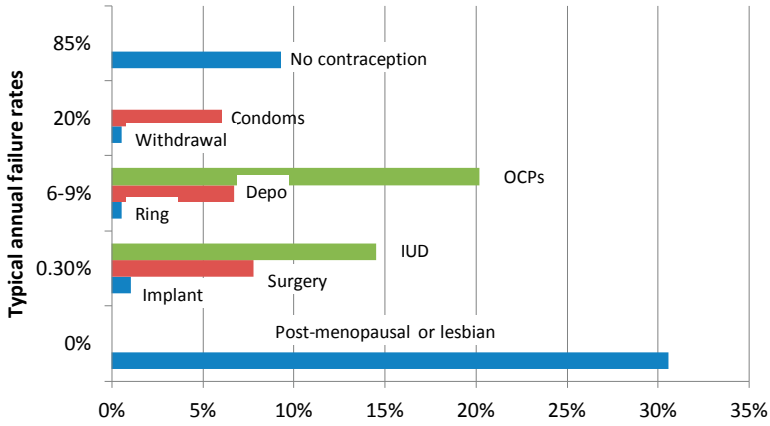
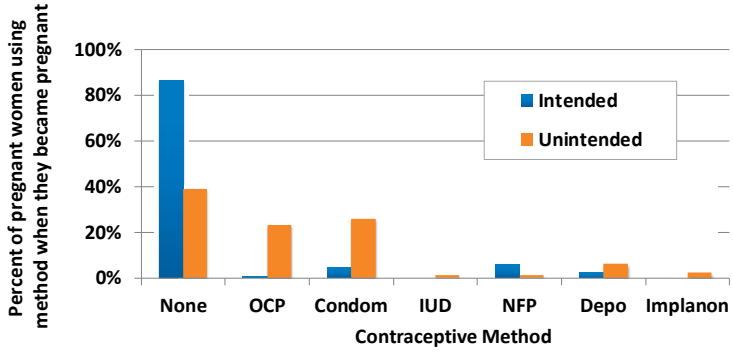


Figure 2
Contraceptive Methods and Intention to Become Pregnant Among pregnant women



Non-Pregnant Women

Of 153 non-pregnant women, 50 (32.7%) had had surgical sterilization (or their male partner had), were using an IUD or implanted contraceptive device, were lesbian, or were post-menopausal (one woman, age 48). Another 65 (42.5%) were using a contraceptive method with a typical failure rate at 1 year of 6% or higher.[11] (See Figure 1.) Sixteen were not sexually active. Of the remaining 22, who reported using no contraception, only 8 intended to conceive. Each of the 32 women (20.9%) who checked more than one contraceptive method is counted under the most effective method she reported using.

Of the 153 women, 21.6% were smokers, 39.2% screened positive with the AUDIT-C, 7.2% acknowledged use of illicit drugs or non-medical use of narcotics, and 2.6% used drugs more often than once a month. Among the 153 women, 152 answered the question, "How likely are you to get pregnant?" Of those, 54.3% checked "not at all likely," 32.0% "unlikely," 7.2% "somewhat likely," and 5.9% "likely." Based on their answers to "What form of birth control do you currently use?" and published rates of contraceptive failure,[11] we estimated the one-year likelihood of pregnancy for each woman. Patients' expectations and those standard rates were correlated (Spearman rho 0.32, $p < 0.01$). Woman with a low probability of pregnancy (< 1%) generally correctly estimated their probability as "unlikely" or "not at all likely." However, among women with higher probability of pregnancy, a majority incorrectly thought they had little or no likelihood.

Of the 60 AUDIT-C positive women, 85% did not think they were likely to become pregnant (answered not at all likely or unlikely), but 23.3% had a probability of pregnancy of 20% or higher and 56.7% had a 6% probability or higher.

Of the 153, 138 answered "How many drinks (containing alcohol) can you safely have in one day?" Of those 138, 81% wrote a number between 0 and 3 drinks, which is the per-day safe-drinking limit.[12] Of the 135 women who answered the question, "How many drinks (containing alcohol) can you safely have in one week?" 73.9% gave a number of 7 or fewer, which is the correct per-week limit. Above that, answers ranged as high as 35. Women with a positive AUDIT-C were significantly more likely than those with a negative screen (p by chi squared < 0.01) to over-estimate the low-risk drinking limits, but 73.3% of them gave a number at or below the per-day and 60.0% for the per-week limit.

All 153 answered the question, "How many times in the past year have you used a street drug or used narcotics for non-medical purposes?" Eleven of them (7.2%) checked a positive response, though only 4 (2.6%) reported use more often than once a month.

In answer to, "Has a doctor talked with you about drinking or drug use today or at any time in the past year?" 5.2% answered, "Yes, about my drinking," 1 (0.7%) "Yes, about my drug use," and 3.2% "Yes, about my drinking and my drug use." Of the 60 women with a positive AUDIT-C, 15% reported they had had a conversation with their physician about their drinking in the past year. Of the 11 who reported drug use, 2 reported a past-year conversation about it.

When asked, "Which of these best describes what you will do in the next month with regard to your drinking?" 15% of the 60 with a positive AUDIT-C checked "I'll think about making a change," "I'll try to cut down on my drinking,"

or "I'll quit drinking." Of the 8 women with a positive AUDIT-C who had talked with a doctor about their drinking, 3 reported planning to cut down or quit drinking.

Among the 9 women with a positive AUDIT-C who reported they were thinking about or planning to change their drinking, the more commonly checked reasons were physical health (6 women), financial concerns (3), family or friends (2), and planning possible pregnancy (2). No woman checked clinician as one of her reasons.

Among the offered reasons for not planning to cut down or quit drinking, of the 60 with a positive AUDIT-C, 78.3% checked "I don't think my drinking level is risky," 6.7% checked "drinking is my main outlet for socializing," 6.7% checked "family or friends use alcohol," and 6.7% checked "too much stress."

Pregnant Women

Of the 165 pregnant women, 164 women answered the question about whether their pregnancy was intended (See Figure 2). Of those, 52.7% reported their pregnancy was "intended (trying to get pregnant)" and 46.7% that it was "unintended (unplanned, untimely, or unwanted)." Of the 77 with an unintended pregnancy, 39.0% had been using no contraception and 26.0% had been using a method with an expected failure rate of about 20%.[10]

Of the 165 women, 43 (26.1%) had a positive AUDIT-C (reporting on their drinking before pregnancy), and of them 46.5% reported the pregnancy was unintended. Of the 87 women who reported they had intended to get pregnant, 26.4% had a positive AUDIT-C, comparable to the 26.0% among women with a negative AUDIT-C (p by chi square 0.9).

Asked, "How did your alcohol use change once you suspected you were pregnant?" 160 women responded, and 52.1% reported they had stopped drinking, including 40 of the 43 with a positive AUDIT-C. The other 3 women with a positive AUDIT-C reported they had decreased their drinking. Asked, "What best describes your plans for drinking following your pregnancy?" 160 women responded, of whom 39.4% reported being non-drinkers and 33.9% checked "Do not plan to restart," including 51.2% of the 43 with a positive AUDIT-C.

When asked, "What motivates you to cut down or quit drinking?" of the 22 women with a positive AUDIT-C who reported they planned not to restart drinking after pregnancy, 16 (72.7%) checked "current pregnancy." Physical health was checked by 6, emotional health by 6, and family and friends by 5.

In response to the question, "If you don't plan to cut down or quit drinking, what led to that decision?" the most commonly checked answer option was "I don't think my drinking level is risky," which was checked by 23% of the 43 with a positive AUDIT-C.

In response to questions about changes in drug use and "plans for drug use following your pregnancy," of the 9 women who reported using drugs more than once a month before their pregnancy, 2 reported they had decreased use and 7 that they had quit "once you suspected you were pregnant." All 9 reported they "do not plan to restart using drugs" after delivery.

Regarding smoking, we asked one question, "Do you plan to restart smoking after your pregnancy?" Of the 165 women, 12.1% answered, "I have not quit during this pregnancy," 2.4% that they planned to restart, 17.0% that they didn't plan to restart smoking, and 67.3% that they were non-smokers.

Responding to, "Has a doctor talked with you about drinking or drug use today or at any time in the past year?" 3.6% checked that they had had a conversation about drinking, 1.8% about drug use, and 13.9% about both. Of the 43 women with a positive AUDIT-C, 27.9% reported a conversation about drinking. Of the 9 who reported drug use more often than monthly, 7 reported a conversation about drug use.

Discussion

Among the 193 non-pregnant women, 39% screened positive with the AUDIT-C and 7% reported using illicit drugs. Over half the women with a positive AUDIT-C had a probability of becoming pregnant of 6% or greater. Most non-pregnant women who screened positive for hazardous drinking had no plans to change because, "I don't think my drinking level is risky."

In contrast, 40 of 43 pregnant women who screened positive with the AUDIT-C (reporting on drinking before pregnancy) reported they had stopped drinking, and the other 3 had cut down. About half of the 43 said they did not plan to restart drinking after pregnancy. Two-thirds of these women had not had conversations with their physician about alcohol use or drug use, but such discussions can be effective in helping some women stop or reduce drinking to low-risk limits.[13] Of the 165 pregnancies, 46.7% were unintended. Most of these resulted from lack of contraception, use of condoms only, or use of contraceptive pills only. Even among women who reported intending to conceive, 26% screened positive with AUDIT-C, indicating lack of awareness of serious risks of drinking in early pregnancy and severity of potential outcomes such as FASD.

The prevalence of illicit drug use reported by pregnant women in this study (5.5%) is similar to that reported on the 2013 National Survey on Drug Use and Health (NSDUH),[4] which found that 5.4% of pregnant women reported illicit drug use in the previous month. Among non-pregnant women, however, the NSDUH found 11.4% of non-pregnant women 15 to 44 years old reported past-month illicit drug

use, higher than the 2.6% in this study. The reasons for the lower proportions in this study aren't clear. Questionnaires were self-administered and anonymous. We speculate that some participants may have not considered marijuana a "street drug" and therefore not reported it.

This study recruited women being seen as patients in only one university Obstetrics and Gynecology clinic in a small midwestern city. Participation was anonymous and voluntary, and no demographic or other data on women who chose not to complete a questionnaire were collected. Generalizability of the findings may therefore be limited. Identification of alcohol and drug use relied on screening questions, so misclassification may occur; some women identified as hazardous drinkers might not have been. The anonymity assured by the method of data collection, however, might have reduced the social-desirability response bias, which might have led to underreporting of drinking or drug use.

Discussion between health care providers and patients, including screening and brief intervention regarding substance use with pregnant patients and those who may or intend to become pregnant, is recommended. Among women of childbearing age, the prevalence of substance use and lack of understanding of risk of use is most relevant in women with intended pregnancies and in women with significant risk of pregnancy, but perceived low risk of pregnancy. These identified high-risk situations can be addressed by healthcare providers through brief interventions, with the intent of not only reducing the incidence of substance-exposed pregnancies, but also reducing the health risks posed by hazardous use to women of reproductive age.

Conclusion

Among women of childbearing age, the prevalence of substance use and lack of understanding of risk of use is most relevant in women with intended pregnancies and in women with significant risk of pregnancy, but perceived low risk of pregnancy. Sexual and reproductive health services are used by most women ages 15-24, and those with risky alcohol or drug use are even more likely to access them, so opportunities to address these issues already exist.[14] However, education and training focused on obstetricians-gynecologists has been less fruitful in some settings, and new approaches to effect change in their approaches to addressing substance use are needed.[15]

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Disclosure

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Retinopathy of Prematurity: A Review of Current Screening Guidelines and Treatment Options

by Emily C. Broxterman, MD & Denise A. Hug, MD

There are many factors that place an infant at higher risk of developing Retinopathy of Prematurity such as low birth rate and early gestational age.





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Abstract

With advancements in neonatal intensive care units, the early detection of retinopathy of prematurity in premature infants is extremely important. It is critical for physicians to recognize children at risk and ensure they receive appropriate screening and monitoring. This article will discuss risk factors, screening guidelines, classification and treatment of this disease in premature infants.

Background

Retinopathy of Prematurity (ROP) is a leading cause of vision impairment and blindness worldwide. Normal retinal vasculature begins to develop at the optic nerve around 16 weeks gestational age and continues throughout pregnancy. This process is considered complete when the retinal vessels reach the boundary between the retina and ciliary body, known as the ora serrata. In normal fetal development the retinal vascularization reaches the nasal ora serrata by 36 weeks gestational age and the temporal ora serrata by 40 weeks gestational age.[1]

ROP develops in infants who are born prematurely with incomplete retinal development at birth. Due to changes in levels of vascular endothelial growth factor (VEGF), insulin-like growth factor I (IGF-I), oxygen and other factors the retinal blood vessels may grow abnormally which can cause permanent damage to the retina. According to the American Association of Pediatric Ophthalmology and Strabismus (AAPOS) there are around 14,000 infants who develop ROP in the United States each year. Of those children, 1,100 to 1,500 develop severe disease which warrants treatment and 400 to 600 become legally blind from ROP.[2]

Population at Risk

While there are many factors that influence the risk of developing ROP, early gestational age and low birth weight are two of the most important. Other factors may include but are not limited to anemia, blood transfusion, respiratory distress, breathing difficulties and overall poor health of the infant. In the 1940s and 1950s hospitals began using incubators with very high levels of oxygen in the intensive care units to increase infant survival. During this time the incidence of ROP rose substantially and physicians began to realize the increased risk of ROP with high

oxygen levels after birth. Over the past several decades the overall incidence of ROP has reduced with improvements in neonatal intensive care medicine and more effective technology to monitor oxygen saturation levels.[1]

Screening Guidelines

The purpose of the ROP screening guidelines is to twofold: 1) to detect infants who are at risk of developing ROP and closely monitor their retinal development after birth, 2) to identify infants with severe disease who require treatment. It is important that all at-risk infants be screened in a timely manner as ROP can progress to permanent vision loss if it is not identified early.

Dilated fundus examinations should be performed on all infants born at 30 weeks gestational age or younger and infants with birth weight less than 1500g. If an infant does not fall into either of these categories, but has had a very unstable clinical course the pediatrician can identify the child as high risk for developing ROP and request ophthalmology screening. The first examination should occur at 4 weeks post-natal age or a corrected gestational age of 30 to 31 weeks, whichever occurs later. All dilated fundus examinations should be performed by an ophthalmologist with sufficient knowledge and training in ROP.[3] While there are many ophthalmic dilating drops on the market, Cyclomydril is preferred for small infants due to its dilute concentration of phenylephrine and cyclopentolate. Some infants may be sensitive to the neurologic and cardiopulmonary side effects of systemic absorption of these medications, so they should be monitored closely after drop instillation. A nurse should also be present during all dilated fundus examinations in the neonatal intensive care unit as infants can experience apnea and bradycardia during the examination. For more information and up to date screening recommendations please visit the American Academy of Pediatrics website.[3]

Classification

Retinopathy of prematurity is classically described in terms of the zone and stage of the disease which is summarized by the International Classification of Retinopathy of Prematurity (ICROP) chart in Figure 1. The zone indicates the location of the leading edge of retinal vascularization, and the retina is divided into three separate zones (See Figure 2). Zone I refers to a circle around the optic disc with a diameter twice the distance between the center of the optic nerve and the center of the macula. Zone II is a concentric circle centered on the optic disc with its radius extending to the nasal ora serrata. Zone III includes the remaining temporal crescent of retina.[4]

Figure 1
The International Classification of Retinopathy of Prematurity (ICROP) describes the extent and severity of ROP disease.[4]

International Classification of Acute Stages of Retinopathy of Prematurity
Location: • *Zone I*: (innermost zone) A circle centered around the optic disc, the radius of which is equal to twice the distance from the center of the optic disc to the macula • *Zone II*: Extends centrifugally from the edge of zone I to the nasal ora serrata • *Zone III*: The residual temporal crescent of retina anterior to zone II
Extent: Specified by the hours of the clock as the observer looks at the eye
Staging: • *Stage 0*: Immature vascularization, no ROP • *Stage 1*: Demarcation line separating avascular and avascular retina • *Stage 2*: Ridge which may have small isolated tufts of neovascular tissue on its surface known as "popcorn" • *Stage 3*: Ridge with extraretinal fibrovascular proliferation (neovascularization) extending into the vitreous • *Stage 4*: Partial retinal detachment ○ Stage 4a: extrafoveal retinal detachment ○ Stage 4b: foveal retinal detachment • *Stage 5*: Total retinal detachment
Plus disease: (+) Increased venous dilation and arteriolar tortuosity of the posterior pole vessels equal to or greater than the "standard" photograph v

The stage refers to the presence and severity of ROP. Each stage defines a specific retinal and vascular pattern at the interface between the vascular and avascular retina. Stage 0 represents immature vascularization with no visible abnormal vessel growth present. Stage 1 describes a line of tissue and stage 2 an elevated ridge of tissue at the junction of vascular and avascular retina. In stage 3 the ridge has developed fibrovascular proliferation which has the potential to cause traction on the underlying retina. Stage 4 indicates a partial retinal detachment and stage 5 a total retinal detachment in which visual prognosis is very poor.[4]

In addition to zones and stages, ROP is also described in terms of the presence or absence of Plus disease. Plus disease refers to arteriolar tortuosity and venous engorgement of the posterior pole vessels. It is diagnosed by comparing the patient's vessel pattern with that of a

Figure 2
Retinal drawing describing the location of the zones for staging ROP according to the ICROP System.[3]

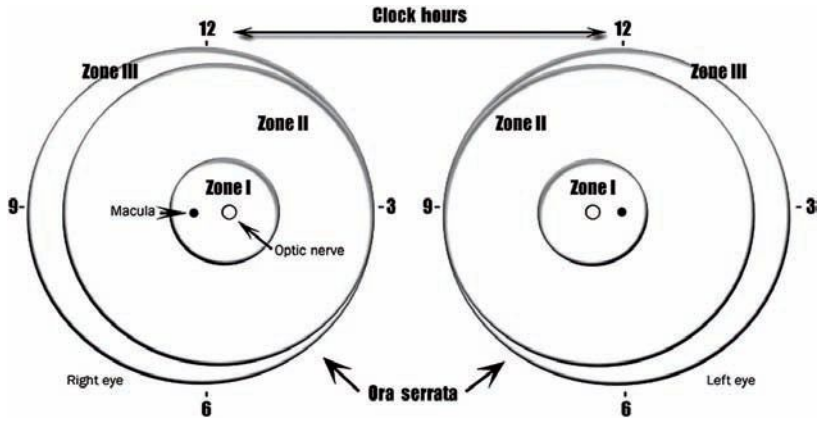
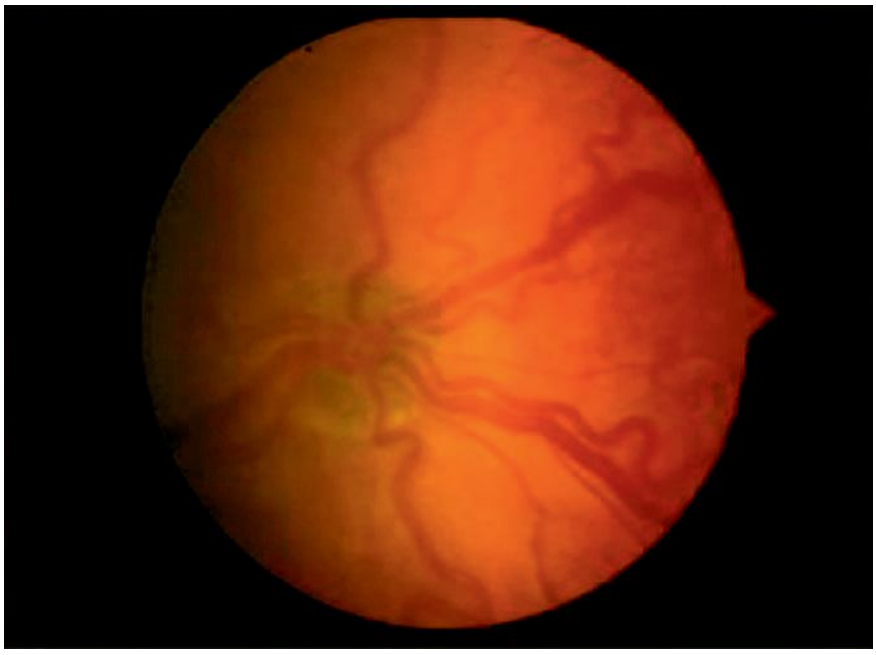


Figure 3
Standard photograph showing the minimum venous dilation and arteriolar tortuosity needed for the diagnosis of Plus disease.[4]



standard photograph (See Figure 3). When present, plus disease indicates vascular shunting and severe ROP.[4]

ROP Treatment

Once an infant has been identified as having ROP it is important to recognize when the disease becomes severe enough to warrant treatment. There have been several large, multicenter ROP trials that have helped to shape our current treatment guidelines. In 1988 the results of the Cryotherapy for Retinopathy of Prematurity (CRYO-ROP) study were published which enhanced our understanding of the clinical course and treatment outcomes of ROP. In this study infants were randomized to receive peripheral retinal ablation with cryotherapy versus serial monitoring without treatment once they reached threshold ROP. Threshold disease was defined by at least 5 contiguous or 8 noncontiguous clock-hours of stage 3 ROP in zones I or II with plus disease. Short-term results showed a 50% decrease in the retinal detachment rate of patients who were treated with cryotherapy. Long-term follow up of these patients showed that there is a gradual increase in unfavorable structural outcomes in both the treated and untreated groups with time and visual acuity outcomes were unsatisfactory.[5-7] After publication of the CRYO-ROP data, further studies revealed that peripheral retinal ablation with diode laser had better structural and visual outcomes than cryotherapy. For this reason laser therapy has largely replaced cryotherapy in current practice.[8-9]

In 1999 the National Eye Institute funded the Early Treatment for Retinopathy of Prematurity (ET-ROP) study in hopes identifying earlier treatment options for patients at high risk of ROP progression. The ET-ROP study investigated the risks and benefits of earlier treatment with cryotherapy or laser therapy for infants with prethreshold ROP. Results showed a statistically significant benefit of earlier treatment which was greatest in eyes with more posterior disease. A clinical algorithm was created to indicate when peripheral retinal ablation was most beneficial in prethreshold ROP. Authors recommended treatment for patients with Type I ROP which includes any stage zone I ROP with plus disease, zone I stage 3 with or without plus disease or zone II stage 2 or 3

ROP with plus disease. Observation was recommended for patients with Type II ROP which includes zone I stage 1 or 2 without plus disease or zone II stage 3 without plus disease. This algorithm serves as a guideline to identify patients with prethreshold ROP who are at highest risk for retinal detachment and blindness while also minimizing unnecessary treatment in patients who's ROP would spontaneously regress.[10]

In more recent years we have developed a greater understanding of the important role that VEGF plays in the pathogenesis of ROP. In 2004 the FDA approved the use of IV bevacizumab, an anti-VEGF medication, for treatment of metastatic colon cancer. Since then, it has been used off-label in ophthalmology for the treatment of many retinoproliferative disorders including ROP. The study Bevacizumab Eliminates the Angiogenic Threat of Retinopathy of Prematurity (BEAT-ROP) evaluated the use of bevacizumab versus laser therapy for the treatment of zone I or II, stage 3 ROP with plus disease. Results of this study showed ROP recurrence rates were higher in the laser treatment group for patients with zone I, but not zone II disease; however recurrence occurred significantly later in the bevacizumab treatment group. Unlike laser therapy, intravitreal bevacizumab does not cause permanent destruction of peripheral retinal tissue. While the BEAT-ROP study shows promise for the treatment of aggressive posterior disease with bevacizumab, there are no studies to evaluate the systemic absorption of the medication and its long term effects in infants.[11]

The landmark studies listed above have contributed to the following guidelines in the treatment for ROP. Laser therapy should be initiated for patients with prethreshold Type 1 disease (any stage zone I with plus disease, zone I stage 3 with or without plus disease or zone II stage 2 or 3 with plus disease). Intravitreal bevacizumab therapy can be considered for patients with aggressive zone I disease or who are too unstable to tolerate laser therapy.

Complications of ROP

While retinal detachment and blindness can result from untreated ROP, there are also many complications that can occur in patients who have undergone treatment. These risks can persist throughout the patient's lifetime. One of the most common sequelae of ROP is myopia which can continue to increase throughout childhood. Dragging of the macula may also occur which can give rise to pseudostrabismus and decreased vision. Patients with ROP are at an increased risk of developing conditions such as glaucoma, cataract, amblyopia, strabismus and retinal detachment despite early treatment. These children must be closely monitored throughout childhood to detect any late complications.[1,5]

Conclusion

Retinopathy of prematurity is a potentially blinding disorder affecting children worldwide. It is extremely important for all premature infants born at 30 weeks gestational age or younger and infants with birth weight less than 1500g to be screened by a trained ophthalmologist. There are many factors that place an infant at higher risk of developing ROP such as low birth rate and early gestational age. The ICROP classification system is the global standard to describe the severity and extent of ROP. Many large scale studies such as the CRYO-ROP, ET-ROP and BEAT-ROP have formed guidelines for treating infants with severe disease. Current recommendations include laser peripheral retinal ablation for patients with prethreshold Type 1 ROP. The recent development of anti-VEGF inhibitors such as bevacizumab has shown promising results for treatment of aggressive zone I ROP, however there is a need for further research into the systemic and long term effects of these medications in premature infants.

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Disclosures

None reported.

MM

Melior Via: A Better Way to Integrate and Restore Movement into Orthopedic Rehabilitation

by Brandon Hetzler MS & Brian Mahaffey MD

We call our approach Movement Integration Theory. We have developed standardized nomenclature, raised the quality of care and defined and improved short- and long-term outcomes. We have lowered costs to health care insurance payers, patients, hospitals, clinics, and other rehabilitation venues.





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Abstract

Movement develops uniformly and predictably in all normal newborns and infants. The genetic roadmap for every complex movement that will ever be performed is written into every infant's nervous system and develops from these basic ingredients: unlimited mobility, an undeveloped nervous system, primal reflexes, and breathing. Following an injury, surgery or trauma, restoring movement is the same as learning movement only with slightly differing parameters. The principles, however, remain the same and can be used to improve orthopedic rehabilitation.

Introduction

Melior Via - "A Better Way"

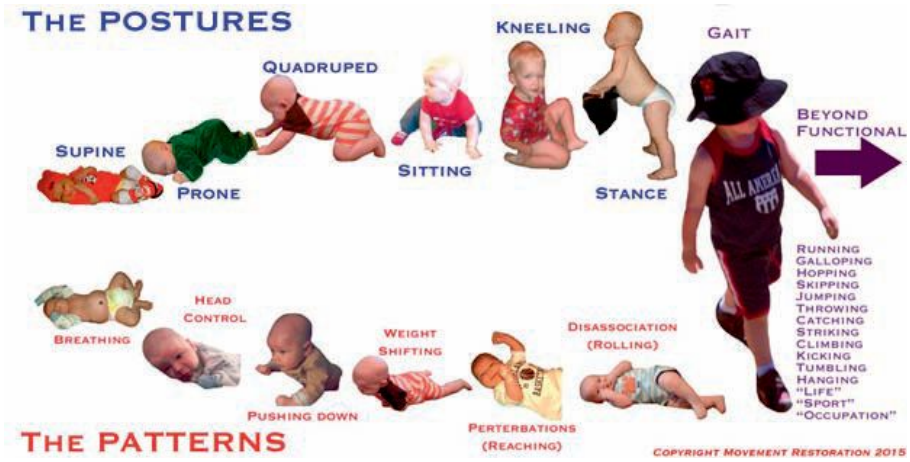
Movement is universal. Unfortunately, our movement language and our clinical understanding of movement are not. In the profession of medicine, universal and standardized language is both required and expected. As health care providers, we demand and expect standardization in order to provide our patients the safest, most effective and highest level of care. In the rehabilitation (rehab) profession that universal standardized terminology is frequently absent. When we say "squat" to 20 rehab professionals (Certified Athletic Trainers "ATCs", Physical Therapists "PTs", Occupational Therapists "OTs") there may be 20 different mental pictures of what a squat is; yet professionally we make broad generalizations for/against squat exercise ("Squats are bad for your knees"; "post op anterior cruciate ligament (ACL) patients shouldn't do squats"; "the best quad activation exercise is the straight leg raise").

The problem is we are viewing movement wrong. Movement is complex but not complicated. We as professionals have unnecessarily complicated things. For the past 25 years, we have looked at and described movement through the lens of exercises - squat, lunge, push, pull, crawl, etc. What is a squat from a movement perspective? If we asked physicians for the generic name of Vicodin most are able to recall hydrocodone-acetaminophen easily. Every licensed rehab professional has to have a minimal level of didactic education, pass national boards, and gone through the state's licensure process. Yet asking a rehab professional "What is the generic form of a squat?" is like asking them to explain String Theory. Why is

a simple movement question so difficult? We believe the reason is for many years we have universally looked at movement from the wrong perspective.

If we reduce movement to its most basic generic form, we have a starting point. The nice thing is that we can do this and even better, it has been studied. Normal movement develops predictably for all normal humans. The Neurodevelopmental Sequence (NDS) is our blueprint for a universal movement language. The neurodevelopmental sequence is the development of movement behavior sequentially progressing according to movement principles. The primary problem with the NDS in the medical world is that often it is seen as a set of milestones. There are milestones, but the process of going from a generally immobile (unable to get from point A to point B), breathing, crying, eating and sleeping infant to a mobile, complex, functioning child in only two years is so much more than just developmental milestones.

Figure 1



The NDS is our first experience with developing independence. The newborn learns to move through somatic, visual, vestibular, and proprioceptive feedback. As a parent, our primary job in our children's development is to keep them safe, feed them, and to provide a sensory rich environment - we don't instruct or coach them. They learn to move through feel and by doing, not by instruction. If this is how we learn to move in the first place, then why wouldn't we go back to this methodology to restore movement after an injury, trauma, or surgery? How is retraining someone to squat after an anterior cruciate ligament reconstruction (ACLR) any different than a 10-month-old learning to squat? We have learned it's not that much different.

The beauty of the NDS is that it is a sequential progression of the infant from being 'ground bound' to being vertical and upright. The only ingredients provided to make this occur are the ability to breath, unlimited mobility, an undeveloped nervous system (Sidenote: humans are the only species on the planet born with an undeveloped CNS), and a few survival reflexes (the rooting reflex, the palmar reflex, the Moro reflex, etc). Other than that, movement is learned by feel and error.

If we adjust our perspective to view movement through the lens of movement and not exercise, there are several repeating patterns within the NDS we can successfully use in the orthopedic and rehab world. Nature uses repeating patterns to add strength to her structures - a spider web, trees, shells, rock formations, snowflakes, bones, etc. The same happens with movement. We build every movement from a series of postures and patterns that are the root of all movements. These postures are, progressing from lowest level to highest complexity. (See Figure 1.)

- Supine - lying on the back.
- Prone - lying on the belly.
- Quadruped - suspended off the ground on the hands and knees or feet.
- Sitting - a vertical trunk position over the hips which maintain contact with the ground.
- Kneeling - a vertical trunk position over the hips when the hips are off of the ground; knees/shins/feet serve as the point of contact with the ground.
- Standing – the entire body is vertical and feet are the only contact point with the ground.
- There are also a series of repeating patterns, again progressing from the least complicated to the most complicated:
- Breathing - the mechanics of breathing and ventilation utilizing the diaphragm for both the inhale and the exhale.
- Head movement - controlling the head in response to the surrounding environment and visual as well as vestibular input in any posture.
- Pushing down - taking advantage of the ground reactions forces from any posture by pushing down into the ground/implement.

- Weight shifting - shifting weight between varying points of contact with the supporting structures in all planes (anterior/posterior; medial/lateral, combined/coordinated).
- Perturbations - using the extremities independently or in combination to make a weight shift larger or more extreme; moving the hand/foot away from the body/midline.
- Dissociation - any position where the shoulders are not stacked on top of the hips or lined up with the hips; any position where there is rotation of the spine.

Every neonate is born in a universally flexed posture (supine) with only the ability to breath. As newborns get experience breathing, they gain head control. This in turn forces them to press down onto the ground to move their head which begins to elicit a weight shift within the body. Perturbations are controlled and conscious movements of the limbs that increase these initial small weight shifts. Initially, the limb movement in newborns is uncontrolled, spastic and without intent. Once these perturbations go far enough, the body begins to rotate and dissociations occur causing them to roll over. Dissociation is the final component of stability to develop because it puts the spinal cord into the most compromising position and is the greatest risk to the neonate's survival. This same process occurs in each of the postures because the patterns are essentially how humans develop stability. Stability is rooted in the ability of the diaphragm to functional optimally. Essentially the building blocks for all movement are unlimited mobility, diaphragmatic breathing and a nervous system that is incomplete. The newborn uses only this to establish all of their future movements.

We stated earlier that we usually get several interpretations of what a 'squat' actually is. If we apply these developmental movements to create a consistent generic description of the squat what we get is symmetrical stance (the posture) coupled with two main patterns - pushing down and a coordination of three weight shifts (a posterior weight shift of the lower leg, an anterior weight shift of the pelvis, and a posterior weight shift of the trunk). With this description rehab professionals are on the same page in their ability to care for patients. Keep in mind that a squat is learned opposite of how we typically attempt to teach it; squatting begins form the ground, not from standing.

As we developed our book, *Movement Restoration Project*,[1] (see book review sidebar), we have applied this process for the past five-plus years in a clinical setting to rehab patients from age 6 to 86 as well as in the realm of sports performance and fitness where literally thousands of active individuals have followed our approach.[1] This is now our universal methodology for treating patients. Annually, we see 100+ posts-op ACLR patients. A graduate student from Missouri State University in the athletic training Master's Degree program recently did her thesis on the re-tear rate of patients that have been released from our long-term ACLR program which is based on the NDS. What she found was that in five years, the re-tear rate was zero. The average return to sport participation was 21 weeks.[2]

Another interesting thesis study researched the prevalence of anterior knee pain in post op ACL patients and had some remarkable findings.[3] The most constant predictor of the likelihood of anterior knee pain was the rehab facility location. Not graft type, not rehab type (accelerated vs. conservative), not age, not gender, but rehab location. The rehabilitation location with the fewest episodes of anterior knee pain and the fastest resolution of anterior knee pain applied the clinical principles from Movement Restoration Project.

Why is this important? In the ever restricting realities of health care, orthopedic patients are allowed fewer rehabilitation visits with greater co-pays. We as health care providers owe it to the patient to use the most efficient and effective techniques to get the best outcomes and keep their rehab costs down. We also wish to provide the best long term outcomes so that patients don't suffer a re-injury or other problem that might be prevented by rehabilitation using Movement Restoration Project principles. Many conventionally treated post op knee patients (ACL, or total joints) again become patients three to five years later for "anterior knee pain." We believe based on studies of our rehab techniques[2, 3] that more widespread application of our techniques is warranted.

Movement Restoration Project Principles

On intake, every non-acute patient is run through an SFMA (Selective Functional Movement Assessment) and every post op patient is run through an SFMA once they have full range of motion (ROM) and effusion is controlled. We don't initiate any treatment without a movement assessment. The role of the movement assessment is to pinpoint areas of movement pattern limitation and asymmetry.[4] Looking at patterns of movement allows us to get a better and more complete assessment as opposed to looking at a very specific area. If our global assessment directs us to focus on a specific joint (for example finding a hip joint mobility dysfunction on the SFMA) at that point we will begin

Table 1

SFMA	Posture	Patterns
Cervical Patterns	Sym. Stance	**Head control**
Shoulder Patterns	Sym. Stance	**Perturbations**
MSF	Sym. Stance	**Weight shift (trunk -anterior/Pelvis - Posterior)**
MSE	Sym. Stance	**Weight shift (Trunk - posterior / Pelvis - anterior)**
MSR	Sym. Stance	Weight Shift, **Disassociation**
SLS	Single Leg Stance	**Weight Shift (Medial/Lateral)** , Perturbation
DS	Sym. Stance	Pushing down, **Weight shift (trunk - anterior/Pelvis -Posterior)** , perturbation
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Table 2

FMS	Posture	Patterns
ASLR	Supine	Weight shift, **perturbation**
SM	Sym. Stance	Perturbations
RS	Quadruped	**ML Weight shift**, perturbation, *disassociation*
TSPU	Prone	Weight shift, **push down**
DS	Sym. Stance	Push down, **AP weight shift**, perturbation
ILL	Asym. Stance	Pushing down, weight shift, **disassociation**
HS	Single Leg Stance	**ML Weight shift**, perturbations
	BOLDED are the dominate patterns of each test	
	Copyright Movement Restoration LLC, 2014	

our joint assessment. From the SFMA, in conjunction with the patient's diagnosis and symptoms, a treatment plan is developed to address soft tissue quality, postures, patterns and loading. From the SFMA, we can accurately determine which posture we need to begin in and which pattern will have the most impact, based on Table 1.

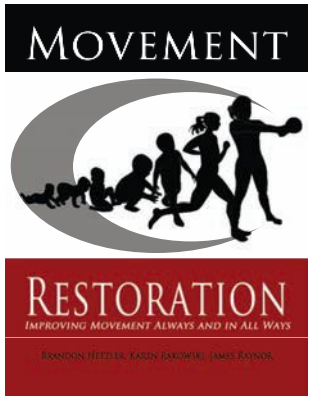
Based on this chart of the SFMA top tier, we can focus our interventions on the most influential posture and pattern for the individual's complaint/diagnosis. If we follow the SFMA all the way through its breakouts, we can further narrow our interventions from the top-tier. For example, if the Multi-Segmental Rotation Breakout directs us to a tibial external rotation Stability Motor Control Dysfunction (SMCD), we know that based on NDS that our best results will be in the sitting postures, working on dissociation.

Additionally, from both the SFMA and the FMS (Functional Movement Screen) we can apply this same approach towards soft tissue interventions. We favor the fascial lines laid out by Thomas Myers in Anatomy Trains.[5] A recent systematic review by Wilke et al.[6] looking into Myers fascial lines suggested that most of the skeletal muscles that Myers linked in his fascial lines actually are directly linked by connective tissue. By clinically mirroring our soft tissue strategy with our intervention strategy each works as a synergist for the other.

We base part of our discharge 'release' on each patient clearing an FMS.[4] We don't require a minimal score, but we expect to get our patients to being symmetrical on every test and to minimal standards (a 2 in FMS terms). We use this on each patient to make sure we are not missing anything important. Just like on the SFMA, if we identify an area on the FMS that is not symmetrical or that doesn't meet minimal standards, we can use that to determine which postures/ patterns need further attention, as seen in Table 2.

Case Presentation

We recently treated a 16-year-old baseball pitcher suffering from 10 months of right shoulder pain. He had no acute injury, X-rays were normal, and an MR Arthrogram showed no structural defects. Three steroid injections were ineffectual; traditional physical therapy targeted to strengthen his rotator cuff and stretch his posterior capsule had failed; chiropractic care had also failed. The most recent orthopedic recommendation was surgery. On intake into our department all special tests were normal, strength was normal, the only ROM deficit was in internal rotation, and multiple postural deficits were observed, along with a SFMA that directed us towards a



Movement Restoration Project: Improving Movement Always and in All Ways

by Brandon Hetzler, Karen Rakowski, and Jim Raynor

BOOK REVIEW

The acquisition of human movement is a universal concept. However, everyone seems to have their own way of trying to assess, classify and improve movement. Occasionally, some of these efforts prove to be effective, but rarely efficient. (Just consider the primary risk factor of injury is previous injury, and then look at the rising rate of injuries and pain in much younger age groups.) There are many ways this "can" be done, but really, how "should" this be done? Movement Restoration bridges the gap between how humans innately develop movement and how to restore lost movement skills by utilizing a Standard Operating Procedure. This SOP begins with a consistent approach to movement assessment, ends with layering on strength, and spans several important topics along the way. With so many options out there for exercises, clinical interventions, and exercise equipment how is one supposed to blend everything they have learned into one consistent philosophy? Movement Restoration resolves this dilemma. Regardless of the exercise, equipment, or background of the individual applying the drills, Movement Restoration provides a roadmap on which to insert any exercise, drill or piece of equipment.

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single leg stance dysfunction. After addressing this and progressing to the FMS (where he fell below minimum standards on the shoulder mobility and trunk stability push up tests) within three weeks he was pain free and returned to light hitting and throwing. At four weeks he was pain free with all activity and had made a full return to competitive pitching. The SFMA and FMS directed our clinicians to very specific postures, movement patterns, and trigger points to effectively and efficiently resolve problems that had not responded to many months of traditional treatment.

Conclusion

The techniques we have described above are based on how neonates and infants first begin to acquire movement. A common misconception is that our approach is to get people to move like babies. Our philosophy and clinical approach utilizes principles that infants use to learn movement and progress through the NDS. We have identified these root principles and effectively applied them to improve and hasten rehabilitation after various injuries and orthopedic procedures.

We call our approach Movement Integration Theory. It is not a system, which indicates exclusiveness, but a theory which can be successfully applied into any system. We have developed standardized nomenclature. We have developed a process where our large staff of rehabilitation healthcare professionals is interchangeable from patient to patient . We have raised the quality of care and defined and improved short and long term outcomes. We have lowered costs to health care insurance payers, patients, hospitals, clinics and other rehabilitation venues. We would encourage those interested in learning more about Movement Integration Theory to contact the authors.

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Disclosures

None reported.

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Preoperative Evaluation of the Surgical Patient

by Frederick T. O'Donnell, MD

The preoperative evaluation offers physicians and other health care professionals a unique opportunity to help patients optimize their health prior to surgery.



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Abstract

Primary care physicians and specialists are frequently involved in the care of surgical patients. Changes in reimbursement have prompted re-examination of preoperative testing and health care expenditures. Physicians have additional incentives to improve health care delivery and reduce costs. The perioperative surgical home concept involves coordinating all aspects of patient care, including behavioral modifications, during the perioperative period. Evidence-based guidelines on preoperative evaluation are available to assist practitioners in managing cardiovascular disease, and communicating surgical risks. Shared decision making in the preoperative period can improve surgical outcomes and patient satisfaction.

Introduction

In the United States, $937 billion was spent on hospital care in 2013 (the most recent year for which data is available), two-thirds of which was related to surgical services.[1] Approximately 100 million surgeries are performed each year in the U.S., over half of which are done in ambulatory facilities. As the elderly population increases, surgical volume has also been increasing as more procedures are being performed on older patients with multiple chronic medical conditions. Forty-three percent of all surgical procedures are paid for by Medicare or Medicaid.

Since the Affordable Care Act (ACA) was signed into law in 2010, two of its primary aims have been to improve health care delivery and reduce costs. To this end, there has been a renewed focus on moving from the high costs and fragmented care associated with the traditional volume-based fee for service model to more efficient systems of multidisciplinary coordinated health care delivery. The Patient Centered Medical Home (PCMH) is a well-established concept that designates one physician to coordinate all aspects of the patient's care and has been shown to improve outcomes and patient satisfaction.[2] A similar model of coordinated care for surgical patients is the Perioperative Surgical Home (PSH), a multidisciplinary system designed to shepherd patients through the surgical process from the time that surgery is planned until 30 days after discharge.[3] Recent changes in reimbursement have provided incentives for physicians and hospitals to streamline surgical care and meet performance benchmarks such as reducing the rate of readmission for Medicare beneficiaries.[4] These changes have provided rich opportunity for primary care physicians and specialists to improve surgical outcomes by participating in the management and optimization of their patients in the days and weeks leading up to surgery.

Table 1
Revised Cardiac Risk Index

Revised Cardiac Risk Index
History of ischemic heart disease
History of congestive heart failure
History of cerebrovascular disease
Diabetes mellitus requiring insulin therapy
Renal insufficiency (serum creatinine >2 mg/dL)
High risk surgery (suprainguinal vascular, intrathoracic, intraperitoneal)
Risk of major adverse cardiac event (MACE): 0 risk factors: 0.4%; 1 risk factor 0.9%; 2 risk factors 6.6%; 3 or more 11%

Preoperative Evaluation

Preoperative evaluation is a process of clinical assessment that precedes the delivery of anesthesia care for surgery and non-surgical procedures. At the very least, it includes a review of medical records and recent test results, a comprehensive medical history, and a physical examination of the cardiovascular system, the pulmonary system, and the airway. As the preoperative evaluation is considered a basic element of anesthetic care, it is often performed in the immediate preoperative period (ie, on the day of surgery), by the anesthesiologist. However, the American Society of Anesthesiologists Task Force on Preanesthesia Evaluation recommends that patients with high disease severity and those undergoing procedures with high surgical invasiveness be evaluated prior to the day of surgery.[5]

Preoperative Testing

There is no clear consensus on the optimal content and timing of a preoperative evaluation, but it is important to balance the potential benefits of preoperative testing with the known risks and costs. Although preoperative studies and tests are often ordered on a selective basis to guide or optimize perioperative management, routine preoperative testing (ordering tests in the absence of a specific clinical indication or purpose) is generally not recommended, especially prior to low risk surgery.[5] Testing of asymptomatic patients can result in a waste of limited health care resources, unnecessary postponement or cancellation of surgery or, at worst, additional diagnostic testing and harmful medical interventions in the name of preoperative clearance for surgery.[6] Conversely, substantial cost savings can result from the avoidance of unnecessary preoperative medical testing and office visits prior to low risk procedures such as cataract surgery.

One of the most commonly performed elective procedures in the U.S., cataract surgery accounts for yearly health care expenditures totaling 3.5 billion dollars, 80% of which are paid for by Medicare.[7] A safe procedure of short duration, cataract surgery carries less that a 1% risk of a major adverse cardiac event (MACE) or death, even in older patients with multiple chronic medical conditions. Surgery for cataracts is thought to be no more stressful than dental work or even activities of daily living. The majority of these procedures are performed in an ambulatory setting and are done with topical anesthesia and only light sedation. Although it carries low risk, more than half of Medicare patients who underwent cataract surgery in 2012 had at least one preoperative test performed, despite evidence that routine testing before cataract surgery does not reduce adverse events or improve outcomes.[8, 9] The extent of preoperative testing has been shown to depend more on individual opthalmologists' practice patterns rather than adherence to published, evidence-based guidelines on preoperative testing. Therefore, selective preoperative testing should be guided by medical history and physical exam findings rather than a matter of routine practice.

ACC/AHA Guidelines

In 2014, the American Heart Association and American College of Cardiology updated their guidelines on cardiovascular evaluation and management of patients undergoing non-cardiac surgery.[10] The purpose of the guidelines is to

1) provide patients and their caregivers with evidence-based information about perioperative cardiovascular risk; and

2) guide management of patients with cardiovascular conditions and comorbidities.

Risk Assessment

Procedures such as cataracts, superficial plastic surgery, and endoscopy are considered low risk procedures because they carry less than a 1% chance of a major adverse cardiac event (MACE) including death or a myocardial infarction in the perioperative period.[10] Elevated risk applies to procedures that carry a risk of MACE equal to 1% or greater. The degree of risk depends on procedural and patient factors and can be estimated with the Revised Cardiac Risk Index (RCRI), a validated tool to predict the risk of major cardiac complications.[11,12] (See Table 1). A patient who has 0 or 1 of the 6 RCRI risk factors is considered to be at low risk for MACE. Two or more risk factors confers elevated risk of MACE. Other validated risk calculators have also been used to predict procedure-specific risks.[13, 14] These tools can be used to determine whether further preoperative evaluation is appropriate.

Management of Coexisting Disease

Coronary Artery Disease

Coronary artery disease (CAD) increases the risk of perioperative morbidity and mortality, especially in the context of a recent myocardial infarction (MI) or coronary revascularization (CABG or PCI). For patients who have had a recent MI (within six months), the risk of both MACE and mortality is highest in the first 30 days following the MI (32.8% and 14.2%, respectively).[15] These patients are also at an eight-fold increased risk of stroke.[16] It is therefore recommended that elective, non-cardiac surgery be delayed for at least 60 days following an MI without coronary intervention.

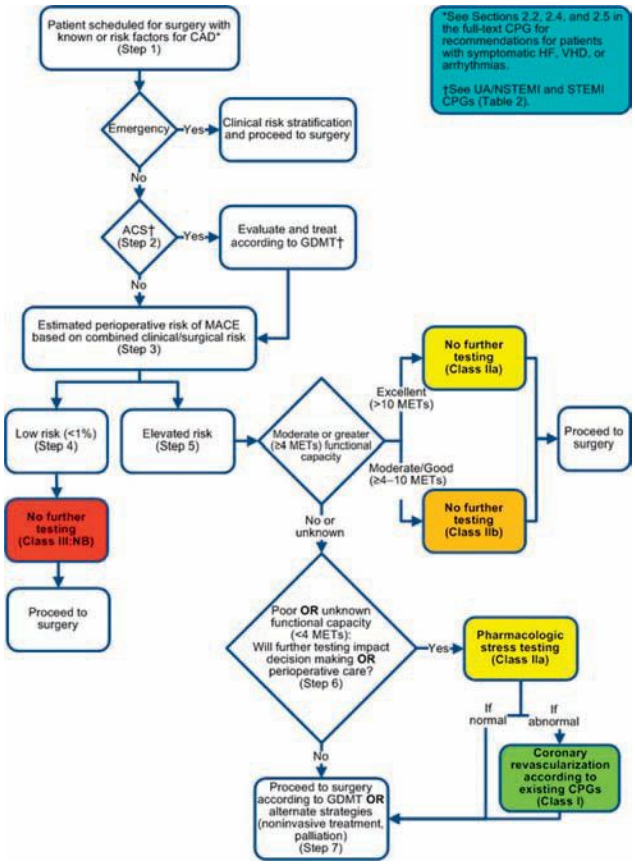
Many patients with coronary artery disease who have had percutaneous coronary intervention (PCI) with balloon angioplasty or coronary artery stents present for non-cardiac surgery.[17] Up to 26% of patients with either a bare metal stent (BMS) or drug-eluting stent (DES) will require surgery within five years of undergoing PCI.[18] Drug eluting stents offer more protection than BMS against re-stenosis from smooth muscle proliferation but are slower to re-endothelialize and thus require a longer period of dual anti-platelet therapy (DAPT) to prevent life threatening stent thrombosis. It is known that premature discontinuation of DAPT increases the risk of stent thrombosis, especially in patients undergoing surgery, which induces a hypercoagulable state. The risk of MACE is highest (10.5%) in those patients with BMS who undergo surgery within 30 days after PCI, and lowest (2.8%) in those who wait at least 90 days.[19] Another study found that MACE was highest when major non-cardiac surgery was performed less than 45 days after implantation of any coronary stent.[20] Following placement of a DES, the risk of MACE is lowest in those who wait at least 365 days before non-cardiac surgery. In both cases, the risk of MACE is higher when surgery is performed on an emergent basis. For patients undergoing surgery prior to completion of DAPT, the theoretical risk of surgical bleeding while on DAPT must be balanced with the risk of stent thrombosis if dual antiplatelet therapy is held for surgery. Decisions about management of DAPT should be made in concert with the patient's cardiologist. The updated ACC/AHA guidelines recommend delaying elective non-cardiac surgery for 14 days following balloon angioplasty, at least 30 days following BMS implantation, and 365 days following DES implantation, although in some cases a waiting period of 180 days after DES implantation may be appropriate.

Medical Decision-Making

For practitioners involved in the evaluation of patients with coronary artery disease preparing for surgery, a stepwise approach is available to assist in patient evaluation and estimation of risk. (See Figure 1). Patients who are planning surgery with low risk of MACE and those at elevated risk of MACE with at least moderate functional capacity (>4 METS as defined by the ability to climb a flight of stairs without stopping, walking uphill with ease, or gardening) can proceed to surgery without further evaluation. Patients with poor or unknown functional capacity may benefit from pharmacologic stress testing if it will influence their decision to have surgery or change perioperative management. Patients who elect to undergo stress testing may be candidates for coronary angiography or revascularization prior to surgery. Similar recommendations are available for managing patients with heart failure, arrhythmias, and heart valve disease.[10]

As part of any assessment of cardiovascular health, it is important to differentiate between active cardiac conditions and stable clinical risk factors. Patients with active cardiac conditions (acute coronary syndromes, decompensated heart failure, significant arrhythmias, or severe valvulopathy) are at high risk for perioperative MACE and should be evaluated and treated according to guideline-directed medical therapy.[21] For those with clinical risk factors (history of CVA, history of ischemic heart disease, history of congestive heart failure, diabetes, or kidney failure), the revised cardiac risk index or a similar risk calculator should be used along with procedural factors to estimate the risk perioperative MACE prior to surgery.

Figure 1
Stepwise Approach to Perioperative Cardiac Assessment: Treatment Algorithm.
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Additional tests and studies such as electrocardiograms (ECGs), chest x-rays, and blood tests are often ordered as a matter of routine—actions that are often based on medicolegal concerns or perceived expectations rather than on evidence based guidelines.[22] Twelve lead ECGs may be informative in patients with known cardiovascular disease, but are not indicated for asymptomatic patients undergoing low risk procedures.[10] As many as 45% of asymptomatic patients have abnormal ECG findings.[5] There is also no agreed upon minimum age requirement for ECG testing among asymptomatic patients. Similarly, chest x-rays were once included as part of any preoperative evaluation, but abnormal findings may be present in up to 60% of asymptomatic patients and can lead to costly and unnecessary postponement or cancellation of surgery, changes in medical management that otherwise would not have occurred, and excess radiation exposure. The same is true of laboratory tests such as hemoglobin and hematocrit measures, serum chemistries, and coagulation profiles. It is now recommended that these tests should only be ordered when clearly indicated (i.e., to answer a specific question and only if it will lead to a change in management).

Medications

Many patients with cardiovascular disease presenting for preoperative evaluation are on chronic antihypertensive therapy. The use of beta adrenergic antagonists (beta blockers) has been the subject of several studies in recent years.[23, 24] It is now recommended that patients who are on chronic beta blocker therapy remain so throughout the perioperative period. For beta blocker naive patients, beta blockers may reduce perioperative cardiac risk, but are associated with adverse effects such as bradycardia, hypotension, and stroke. Therefore, initiating beta blocker therapy on the day of surgery is not recommended. Patients taking angiotensin-converting enzyme (ACE) inhibitors or angiotensin-receptor blockers (ARBs) on the day of surgery may experience transient hypotension, but are at no increased risk of adverse cardiac events, and continuing these medications in the perioperative period is reasonable.[10]

Early Patient Engagement and Prehabilitation

One strategy to reduce length of stay and prevent postoperative complications is the concept of early patient engagement in the preoperative period or "prehabilitation" (enhancing functional capacity in preparation for a stressful event such as surgery).[25] This is especially relevant to elderly patients with chronic respiratory disease who are at increased risk for postoperative pulmonary complications, which they tolerate poorly. Ergina et al. reported that identifying patients with COPD who smoke and have poor functionality and instituting perioperative regimens that include smoking cessation, bronchodilators, chest physiotherapy, postural drainage, and deep breathing exercises reduced the incidence of postoperative pulmonary complications.[26] Other investigators have reported on the benefits of preoperative aerobic exercise training on postoperative recovery from colorectal surgery.[27, 28] Others have shown that prehabilitation programs have a positive impact on length of stay and health-related quality of life measures.[29]

Smoking Cessation

Despite the long-known health risks of tobacco use, 19.2% of American adults report smoking every day or

some days.[30] Tobacco-related diseases are the leading cause of preventable deaths worldwide, contributing to 443,000 deaths per year in the U.S. and nearly $200 billion annually in medical expenses and lost productivity.[31] One half of people who continue to smoke will die of a tobacco-related illness. Lung cancer is the most prevalent type of cancer in the world and the leading cause of cancer death in the United States, accounting for 27% of the expected 589,000 U.S. cancer deaths in 2015. The majority of lung cancer deaths are caused by smoking.

The benefits of smoking cessation prior to surgery are well known. Within hours of stopping, blood levels of carbon monoxide and nicotine decline, leading to improved blood flow and oxygen delivery to tissues.[32, 33] After several weeks, some aspects of airway inflammation and hyperreactivity improve, including mucociliary clearance, symptoms of coughing and wheezing, and the decline of pulmonary function as measured by lung spirometry. Conversely, patients who continue to smoke in the perioperative period are at increased risk for infection and impaired wound healing, as well as perioperative pulmonary complications such as respiratory failure requiring unplanned ICU admission, pneumonia, and airway complications related to anesthesia. The precise amount of time required to fully realize the benefits of smoking cessation are unknown, with some requiring up to 6 months, and even brief periods of cessation are helpful, but longer is assumed to be better.[33] A recent review of the literature found that compared with current smokers, those who abstain from smoking for at least four weeks (and preferably for at least eight weeks) prior to surgery experience lower rates of respiratory complications and fewer instances of impaired wound healing.[34]

Surgery presents a unique opportunity for health professionals to encourage smoking cessation. A teachable moment occurs when a patient is faced with the recent diagnosis of a serious illness or the prospect of surgery.[35] Quit rates are higher following major surgery, especially surgery related to conditions associated with smoking. Heightened awareness of risks and potential negative consequences may provide additional motivation to reduce or quit smoking and patients may be more receptive to anti-smoking discussions, especially when initiated by a physician or other health care professional.[32]

For surgical patients (and non-surgical patients) who are willing to make a quit attempt and be smoke-free for surgery, and for the physicians who care for them, there are effective smoking cessation resources available in the form of tobacco dependence counseling and medication treatments.[36]

The Brief Intervention is a practical tool that busy clinicians can use during a routine preoperative clinic visit.[37] It is effective in reducing smoking rates in surgical patients and is based on the "5 A" model for reducing tobacco use and dependence: Ask—"Do you smoke?" and "Do you want to quit?" Advise— Strongly urge all tobacco users to quit. Assess—Determine willingness to make a quit attempt. Assist—Provide counseling and medication. Arrange—Ensure follow-up contact. Although intensive behavioral counselling that involves problem solving training and social support is most effective, national telephone tobacco quitlines (1-800-QUIT-NOW) and web-based resources (http://www.smokefree.gov) are also useful.[38] Smoking cessation counseling is effective even for those not yet willing to make a quit attempt.[39]

All patients attempting to quit smoking should be encouraged to use effective first line medications unless medically contraindicated (e.g., Bupropion SR, varenicline, and nicotine replacement therapy, which includes gum, lozenges, and patches). When used together, tobacco dependence counseling and medications are most effective in increasing quitting success and reducing withdrawal symptoms.[40]

Evidence-based smoking cessation strategies are not only efficacious, but are also cost effective and consistent with the Healthy People 2020 objective of reducing the prevalence of cigarette smoking among U.S. adults to less than 12%. To this end, the 2010 Patient Protection and Affordable Care Act provides expanded coverage for evidence-based smoking cessation treatments.

Conclusion

The preoperative evaluation offers physicians and other health care professional a unique opportunity to help patients optimize their health prior to surgery. Updated, evidence-based guidelines can assist providers in selecting the most appropriate methods of patient evaluation while making the most efficient use of limited health care resources. This includes encouraging healthy behavioral modifications. It is important to bear in mind that the patient always has the final say in any decision to undergo surgery. Therefore, these guidelines are best used to aid shared decision-making, taking into consideration the patient's perspective on the risks and benefits of surgery.

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Disclosure

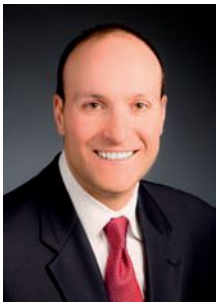
None reported.

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Plastic Surgery after Massive Weight Loss

by Samer W. Cabbabe, MD

Bariatric surgery and bariatric plastic surgery continue to surge in the United States.



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Abstract

Bariatric surgery rates have increased in the United States concurrent with the rise in obesity. As a result of the massive weight loss from these surgeries, patients are left with a different set of functional and cosmetic issues related to excess skin. Plastic surgery has evolved to treat these unique issues faced by this patient population and has demonstrated beneficial effects. This article will provide an overview of the options available to massive weight loss patients to treat specifically affected area of the body.

Introduction

In the United States, obesity (BMI>30) affects approximately 35% of adults. More than two-thirds of adults are overweight or obese (BMI >25). Some studies project that three-fourths of the U.S. adults will be overweight or obese by 2020. The annual medical cost of obesity in 2008 in the U.S. was $147 billion with the annual medical cost for an obese person at $1,429 more than that of an average weight individual.[1]

Bariatric Surgery Procedures

As obesity rates have continued to rise in the U.S., bariatric surgery rates have correspondingly increased. According to the American Society for Metabolic and Bariatric Surgery (ASMBS), the number of bariatric surgeries increased to 179,000 in 2013. Of the procedures performed 42.1% were gastric sleeve, 34.2% Roux-en-Y (RNY), 14% gastric bypass, 14% gastric banding, 6% revision surgery, 2.7% were defined as other, and 1% duodenal switch.[2]

Bariatric Plastic Surgery

Published articles have indicated a sustained quality-of-life improvement in post - bariatric surgery patients after body contouring surgery.[3] Other articles have determined that patients with body contouring present better long - term weight control after bypass surgery.[4]

Similarly, bariatric plastic surgery procedures including tummy tuck, thighs, breasts, and arm lifts grew at their fastest rate in four years in recent years. In 2014, nearly 45,000 patients opted to have plastic surgery to correct changes resulting from weight loss surgery. According to the American Society of Plastic Surgeons (ASPS), thighs and upper arms lifts had their biggest single-year increase (9%) in five years in 2014. Tummy tucks increased four percent while breast lift procedures posted a ten percent increase, in the same year, making it the largest single-year gain since 2009 when the ASPS began tracking procedures performed on massive weight loss patients.[5]

Massive weight loss (MWL) is defined as 50% or greater loss of a person's excess weight.[6] After rapid MWL, a patient may be left with excess skin and fat and loss of skin elasticity, resulting in stretch marks or striae. These patients are left with significant functional and cosmetic issues related to the excess skin and represent unique problems and challenges to plastic surgeons. Many plastic surgeons and

patients refer to the areas of the body including the face, breasts and buttocks as "deflated." In the upper torso, this can cause upper and mid-back rolls, breast droopiness or ptosis, and excess skin in the arms. In the lower torso, a pannus or apron may develop in the mid abdomen, lower abdomen and pubic area as well as excess tissue in the flanks. Excess skin develops in the inner thighs as well, creating skin excess both vertically and horizontally as well as cellulite in the hips. Due to the newly formed skin folds, patients may experience intertrigo, pain or irritation. Most of these manifestations are refractory to topical therapy.

Candidates for Surgery

Body contouring after MWL surgery is a growing field in constant evolution. Conventional procedures are not always able to address these patients needs. MWL patients tend to be higher risk than non-bariatric patients undergoing similar procedures due to the extent of surgery needed and their frequent comorbidites such as hypertension, diabetes, possible malnutrition, hygiene issues, and persistent obesity.

A patient becomes a good candidate for bariatric plastic surgery approximately one year after weight loss surgery when their weight has been stable for at least three to six months. The average range of BMI at time of presentation is approximately 25-35. The best candidates are those with a BMI <30, have no or few medical conditions, do not smoke and have reasonable expectations. Poor candidates include those with BMI 35 or greater, active smokers, poor overall medical condition, on anticoagulants, and unrealistic expectations.

MWL patients need to understand that body contouring is a process rather than a one-time event. They may require two or even three procedures to address all of their concerns. This is not always physically or economically feasible and some compromise may need to be realized. MWL patients readily accept scars in exchange for improved contour. Proper selection of the correct patient, operative technique, and accurate markings prior to surgery are imperative in ensuring correct placement of scars.

Generally speaking, several insurance plans may conditionally cover few of these procedures. This differs significantly from one plan to another. Conditions that favor coverage include intertrigo or recurrent infections in the skin folds, and problems with maintaining hygiene. Some of the procedures covered include: apronectomy/panniculectomy, tummy tuck, and breast reduction.

Risks

Risks of bariatric plastic surgery are related to the number of procedures done, operative time, surgeon experience, and co-morbidities. They generally include hematoma, infection, seromas, wound dehiscence, skin necrosis, deep venous thrombosis (DVT), pulmonary emboli (PE), and death. Generally speaking, there is good data demonstrating elective operative times should be kept to no more than six hours in healthy patients.[7] Longer operative times can lead to increased risk of transfusion, infection, DVT and PE. Prior to surgery, patients are given a dose of an IV antibiotic, prepped with antiseptic, and SCD's are placed on their legs prior to induction. Drains are usually used in any significant skin excision procedure and kept in place one to two weeks minimum. Patients are ambulated immediately post-operatively and most are able to go home immediately after surgery or the next day. DVT prophylaxis is administered for patients kept overnight. Existing scars such as subcostal scars from open cholecystectomy must be considered for operative planning as they pose a threat to tissue viability after undermining. Similarly, midline incisions resist stretching needed when performing abdominoplasty and may result in wound dehiscence.

Procedures Offered to Weight Loss Patients After Bariatric Surgeries:

Liposuction

Liposuction is the manual removal of fat cells using small cannulas. The procedure involves making small stab incisions and introducing lidocaine and/or epinephrine through small cannulas into the area to be treated. The infiltrated epinephrine decreases the blood loss resulting from the procedure while the lidocaine decreases the amount of the general anesthetic needed. Patients with low BMI generally require skin excision alone whereas those with BMI >30 may benefit from liposuction in combination with skin excision procedures to remove or debulk some areas. Areas that may be treated with liposuction include the neck, arms, thighs, flanks and back. This may be done in combination with skin excision procedures or in staged fashion where liposuction is performed first followed by skin excision months later.

Trunk

The abdomen is the area of most frequent consultation. As a result of the weight loss, a pannus or apron often forms. There can be mid - abdominal pannus formation at or above the umbilicus and/or lower abdominal pannus formation at the level of the pubis. Existing lower transverse scars often exacerbate this as they create a "fixed" scar where the lower abdominal tissue then hangs over and covers the pubic area. Special attention needs to be given in the history and physical exam as patients may have scars which can affect the procedure and outcome as described previously. Hernias, if present, need to be addressed and rectus diastasis (separation

of the rectus muscles due to the intra-abdominal pressure exerted from being obese or having had children) must be corrected.

Two main procedures are used to address the abdomen: apronectomy/ panniculectomy and abdominoplasty. (See Figure 1.)

In a panniculectomy, the patient is placed in a supine position and the lower abdominal pannus is removed without any undermining or separation of the skin and fat from the abdominal wall. The lower incision is placed inside the mons pubis area and the upper incision is placed below the umbilicus. This procedure does not address the upper abdomen or flanks or the rectus diastasis. The umbilicus is left in place or sometimes "floated" where it is undermined or released from the abdominal wall and re-positioned lower than its anatomic position. At least two drains are used and left in place for one to two weeks. Panniculectomy may be the most likely procedure to be covered by some insurance plans.[8]



Figure 1
Abdominoplasty - Before (left) and after (right) of a patient who had massive weight loss surgery prior.

An abdominoplasty, on the other hand, addresses the entire abdomen. With the patient in the supine position, the lower abdominal tissue is removed. The lower incision is usually placed inside the mons pubis area in order to lift the ptotic mons and the upper incision extends above the umbilicus, depending on the degree of tissue laxity. After circumscribing the skin around the umbilicus to preserve the belly button, the entire abdomen is then undermined up to the level of the costal margin and xiphoid. The rectus muscles are plicated with sutures and the skin is then closed in layers. A new umbilical site is marked and created with a knife and the umbilicus is brought out to the skin and sutured in place. One to two drains are used and kept in place for one to two weeks. Liposuction may be incorporated on the flanks for improved contour.[9]

As the deformities of MWL are circumferential, many MWL patients require circumferential procedures. Patient with excess skin and/or fat in their lower back, lateral thighs and those with ptotic buttocks are candidates. Different approaches are offered based on the location and volume of the excess tissue to be removed. In these patients, the surgeon has to perform an abdominoplasty to treat the anterior trunk, remove posterior skin with or without lifting of the lateral thighs and buttocks. For example, a belt lipectomy results in a scar above the iliac crest and has the effect of "cinching" the torso. A lower body lift results in a scar below the iliac crest and involves more aggressive undermining of the lateral hips and elevation of the buttocks. Cannulas and special dissectors may be used to undermine the lateral thighs and lift them simultaneously. The buttocks may be auto - augmented as needed with tissue which would normally be discarded from the lower back or by injecting liposuctioned fat.[10] These procedures may be done in one or two stages, depending on the number of other procedures simultaneously performed. If the procedure is done in one surgery, re-positioning of the patient on the operating table is required. This can be done supine - prone or in a lateral decubitus position, depending on surgeon preference and other procedures' positions. Patients stay in the hospital one or two night for this particular surgery.[11]

Breast

Most MWL patients lose significant volume from the loss of fat in their breasts along with their trunk. Some with residual high BMI may benefit from a breast reduction. Most MWL patients, however, have breast deflation with excess inelastic skin and low nipples resulting in ptosis. These patients require mastopexy or breast lift surgery. In a mastopexy procedure, the nipple areolar complex (NAC) diameter is reduced and transposed to a more anatomic position on the breast. Excess skin is removed vertically and horizontally, extending laterally onto the lateral chest to contour this area.[12]

Some patients opt to increase their breast volume by



Figure 2
Augmentation - Mastopexy: Before (left) and after (right).

having an implant or by the use of autologous fat which has been suctioned from another area. Techniques of auto-augmentation with derma-glandular flaps, that would normally be resected during mastopexy, have been described with mixed results.[13] An augmentation-mastopexy may be done in one or two stages depending on the size of the implant desired, surgeon experience, patient co-morbidities, and expectations. (See Figure 2.) A small implant may be used in one stage whereas if a larger implant is needed, two stages are preferred since less skin can be removed in order to contour the breast. Moreover, combining mastopexy with augmentation reduces the vascularity of the tissue flap containing the NAC and may lead to delayed healing, implant infection and loss of the NAC. Furthermore, the position of the implant is difficult to control and asymmetries may result as there are several variables being addressed simultaneously. For most patients, two-stage mastopexy-augmentation surgeries are safer and reduce the need for revisions later. Drains are generally not needed in these procedures.[14]

Men with MWL may have deflation of their chest with resultant excess skin and benefit from rejuvenation of the breast. As opposed to a woman, a mastopexy would produce a shaped, projecting breast and be feminizing for a man. Therefore, the goals for a male would be skin removal in a cosmetically sensitive fashion so as not to be embarrassing when in public. This is usually accomplished through an inverted T- scar with transposition of the NAC or an inframammary crease scar with free nipple grafting. The latter procedure involves removal of the NAC then skin grafting the NAC back into an appropriate position on the chest. Liposuction is used as needed for further contouring.

Brachioplasty

In MWL patients, excess skin and fat present around the arms in between the elbow and the axilla. This is often an area of concern for women due to difficulty finding clothes that fit and inability to "hide" the deformity often likened to wings. Liposuction alone is insufficient treatment but may be used to debulk the arms in select patients in a staged procedure done three to six months apart.

Skin excision for brachioplasty is done on either the

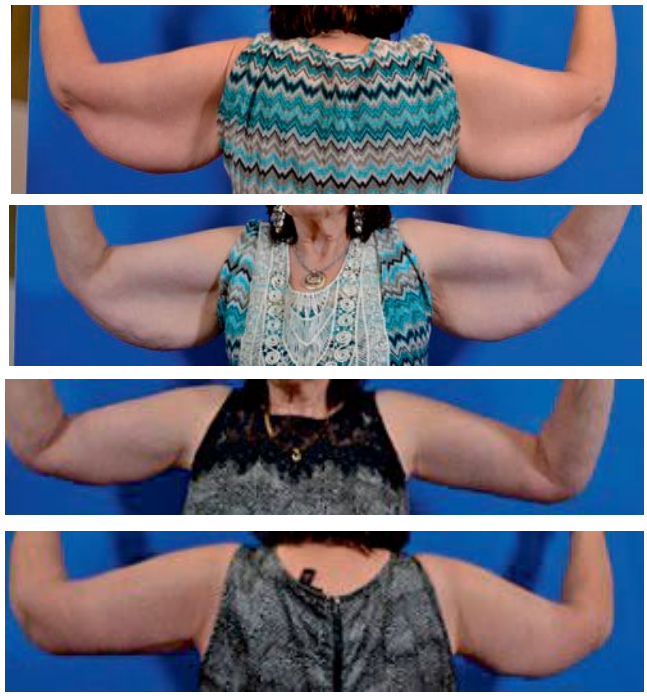


Figure 3
Brachioplasty: Before (top) and after (bottom).

posterior or medial brachium with the patient in the supine position and arms flexed at 90 degrees. The skin excess is determined by pinching and placing marks on the arms. Excess fat is accounted for at this point and secondary marks can be made. The skin is removed segmentally to account for discrepancies from the existing marks.[15] Over-aggressive removal of tissue may result in widened or hypertrophic scars which can be uncomfortable and unsightly to patients. Scars that cross the axilla and extend onto the chest wall may incorporate a z-plasty to prevent hypertrophic scarring. Drains are used liberally as well as compressive dressings.[16] (See Figure 3.)

Thigh Lift

The thighs are arguably the most difficult area to treat in MWL patients. Many women retain adiposity in their thighs despite weight loss. Excess skin in the lateral thigh may be addressed through lower body lifting or belt lipectomy as previously described. Liposuction may be needed to contour the lateral thighs or debulk the thighs in cases of severe lipodystrophy. There is more horizontal excess than vertical excess in these patients even though the opposite is perceived by the patients.[17]

Multiple techniques have been described to treat the thighs and some involve fascial anchoring to prevent labial spreading and scar migration.[18, 19] However, the medial thigh skin excess must be addressed whether it is proximally



Figure 4
Thigh Lift: Before (left) and after (right).

located near the groin or diffusely down the entire thigh. Essentially, a wedge of skin and fat is removed full thickness from the medial thigh. The concept is similar to a brachioplasty. The incision extends proximally in the groin or gluteal crease and distally to the knee as needed to remove dog ears and produce a satisfactory contour. The procedure is done with the patient in lithotomy position and drains are incorporated. In the author's opinion, this procedure carries a higher risk for dehiscence, lymphedema and infection than other body contouring procedures. This is likely secondary to the greater adiposity in this region, the dependent edema that occurs and the mobility of the tissues as an ambulatory structure.[20] (See Figure 4.)

Face and Neck

The face and neck are the least commonly treated areas for MWL patients. This is due to the severity of skin laxity present in other areas including the abdomen. Face and neck procedures are similar to non-MWL patients with two exceptions: the amount of deflation present from the loss of adipose tissue in the face is often more significant and the eyebrow tends to be more ptotic. The goal of facial rejuvenation in these patients is to remove excess skin and restore structures to their anatomic position and augment the volume of the subcutaneous tissue. This can be done via face, neck and brow lifting supplemented with the use of temporary fillers or permanent fat injections to restore the volume in the cheeks with the latter being the author's preference.[21]

Conclusion

Bariatric surgery and bariatric plastic surgery continue to surge in the United States. MWL patients are more complex surgical patients than non-MWL patients. They can be successfully treated by plastic surgeons adept in their care who customize staging of the procedures as needed to yield a faster recovery, better results, and lower complications.

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21. Face lift before and after - brow lift with face and neck lift, repositioning of the cheeks, tightening of the neck and removal of excess skin in the eyelids, face and neck

Disclosure

None reported.

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Over-Prescribed Medications, Under-Appreciated Risks:

A Review of the Cognitive Effects of Anticholinergic Medications in Older Adults

by Daniel M. I. Britt & Gregory S. Day, MD

Anticholinergic medications are associated with adverse cognitive effects in cognitively normal and impaired individuals, with a greater magnitude of effect observed in individuals with preexisting cognitive impairment due to Alzheimer disease.





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Introduction

Dementia refers to an acquired syndrome of intra-individual decline in cognitive performance that ultimately interferes with daily functioning. Although the syndromic label of "dementia" may be widely applied, specific etiological diagnoses are reserved for patients meeting well-defined clinicopathological criteria. Of these, Alzheimer disease (AD) represents the most common cause of dementia in individuals over the age of 65,[1] most often manifesting with the gradual onset and progression of memory and other cognitive impairment (characterized as AD dementia).[2] The prevalence of AD dementia[3] is predicted to rise in line with longevity,[4] reflecting the strong association between age and AD. An estimated 5.1 million Americans over 65 years are currently affected with AD dementia. This number is expected to swell to 5.8 million by 2020,[5] plateauing by 2030, at which point all surviving "baby boomers" (persons born between the years 1946 and 1964) will be 65 years or older, and thus at greater risk of AD.[3] In the state of Missouri alone, the number of individuals with AD dementia is expected to grow by 20% by 2030,[6] with wide-reaching implications for family members, caregivers, support organizations and health systems.[1]

Beyond AD, advancing age is also associated with multiple chronic illnesses, including heart disease, arthritis, diabetes and cancer.[7] Aggressive medical management of these conditions and related risk factors is encouraged to reduce long-term morbidity and mortality.[8] As a result, elderly individuals are increasingly likely to be prescribed multiple medications for their therapeutic benefits.[9,10,] A secondary consequence of this strategy is that risks of medication non-compliance, adverse drug reactions and mortality also increase.[11] The potential cognitive adverse effects of medications in older individuals, with and without dementia, is of particular concern, recognizing that acute declines in cognition may further contribute to negative outcomes associated with medication misuse. Of the medications known to associate with cognitive impairment,[12] those with anticholinergic properties pose the greatest risk in older individuals because of the broad indications for their use (e.g., treatment of allergic rhinitis, cold and flu symptoms, nausea and vomiting, urinary incontinence and insomnia), the high frequency with which they are encountered in over-the-counter and prescription preparations, and the potential for age-related changes in pharmacokinetics and

pharmacodynamics to increase susceptibility to adverse effects. We review the available literature concerning anticholinergic medication use in older adults, with the goals of qualifying their potential adverse cognitive effects and of clarifying strategies for anticholinergic prescribing in this high risk population.

We searched PubMED and Google Scholar databases for English-language studies including the terms Alzheimer('s) disease or dementia; AND anticholinergic medication OR serum anticholinergic activity; AND cognitive function, cognition OR cognitive decline. Additional sources were extracted from study references. Studies were reviewed in detail and included in this review if they met the following inclusion criteria: (1) enrolled older participants $\geq$50 years old; (2) reported exposure to anticholinergic activity or anticholinergic medication; (3) measured cognitive function; and, (4) reported on cognitive outcomes or change in outcomes following exposure to anticholinergic medications. Fifteen publications met these criteria.

Table 1
Summary (abbreviated) of studies considering the cognitive impact of anticholinergic medications in older adults.*

Study	Design	Exposure	Summary
1 [64]	Prospective observational study of community-dwelling adults with ADD[85]	High vs. low anticholinergic burden score	No increased cognitive decline in participants with ADD receiving established doses of anticholinergic medications
2 [28]	Prospective observational study of community-dwelling and institutionalized older adults	Definite vs. possible anticholinergic medications, vs. no exposure	Anticholinergic medication use increased cumulative risk of cognitive impairment and mortality
3 [29]	Prospective observational study of community-dwelling cognitively normal older African Americans	Definite anticholinergic medications vs. no exposure	Anticholinergic medication use associated with an increased risk of cognitive impairment
4 [55]	Cross-sectional study of participants with probable ADD[85] referred to a psycho-geriatric Unit	SAA positive vs. negative	Positive SAA was associated with lower global cognitive performance
5 [56]	Prospective observational study of community-dwelling and institutionalized older adults	Exposure to anticholinergic medications vs. no exposure	Anticholinergic medication use was associated with decreased cognitive performance in older females
6 [53]	RCT, placebo controlled trial in institutionalized older adult females with mild-to-severe dementia	Oxybutynin ER 5 mg QD vs. placebo	Oxybutynin was safe and well-tolerated for the short-term treatment of urinary incontinence
7 [17]	Prospective observational study in community-dwelling and institutionalized older adults	Anticholinergic medications vs. no exposure	Adults exposed to anticholinergic medications had significant declines in cognitive performance, and were more likely to be classified as MCI
8 [51]	RCT, placebo controlled trial in cognitively normal older adults	Oxybutynin ER 20 mg QD vs. Darifenacin 15 mg QD, vs. placebo	Oxybutynin was associated with significant impairment in delayed recall; darifenacin was not
9 [41]	Cross-sectional study in patients with moderate-to-severe dementia admitted to a psycho-geriatric Inpatient Unit	SAA positive vs. negative	Higher SAA associated with lower cognitive performance
10 [54]	Retrospective cohort study in participants with ADD[85] selected from ADC database	Anticholinergic medications vs. no exposure	Anticholinergic medication use was associated with a greater decline in global cognitive performance
11 [27]	Cross-sectional study in community-dwelling cognitively normal older adults	High vs. low, vs. undetectable SAA	Higher SAA was associated with lower MMSE scores
12 [52]	RCT, placebo controlled cross-over study in cognitively normal older adults	Oxybutynin 10 mg vs. diphenhydramine 50 mg, vs. placebo	Oxybutynin and diphenhydramine caused impairment of cognition within 90 minutes of administration
13 [57]	Cross-sectional study in cognitively normal older adults with major depressive disorder	SAA positive vs. negative	SAA was associated with lower delayed recall scores, even at very low levels
14 [26]	RCT, placebo controlled cross-over study in cognitively normal adults	Scopolamine 0.5 mg IV vs. placebo	Older participants were more sensitive to the cognitive effects of scopolamine
15 [34]	Dose-response trial, placebo controlled in individuals with ADD[86] vs. age-matched controls	Scopolamine IV titration (0.1, 0.25, 0.5 mg and placebo)	Patients with ADD were more sensitive to the cognitive effects of cholinergic blockade

SD = standard deviation; RCT = randomized control trial; ADD = Alzheimer disease dementia; MMSE = Mini Mental State Examination [62]; ADC = Alzheimer Disease Center; SAA = serum anticholinergic activity; MCI = Mild Cognitive Impairment

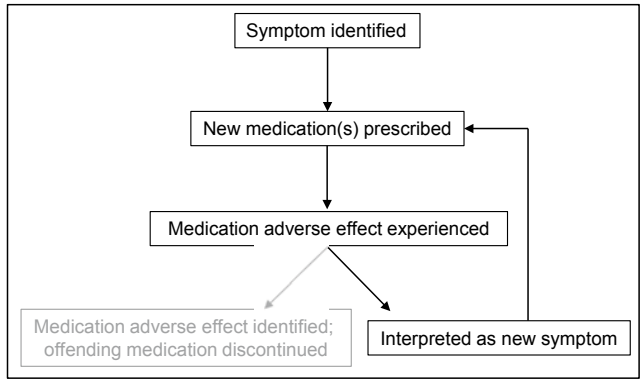
* A detailed summary of Table 1 results is available upon email request (lfleenor@msma.org)

Polypharmacy and Alzheimer Disease: An Aging Problem

Medication use is on the rise in older populations.[10,13] As many as 50% of Americans over 65 years of age are currently prescribed five or more medications,[14] meeting even the most conservative definitions of polypharmacy. Individuals with AD dementia are no exception. A cross-sectional study of community-dwelling elders in Chicago found that older individuals with AD dementia on average were prescribed more medications than those without dementia, including medications known to worsen cognitive impairment (4.9±2.6 versus 3.9±2.5; $p<0.001$).[15] The risk of polypharmacy may be even higher in individuals with greater utilization of health care resources. A retrospective study considering the outcomes of 644 older adults receiving home care services in the St. Louis area, demonstrated that individuals requiring hospitalization were exposed to a higher overall number of medications than those returning to self- or family-directed care.[16] Forty-six percent (87/189) of older adults requiring hospitalization were taking seven or more medications at the time of hospitalization, with 21% (40/189) exposed to 10 or more medications.[16] These observations suggest that increasing numbers of medications associate with poorer health outcomes. One mechanism through which this may occur is by induction of a 'prescribing cascade' (See Figure 1), in which increasing numbers of medications result in adverse drug reactions, which are misinterpreted as new medical conditions, prompting prescribing of additional medications (and conveying even greater risks of medication adverse effects).[9] The risks of improper prescribing may be highest in individuals receiving care from multiple physicians and in those within environments where medication changes may be rapidly implemented (i.e., inpatient or skilled-nursing settings). Individuals with AD dementia commonly fulfil both of these criteria, conveying additional risk in this vulnerable population.

The prevalence of anticholinergic use in older individuals is as high as 37%[10, 17-20] and is expected to be even higher in individuals taking multiple medications. Common anticholinergic side effects include dry mouth, constipation, visual impairments, confusion and delirium.[21] Older individuals may be more vulnerable to these effects, owing to age-related decreases in brain muscarinic receptor density,[22] acetylcholine transmission[23] and blood-brain barrier integrity, and age-related changes in drug metabolism and volume of distribution.[24] Accordingly, anticholinergic use in the elderly has been linked to increases in functional and cognitive decline,[17, 18, 23, 25-29]

Figure 1



Model illustrating the prescribing cascade. Misinterpretation of medication adverse effect as a new symptom (e.g., worsening confusion, new visual hallucinations and agitation—compatible with anticholinergic-induced delirium) leads to prescribing of additional medications, contributing to polypharmacy, and further increasing the risk of additional medication adverse effects (black). Terminating the prescribing cascade requires recognition of new symptoms as adverse effects and discontinuation of offending medications (gray).

risks of institutionalization, length of hospital stay,[30] and morbidity and mortality.[31] The potential risks may be further compounded in individuals with AD due to disease-associated deficits in central nervous system acetylcholine levels[32] and reductions in cognitive reserve.[33] As a result, anticholinergic use may potentiate the symptoms associated with AD dementia, altering disease expression.[34] There is even the suggestion that anticholinergic use may directly alter the progression of AD neuropathologic change, contributing to an earlier age of onset of AD dementia.[35] Recognizing this, anticholinergic medications may represent a potentially reversible contributor to cognitive impairment and progression of AD pathology,[12, 36-38] raising the possibility that outcomes in patients with AD dementia could be improved by reducing anticholinergic use.

Anticholinergic Medications and Dementia Expression

The cholinergic hypothesis posits that brain levels of the neurotransmitter acetylcholine are critical for learning and memory.[39] This assertion is supported by animal studies demonstrating a marked decline in performance in navigational learning tasks in rats with pharmacologically-induced lesions targeting the cholinergic projection system (i.e., the nucleus basalis magnocellularis);[40] and by studies in patients with AD dementia that report an inverse association between acetylcholine levels, and short-term memory and learning.[38, 41, 42] In humans, this relationship has been attributed to a reduction in central nervous system acetylcholine-synthesizing neurons, and muscarinic

and nicotinic acetylcholine receptors, owing to early AD neuropathologic change in chief cholinergic nuclei.[43, 44] This line of evidence has been used to justify current approved symptomatic therapeutic strategies in patients with AD dementia, emphasizing prescribing of cholinesterase inhibiting medications (i.e., donepezil, rivastigmine, galantamine) in an attempt to increase central nervous system levels of acetylcholine.[45-47]

Anticholinergic medications may contribute to memory and learning impairment through central blockade of cholinergic (nicotinic and muscarinic) receptors.[39] Scopolamine, a central cholinergic antagonist, has a well-recognized potential to mediate reversible amnesia in cognitively normal individuals.[26, 48] Such effects can be blocked through the administration of cholinesterase inhibitors.[48] In addition to central-acting agents, anticholinergic medications prescribed for their effects on peripheral nervous system targets may inadvertently alter central acetylcholine levels.[49] Oxybutynin is one such "peripherally-acting" medication that is commonly prescribed for the symptomatic management of overactive bladder in adults,[50] yet is associated with adverse cognitive outcomes in cognitively normal and impaired older adults.[51-53] The magnitude of adverse cognitive effects and potential exacerbating factors associated with anticholinergic medications remain to be determined, with the potential that anticholinergic medications may unmask or exacerbate cognitive dysfunction in patients with preclinical (i.e., AD neuropathologic change in the absence of symptoms) or very mild AD dementia.[34, 54, 55]

We summarize the results of 15 studies that considered the cognitive impact of anticholinergic medications in older adults, with and without AD dementia (See Table 1). Ten studies considered the overall effect of anticholinergic medications on cognition; the remaining five studies evaluated the cognitive consequences associated with specific anticholinergic medications, versus placebo. Aggregate results from over 22,000 participants are presented, including 7,903 (34.6%, 7903/22821) participants exposed to anticholinergic medications.

Overall, 13 (87%, 13/15) studies reported consistent declines in objective measures of cognitive function (e.g. measures of delayed recall such as Name-Face Association, and of general cognition, such as the Mini-Mental State Examination [17, 26-29, 34, 41, 51, 52, 54-57]), with performance in tests of delayed recall most profoundly affected. The adverse effects of anticholinergic medications on recall may be disproportionately higher in older individuals with baseline cognitive impairment. This assertion is supported by three studies including over 13,000 participants: All reported an increased risk of cognitive impairment in participants with AD dementia who were exposed to anticholinergic medications.[28, 34, 54] A similar effect, albeit of smaller magnitude, was noted in young cognitively normal participants,[26] emphasizing the robust and pervasive effects of anticholinergic medications across populations of community-dwelling adults. Of particular concern, adverse effects on cognition may be under-recognized or under-reported. Although objective deficits in delayed recall were measured in healthy participants ≥60 years of age taking oxybutynin, no between-treatment differences were detected in self-rated memory, suggesting that participants were unaware of memory deterioration.[51] Thus anticholinergic medications may represent a covert risk for cognitive impairment, with potentially important implications for individuals living independently, in whom medication-induced changes in cognition could go unchecked.

The adverse cognitive effects of anticholinergic medications appear to be dose-related. Four studies utilizing a biochemical measure of serum anticholinergic activity [58] reported an inverse relationship between serum anticholinergic activity and cognitive performance in over 200 cognitively normal participants,[27, 57] and 100 individuals with AD dementia.[41, 55] This dose-effect relationship may be further exacerbated by aging-related changes in pharmacokinetics and pharmacodynamics,[59] hormonal changes (e.g., associated with estrogen treatment in females,[60, 61] and other age-associated factors (e.g., simultaneous use of other medications which impair metabolism or prolong the effect of anticholinergic medications), resulting in higher serum anticholinergic activity and potentially contributing to the greater magnitude of cognitive effects observed in this vulnerable population.[26, 56]

Two studies (13%, 2/15) reported no increased cognitive decline in association with anticholinergic medications. The largest of these enrolled 224 participants with AD dementia who were receiving stable doses of medications. Although baseline performance on bedside cognitive tests (including the Mini Mental State Examination[62] and Alzheimer's Disease Assessment Battery, Cognitive subsection[63]) were significantly lower in individuals with an elevated 'anticholinergic burden score' (ABS ≥1; for information on calculation of the ABS see [23, 29]), no significant correlation was observed between ABS scores and cognition at baseline, or at 6 or 18 month follow-up assessments.[64] The other study reported no

diminution in cognitive function in 50 females with mild-to-moderate dementia who were prescribed oxybutynin for the short-term management of urinary incontinence.[53] Although the findings of these studies may be interpreted to suggest that anticholinergic medications may be tolerated in select populations, both studies included a majority of participants with prominent cognitive impairment, as evidenced by average Mini Mental State Examination scores below 15 in individuals taking anticholinergic medications,[53, 64] and high overall rates of institutionalization (33%[64] and 100%[53]). Thus, an alternate explanation may be that the impact of anticholinergic medications was harder to measure in individuals with moderate-to-severe AD dementia (owing to limitations in testing patients with more severe AD dementia—a so called 'floor effect'). Further study is required before drawing conclusions concerning the efficacy and safety of anticholinergic medications in older populations with moderate-to-severe dementia.

Anticholinergic Medications and Alzheimer Disease

The neuropathological hallmarks of AD include the progressive accumulation of insoluble aggregates of amyloid-ß peptide (forming amyloid plaques), and misfolded tau protein (forming neurofibrillary tangles) within cortical and subcortical structures.[2] Although AD neuropathologic change may be suspected in patients with AD dementia, antemortem diagnosis of AD requires the use of neuroimaging or cerebrospinal fluid biomarkers of amyloid-ß and tau.[4, 65-67] Although many treatments targeting AD neuropathologic change have been and continue to be formally investigated,[68, 69] none have succeeded in halting disease progression in humans. This finding exemplifies the importance of developing symptomatic treatments that can be applied to patients with AD dementia, and the importance of avoiding therapies and exposures that may promote disease expression or exacerbate AD neuropathologic change.

Systemic administration of cholinergic muscarinic agonists has been shown to reduce levels of amyloid-ß in the cerebrospinal fluid and cerebral cortex of guinea pigs, with no significant effect on amyloid precursor protein levels.[70, 71] Similarly, chronic nicotine treatment has been found to reduce amyloidosis in the mouse brain.[72] Together these observations suggest that activation of central muscarinic and nicotinic cholinergic receptors may limit brain amyloid-ß accumulation or promote clearance. It follows therefore, that cholinergic blockade may promote development of AD neuropathologic change, increasing the risk of development of AD dementia.

This hypothesis has been tested in a number of human observational studies (See Table 2), including three studies that considered the potential relationship between high cumulative use of anticholinergic medications and AD dementia.[35, 38, 56] Collectively these studies reported a greater incidence of AD dementia in 4172 (32.2%, 4172/12951)

*Table 2: Summary (abbreviated) of studies considering the impact of anticholinergic medications on AD pathology.**

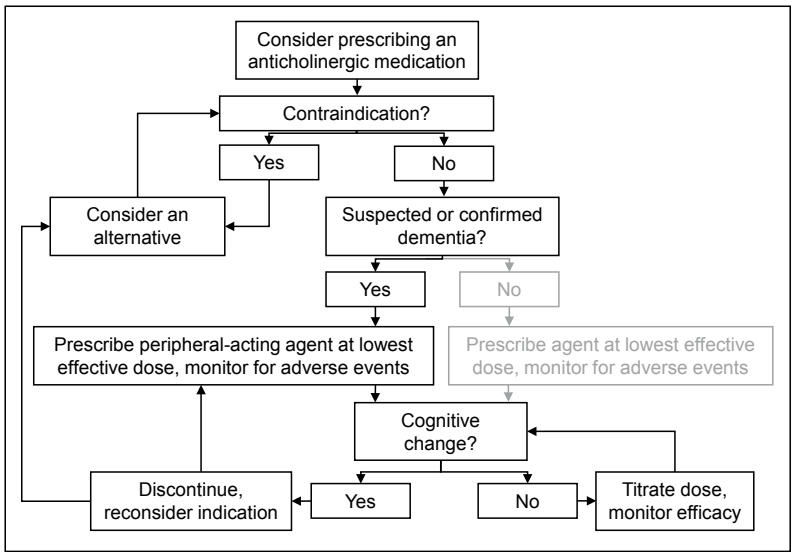
Study	Design	Exposure	Summary
1 [35]	Prospective observational study in community-dwelling cognitively normal older adults	Stratified participants by anticholinergic TSDD	Higher cumulative use of anticholinergic medications was associated with an increased risk of dementia (HR 1.54, 95% CI 1.21-1.96) and ADD (HR 1.63, 95% CI 1.24-2.14)
2 [38]	Prospective observational study in cognitively normal older individuals from a primary care registry	Anticholinergic medications vs. no exposure	Anticholinergic medication use was associated with an increased risk of dementia (HR 2.081, p<0.001)
3 [74]	Retrospective study in cognitively normal older adults	Anticholinergic medications vs. no exposure	Anticholinergic medication use was not associated with an increased amyloid-ß plaque burden (measured with amyloid imaging)
4 [56]	Prospective observational study in community-dwelling and institutionalized older adults	Anticholinergic medications vs. no exposure	Continuous anticholinergic medication use was associated with an increased risk of dementia (HR 1.65, 95% CI 1.00-2.73) and ADD (HR 1.94, 95% CI 1.01-3.72)
5 [73]	Retrospective study in patients with Parkinson disease, selected from a pathological database	Anticholinergic medication use and duration	Anticholinergic use was associated with increased amyloid-ß plaque and neurofibrillary tangle density

TSDD = Total Standard Daily Dose; ADD = Alzheimer disease dementia; HR = Hazard Ratio; CI = Confidence Interval

* A detailed summary of Table 2 results is available upon email request (lfleenor@msma.org)

Figure 2

Suggested strategy for anticholinergic medication prescribing and monitoring in older adults with (black) and without dementia (gray).



individuals exposed to anticholinergic medications for three years or more. Individuals exposed to higher potency anticholinergics exhibited the highest incidence of AD dementia,[35, 38] although higher rates of AD dementia diagnosis were still noted in individuals taking lower potency anticholinergics compared to those not exposed to anticholinergic medications (HR 1.8, $P<0.001$).[38] Similar findings were reported in a postmortem study of participants with Parkinson's disease, where a higher burden of AD neuropathology was observed in the brains of study participants with a history of long-term exposure ($\geq$2 years) to anticholinergic medications.[73]

The pathological mechanisms through which anticholinergic medications promote development of AD dementia remain unknown. The application of biomarkers measuring amyloid-ß may provide an opportunity to consider the long-term effect of anticholinergic medications on AD neuropathologic change, and to visualize this effect in vivo. To this end, we previously considered whether anticholinergic exposure was associated with elevated amyloid-tracer binding in asymptomatic (i.e., preclinical) and symptomatic individuals with AD evaluated at the Knight Alzheimer Disease Research Center at Washington University in St. Louis. Although a correlation was not confirmed, this study was only powered to detect a large magnitude effect of anticholinergic medications on amyloid deposition.[74] Future studies recruiting additional participants are required to address this important question.

Clinical Applications

Anticholinergic medications are commonly prescribed for the treatment of cold or flu symptoms, allergic rhinitis, atopic dermatitis, nausea and vomiting, and urinary incontinence. In treating each of the above conditions, the goal is to antagonize peripheral cholinergic receptors. However, the vast majority of anticholinergic medications lack sufficient specificity for peripheral receptors. The American Geriatric Society lists potentially inappropriate medications that are commonly used in older adults (Beers Criteria).[75] Anticholinergic medications that exert marked central cholinergic effects are prominently featured on this list, including first-generation antihistamines, antispasmodics, antimuscarinics, tricyclic antidepressants, antipsychotics, antiparkinsonian agents and skeletal muscle relaxants.

Five distinct muscarinic receptors are recognized throughout the nervous systems, labelled M1-M5.[76] Of these, the central M1 and M2 receptors exert the most direct effect on cognition, with antagonism contributing to memory impairment in animals.[77-79] The M3 receptor, in contrast, is predominantly distributed throughout the peripheral nervous system,[76] with important genitourinary implications. Stimulation of M3 receptors promotes detrusor muscle contractility and urinary voiding,[80] with minimal central effects. This selectivity presents an opportunity for pharmacologic intervention for the treatment of urinary incontinence—a common and debilitating problem in older adults. Darifenacin is marketed as a selective M3 muscarinic-antagonist, with minimal effect on central M1/M2 receptors.[81] Accordingly, a single randomized control trial showed no change in delayed recall in participants taking darifenacin compared to placebo for a three week period.[51] Additionally, a single-center, randomized, double-blind, placebo-controlled study found that solifenacin, another selective M3 antagonist,[82] did not cause a significant decline in cognitive function compared to placebo.[83] Thus, it may be possible to effectively modulate peripheral cholinergic receptors, while limiting the cognitive consequences commonly associated with anticholinergic medications.

Recommendations derived from review and interpretation of the relevant literature are combined with basic prescribing principles to devise a strategy for

anticholinergic prescribing in older adults (See Figure 2). Providers are advised to carefully consider the indications, potential contraindications and alternative therapeutic options before prescribing anticholinergic medications. Additional scrutiny should be considered when making clinical recommendations in individuals with suspected or confirmed AD dementia, acknowledging greater susceptibility to adverse cognitive effects,[28, 34, 41, 54, 55] particularly diminution of short-term memory. When indicated, anticholinergic medications should be prescribed at the lowest effective dose, emphasizing the use of peripheral-acting agents, whenever possible. Subsequent dose titrations should be performed while monitoring for efficacy and screening for evidence of subjective or objective change in clinical signs or symptoms. Objective measurement of cognitive performance should be prioritized whenever possible, given the potential for under-recognition or under-reporting of memory deficits in otherwise healthy individuals taking anticholinergic medications.[51] If changes are noted, strong consideration should be given to discontinuing the potentially offending medication, thereby avoiding the prescribing cascade. Prescribing indications should be frequently reevaluated, and anticholinergic medications tapered or discontinued at the first opportunity, in the interest of avoiding prolonged exposure to risks associated with anticholinergic use—including the potential for cholinergic blockade to contribute to AD neuropathologic change.[35, 73]

Future Directions

Studies evaluating the effect of anticholinergic medications in older individuals have largely focused on medication effects in individuals presumed to be "cognitively normal" or those with AD dementia. The recent emergence of biomarkers of AD neuropathologic change that can be measured in living individuals has provided great insight into the timeline and progression of AD dementia,[4, 65-67] demonstrating that characteristic changes of AD may precede the onset of symptomic disease by decades.[2, 4] This discovery presents an opportunity to identify individuals with AD before the onset of progressive impairment of memory that characterizes the symptomatic phase of disease (i.e., "preclinical AD"). Future studies considering the cognitive effects of anticholinergic medications in individuals with preclinical AD are warranted, with the possibility that this population may exhibit similar vulnerability to anticholinergic-mediated cognitive impairment as reported in participants with AD dementia. It is even possible that anticholinergic use in this population may contribute disproportionately to the cognitive impairment observed in populations of "cognitively normal" older adults reviewed herein (similar to the confounding effect of preclinical AD observed in studies of "normal" aging[84]).

Conclusions

The balance of existing evidence suggests that anticholinergic medications are associated with adverse cognitive effects in cognitively normal and impaired individuals, with a greater magnitude of effect observed in individuals with preexisting cognitive impairment due to AD. Judicious prescribing of anticholinergic medications to at risk individuals is recommended, with the goal of improving cognitive outcomes in elders with and without AD. Additional attention is required to further clarify the contributions of anticholinergic medications to the expression of AD dementia and AD neuropathologic change.

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Disclosure

None reported.

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The authors are grateful for ongoing mentorship support provided from Dr. Terry Seaton, Professor, St Louis College of Pharmacy; and Dr. John C Morris, Director, Knight Alzheimer Disease Research Center at Washington University in St. Louis. **MM**



March 18-20, 2016
St. Louis Renaissance Airport Hotel
St. Louis, Missouri



Meet MSMA's 2016-2017 President

Ravi S. Johar, MD
St. Louis, Missouri

Contact: rkjohar@att.net

Ravi S. Johar, MD, a board certified Obstetrician-Gynecologist from St. Louis, Missouri, will serve as President of the Missouri State Medical Association in 2016-2017. He wsa formally installed in St. Louis, March 19, 2016, during the MSMA's 158th Annual Convention.

His parents, Dr. Jogindar Johar and Manjit Johar moved to Wayne, Nebraska, when he was a small child, and he grew up there with two brothers Dr. Jassi Johar and Vinny Johar. He graduated from the University of Nebraska where he majored in Political Science with minors in Biology, Chemistry, and English.

He then attended the University of Nebraska College of Medicine (UNMC) where he first became involved in organized medicine serving as the UNMC President of the American Medical School Association and later as the National Director of the Medical Education and Community Orientation Project (MECO).

After graduation, he completed his internship and residency in OB-GYN at the Medical College of Georgia (MCG) in Augusta, Georgia. While at MCG, he met and married his wife Kay, a PharmD. After finishing residency, they moved to St. Louis where their daughter Katelyn, now 22, was born. This allowed Kay to begin her long-term sabbatical which is now going on 21 years. Their other two children, Alex, 19, and Megan, 15, soon joined the family.

Dr. Johar is a true believer in the mission of organized medicine. In addition to his membership in MSMA, he is a member of the American Medical Association and the St. Louis Metropolitan Medical Society. For SLMMS, he has served as President, Chair of the Nominations committee and served on and chaired the Patients and Physicians Grievance committees, as well as the Bylaws committee. He also has served on the Physicians Advisory Committees for United Health Care, GHP, and BC/BS Anthem as well serving on the board of Primaris.

He is a Fellow of the American College of Obstetricians and Gynecologists and has also served his medical specialty. He is the Vice-Chair Elect for the Missouri Section of the American College of OB-GYN. He has previously served as the Secretary-Treasurer of MoACOG and was selected as a Cefalo Fellow by National ACOG.

Dr. Johar currently practices with Mercy Healthcare. He finds great satisfaction in being able to talk to his patients and help them understand their conditions, and subsequently empowering them to be able to make informed decisions. He is on the staff of several area hospitals and has served them in many roles including chairing Peer Review and Quality Committees, serving on Medical Executive Committees and as Department Chair. During his career, he has delivered over 9,100 babies and still considers each one a little miracle and proof that the world will go on and even survive this election cycle.

During his tenure as MSMA President, Dr. Johar's goals are:

- To visit with physicians across Missouri and speak out against physician burnout and re-engage them in the practice of medicine.
- To help Missouri physicians understand the new challenges and opportunities of the post SGR world, and deal with the rapidly approaching Merit-based Incentive Payment System (MIPS) and Medicare Access and CHIP Reauthorization Act (MACRA).
- To address the opioid problem facing our patients and families.

MM

Jana Wolfe to Lead Medical Alliance

Jana Wolfe
Springfield, Missouri

Contact: madamlobolair@gmail.com



Jana Wolfe, Greene County, Springfield, was installed as the 92nd President of the Missouri State Medical Association Alliance (MSMAA) during the Annual Meeting, March 19, 2016, in St. Louis.

Jana was born and raised in Cape Girardeau, Missouri, and received her registered nursing degree, with a minor in psychology, from Southeast Missouri State University. Her career has included nursing in many different areas; oncology, orthopedic, medical-surgical, obstetrics, pulmonology, cardiology, intensive care, cardiac intensive care, neurology intensive care and pre-operative, operative and post-operative nursing. She served as staff nurse, charge nurse, assistant nurse supervisor, and nurse supervisory positions. She was the initial contact person for new parents with children with disabilities, while in Cape Girardeau.

She moved to Springfield in 1989, and is married to James Wolfe, MD, MSMA Past President. Together they share six children and 10 grandchildren. Their youngest daughter, Heather, has Down's syndrome, who has worked at SWI Industrial Solutions for 11 years.

Jana has been actively involved with health-related, and community-based organizations since she was a youth. Since moving to Springfield she became actively involved with the American Nurses Association, Springfield/Greene County Public Safety Committee, the Victim Center Board, the Child Advocacy Center, special committees, and the Discovery Center Board.

She is also involved with LifePoint Church: Covenant Member, Springfield Workshop Foundation: Current Chair, SWI Board of Directors: Current Executive Secretary, SWI Parent Support Group, American Medical Association Alliance, Missouri State Medical Association Alliance: President, Vice President of legislation, Greene County Medical Society Alliance: Chair of Legislation, Chair of Membership, Past President, Vision Rehabilitation Center of the Ozarks, the American Red Cross, Springfield Benchrest Rifle Club, Parrot Education and Rehome/ Rehabilitation Sanctuary (Pear Tree), and Southwest Missouri Pet Bird Club.

The upcoming year promises to be filled with "Growing Our Missouri's Alliance." Through the help of the AMA Alliance annual meeting and an MSMA Alliance Strategic Planning Committee, it's an exhilarating time of training, learning, sharing, and bringing new focus and guidance for our future. **MM**

State of the Association: Presidential Address

by John O. Stanley, MD, 2015-2016 MSMA President

It has been my pleasure to have served as your president for the past year. My duties have been extremely gratifying and rewarding, especially my travels to the various component organizations around the state. You should be proud that your Missouri State Medical Association is widely recognized as the voice of medicine in Missouri.

It would be appropriate, at this time, to give you the headlines from the Missouri State Medical Association.

In 2012, the Missouri Supreme Court vacated the state's $350,000 cap on non-economic damage awards in health care lawsuits. Restoring that cap became MSMA's highest legislative priority, and last year we made it happen!

A new law is now on Missouri's books, and non-economic damages are now limited to $400,000 (with a higher cap of $700,000 for certain catastrophic injuries). The caps are subject to a 1.7% annual inflator, but the unlimited liability is now gone. This was an incredibly important win for medicine, and one of the most far-reaching accomplishments MSMA's advocacy effort has ever enjoyed.

MSMA's advocacy work is not limited to Missouri's borders. We are involved in a wide variety of federal government issues, and as a prime example, MSMA worked with others in 2015 to win a permanent repeal of the flawed SGR Medicare physician payment formula in Washington, DC.

Your MSMA lobbied federal authorities on the proposed Anthem/Cigna and Aetna/Humana mergers, mass terminations from UnitedHealthcare's Medicare Advantage plan; the unduly burdensome Medicaid sterilization consent form; the 90-day grace period under the Affordable Care Act that leaves physicians at risk for uncovered services in exchange plans; Medicare Conditions of Participation rules effecting hospital medical staffs; and the transition to ICD-10.

Your Missouri Medical Political Action Committee is one of the most respected and effective PACs in the state. In the last election cycle MMPAC contributed more than $146,000 to support physician-friendly candidates across the state

MSMA held a White Coat Rally in support of tort reform in the Missouri Capitol. Physicians from every corner of the state showed up to lobby their senators and representatives for the good of the cause.

We joined the AMA and other state medical societies to improve access to care for our veterans. MSMA created a registry of private physicians ready and willing to care for military veterans outside the VA system. Congress authorized the access, and I'm pleased to say that nearly 200 MSMA physicians signed up, and we shared those names with the VA.

I, along with MSMA staff, attended many local component society meetings across the state, from Maryville to Poplar Bluff, from Hannibal to Joplin, your leadership and staff make themselves available to every component society and member practices.

Some Missouri physicians fell victim to a large-scale federal income tax scam. MSMA worked directly with the U.S. Secret Service to aid in the investigation, and developed a helpful toolkit for physician victims to use to mitigate the damage.

We held a popular "Grassroots Advocacy Training" seminar for specialty and component society leaders, and sponsored a very successful Lobby Day for our medical school students, so they could experience first-hand the power of personal advocacy in the Missouri Capitol.

MSMA also boasts an outstanding group of member physicians who represent you and your patients in the AMA House of Delegates.

MSMA is constantly striving to bring even more value to your membership. Last fall we undertook a major overhaul of the MSMA website to make it more useful and mobile-friendly for our members.

Missouri Medicine, MSMA's outstanding scientific journal, is free to you with your membership. And I am pleased to announce that seventeen articles that MoMed published from 2013 to 2015, covering the "Near-Death phenomenon" will be published in book form by University of Missouri Press this summer.

And, if you are a member, you receive free CME credit here at the Convention, and numerous other opportunities to earn CME through our statewide recognition program.

In addition to our outstanding services, including financial, career, placement, contract review, debt management, group purchasing, and a lot more, MSMA added several new partners and vendors to your benefit – Lifelock, a leader in identity theft protection, MedjetAssist, travel security and crisis response protection, and Officite, which provides online marketing solutions.



Special guests visit with newly installed MSMA President Ravi Johar, MD, (center) during the Presidential Inauguration in St. Louis. On the left is David Barbe, MD, MSMA Past President and AMA Board of Trustee, and standing to the right is Steve Stack, MD, AMA President.

It is nearly impossible to list all of the benefits, duties and services MSMA provides for the physicians of Missouri. The advocacy and representation, the publications, the CME, the Foundation, the Physicians Health Program, the MSMA Insurance Agency, the Alliance, and your AMA Delegation all cumulate in an organization deeply rooted in service to its members and the patients they serve.

The MSMA is YOUR organization, we welcome your thoughts on how best to serve you and your fellow members. I want to express gratitude for the officers, councilors, committee members, and other leaders who give so much of their time and resources for the betterment of the Association and patient care in Missouri.

It has been my distinct pleasure to have served as president this past year. It is an honor I will always remember and cherish. Thank you very much for your support.





Left, the Wild Wild West Foundation Fundraiser raised money for the MSM Foundation and the Alliance's Scholarship Fund. From left, Ed Cabbabe, MD, Rima Cabbabe, and Rebecca Hierholzer, MD. Top, Medical Students are ready for the Reference Committee. From left, David Goodson, Matt Faubion, Kartik Sreepada, Ariel Carpenter, Jared Lammert, and Meghna Srinath.

MM

Let MSMA Take Care of the Big Stuff

by Ravi Johar, MD
2016-2017 MSMA President



John Stanley, MD, hands over the reigns of MSMA to Ravi Johar, MD.

Good evening. I would like to thank all of you for coming tonight. I've been really looking forward to tonight. I am particularly excited to take over president of the Missouri State Medical Association next year, but not maybe for the reasons that everyone thinks. Looking back through the history of MSMA, I've noted that many of my predecessors have retired after finishing their year as president. Considering that my retirement plan is entirely predicated on me winning the lottery, I guess this means I'm going to win the lottery this year. And that has me very excited.

I would like to publicly thank my wife Kay for allowing me to pursue all my activities in the various organized medicine groups I am involved in, working with the Boy Scouts, and supporting me in anything that I wanted to do to get out of the honey-do list at home. She is very special and I just wanted to let her know how much I appreciate and love her. I would also like to give a special thanks to our children Katelyn, Alex, and Megan for putting up with me being gone so much and not complaining about me spending time on the phone or computer when I was around. In spite of us, they have turned out to be fine young adults and I am very proud of them.

I'd also like to thank my brothers for flying in from out of town, Jassi, an ED physician in Colorado who you saw earlier and my non-physician brother Vinny from New York. I'm not sure exactly what he does but he never hesitates to remind me that he sleeps at night, has weekends off and makes more money than I ever will.

I'd also like to thank my parents, Jogindar & Manjit for being here tonight. I could not have done this without you. Literally I would not even exist without you ! and figuratively you are responsible for the good and bad that I am.

More seriously now, I am very humbled by this position and looking forward to my year as President of this incredible organization. I've been involved in organized medicine since my first year in med school, but during residency and early practice I kind of got away from it. Up until Dr. Gordon Goldman dragged me back into it. I guess organized medicine is kind of like the mafia. Once you think you're out, you're back in again. I think it's something that gets into your blood. There is something special about organized medicine...and I think there always will be. You know, everyone talks about all the issues that we're going to face, all the problems, the things that are going wrong. And I guess that's why the MSMA was founded 166 years ago. A group of Missouri physicians got together and discovered that they needed to work together to deal with the problems they were facing. Now I doubt they were worried about Meaning Less use, or MIPS or Electronic Medical Record's at that time. But they were worried about their ability to take care of patients. And that's why the organization came into being. And for the last 165 years it has been there to help physicians deal with issues that interfere with their ability to take care of patients. And I have no doubts that it will continue to deal with issues for the next 165 years. We have an extremely talented staff that helps us figure out how to deal with issues and how to address the agenda that we physicians set. Now it is impossible to predict what new issues are going to pop up and have to be dealt with, but I can tell you that we will do everything in our power to deal with them.

Some of the known issues that we know we will have to deal with revolve around government rules and regulations. I can't tell you how nice it is to stand up here and not have to talk about the Sustained Growth Rate (SGR) fix like my 16 predecessors have. It is almost surreal to think that after 17 years of trying, organized medicine has finally put SGR to rest. And that is good, that is very good, but what is not so good is that we now to deal with its successors, the Medicare Access and CHIP Reauthorization Act or MACRA and its cousin Merit Based Incentive Payment System or

MIPS. If you are not familiar with MACRA, MIPS, and APM's (Alternative Payment Methods), you need to be. That is how you are going to get paid for the foreseeable future. It is complicated and confusing, which I know is quite a surprise for a government program, but also has a lot of potentially very good things in it for physicians. Items such as the end of meaningful use and the potential for an EMR overhaul to really help take care of patients. CMS is still setting up many of the operational aspects of both programs and a strong push by involved motivated physicians can help create a program that can actually make healthcare better. I would like to spend as much time as I can this year talking with Missouri physicians about MACRA and MIPS, educating them and taking their concerns and great ideas back to the MSMA and AMA and trying to get them to Washington.

I would also like to spend time this year trying to find ways that we can start to attack the terrible opioid abuse problems we face in Missouri. Last year, nationally more people died from opioid abuse than from car accidents. The rate of people dying from Opioid abuse is now higher than the deaths from AID's when it was a rampant disease. In St. Louis, the rate of Opioid related deaths is 30% higher than the national average. More people dies in St. Louis of Opioid abuse than homicides and motor vehicle accidents combined. There is some data that suggest that one of the primary factors that leads to opioid addiction and abuse is the use of prescription narcotic medications. While we may not be able to control illegal opioid abuse, we can certainly find a way to make our writing of prescriptions medications safer and better.

But I guess the biggest issue that I've noticed talking to physicians is that we are spending our time focusing on all the problems and the issues. That's what the MSMA as an organization is for. That's what we'll do collectively. What we are doing individually is losing sight of the things that make us special as physicians.We have a unique ability as Tom Holloway pointed out to me.

We have the ability to heal.

We have the ability to do something that is truly very special. We should remember that. I think back to the time that I got my hood at graduation. That hooding ceremony was cool, all of a sudden at the end of it you were a doctor. And that was a really neat feeling. Think about the very first time that you put on a beeper. You know it didn't take me more than 24hrs to realize that I never wanted to see the dang thing again, but those first 24hrs were really cool. And the first time you got a call because someone wanted to know what you thought they should do to take care of themselves. The first time you deliver a baby. Or the first time you take out somebody's tumor. You took out something that could've killed them, and you save them. First time you make a diagnosis that has perplexed people for…forever. And they're better. And then when you see that person back. Gratitude. Maybe not always expressed verbally, but you can see it in their eyes, you can see it in their actions. You just did something special. You healed someone. I guess that's what I would like to focus on this year. I would like us to think about what made us want to go into this in the first place. I'd like us to spend more time focusing on things that make us physicians. Things that help recharge our batteries. Our interactions with our families. I would love to see us do more social programs. More things to let us connect again with our families instead of concentrating on all the issues that weigh us down. I would like us to recognize the special things that we do. Things that to us are mundane and routine. The "Oh God I have another C section tonight". To somebody else that has changed their entire life. And lives of generations to come. It's a pretty big thing. So I want you all to think about this stuff. Talk to your families, talk to your friends. Think about the things that you do that make medicine special to you. Why did you want to go into this in the first place? And relish that, enjoy that. The president of American Airlines once said "You know, don't worry about the big stuff. The big stuff will be taken care of. It's the little stuff that gets you." So let's deal with the little stuff. For the big stuff we've got the entire MSMA staff to help us. I'd like to thank Tom Holloway and his Merry Band of men and women to help lead us in those fights.

With the AMA, MSMA, and local medical societies hitting the big stuff, we as individuals can go after the little stuff and as Dr. Stack said, become happier, healthier physicians taking care of happier, healthier patients.

Now, I'd like to take the opportunity at this time to thank my staff from Mercy Women's Healthcare for being here with me.

I'd like to conclude by again thanking the many friends, family, and staff that are here tonight. I look forward to visiting and talking with all of you as we move on from here and I look forward to seeing you at the reception next door in the Renaissance Ballroom.

We do ask that you remain seated for just a few moments until Jana Wolfe and Dr. Wolfe as well as Kay and I can get in place for the reception. We also ask that the 50 year pin recipient's gather in the front for a group picture.

Thank you very much for being here and don't forget to focus on the little stuff. **MM**

Recipients of the 50-Year Physician Pin

Thirty-one career physicians earned their 50-Year Physician Pin during the MSMA Presidential Inauguration from MSMA President John Stanley, MD. After the Installation, many celebrated at the reception. Below is the listing of all pin recipients.



Right: Charles Sincox, MD, receives his 50-Year Physician Pin during the Presidential Inauguration from Dr. Stanley.

- Martin P. Altman, MD, St. Charles, MO
- Parviz M. Behbahani, MD, Creve Coeur, MO
- David M. Berwald, MD, Bridgeton, MO
- Irene E. Bettinger, MD, Kansas City, MO
- John W. Collins Jr., MD, Independence, MO
- Michael J. Curry, MD, St. Charles, MO
- William E. Davis, MD, Columbia, MO
- Louis P. Dehner, MD, St. Louis, MO
- Harry C. Eggleston, MD, Creve Coeur MO
- Wilfrido C. Feliciano, MD, St. Louis, MO
- Gordon M. Goldman, MD, Creve Coeur, MO
- Edward Gwin, MD, Springfield, MO
- Richard Hellman, MD, N. Kansas City, MO
- Lawrence D. Henry, MD, Columbia, MO
- Sally L. Hubbard, MD, Springfield, MO
- Joseph C. Johnson, Jr., MD, Rogersville, MO
- Michael A. Kass, MD, St. Louis, MO
- Lawrence M. Lampton, MD, Columbia, MO
- Sivaprasad D. Madduri, MD, Poplar Bluff, MO
- Lyell M. Magruder, MD, Nevada, MO
- Wallace McDonald, MD, Country Club, MO
- Jerry R. Meyers, MD, Chesterfield, MO
- Ernest H. Neighbor, MD, N. Kansas City, MO
- W. Kirt Nichols, MD, Columbia, MO



Bottom right: Linda Bremer, MSMA Office Manager, is honored with a Senatorial Resolution on the announcement of her 46-year retirement from the Association by Senator Rob Schaaf, MD.

- Pichat Pojanasomboon, MD, Las Vegas, NV
- Lester T. Reese, MD, St. Louis, MO
- Glenn M. Sherrod, DO, Bridgeton, MO
- Charles H. Sincox, MD, Washington, MO
- Paul A. Spence, MD, Sedgewickville, MO
- Bruce J. Walz, MD, Ballwin, MO
- David G. Yahnke, MD, Farmington, MO

MM

House of Delegates Votes on Resolutions

Resolution #1 – License Parity for IMGs

Action: Referred to MSMA Council

Resolved, that MSMA work with the Missouri Board of Healing Arts and other entities to apply license parity to IMGs in licensing and especially for the number of post graduate years required to be fully and independently licensed to practice medicine in Missouri.



Reference Committee A: from left, I. J. Singh, MD, St. Louis, Mr. Ramin Lalezari, St. Louis, Jeffrey Glaser, MD, Lake St. Louis, Chair, and Chris Swingle, DO, St. Louis.

Resolution #2 – Improving Access to Medical Care for Rural Mid-Missourians

Action: Adopted Amended Resolution #2

Resolved, that the Missouri State Medical Association supports store-and-forward telemedicine reimbursement by the Missouri Medicaid Program.

Resolution #3 – Good Samaritan Fatal Overdose Prevention

Action: Adopted Amended Substitute Resolution #3

Resolved, that MSMA support legislation to allow a person to possess and administer naloxone or other opioid antagonist drugs to an individual believed to be suffering from an opioid overdose, and support extending civil and criminal immunity to physicians who prescribe naloxone or other opioid antagonist drugs through a standing order or protocol with a pharmacy.



Reference Committee B: from left, Brian Andrews, MD, O'Fallon, Douglas Wallace, MD, Cape Girardeau, Lisa Thomas, MD, Columbia, Chair, Robert McMahon, MD, St. Louis, and Toniya Singh, MD, St. Louis.

Resolution #4 – Medical Ethics

Action: Referred Resolution to the MSMA Council on Ethical and Judicial Affairs

Resolved, that a physician should not participate in the process of determining competence which leads to death, and be it further

Resolved, that this be referred to the Council on Ethical and Judicial Affairs of the American Medical Association and the American Psychiatric Association for appropriate consideration and action.

Resolution #5 – Non-Compete Clauses

Action: Referred to MSMA Council

Resolved, that the MSMA pursue legislation to prohibit non-compete clauses in employed physician contracts.

Resolution #6 – Minimum Age for Tobacco & Vapor Product Purchase

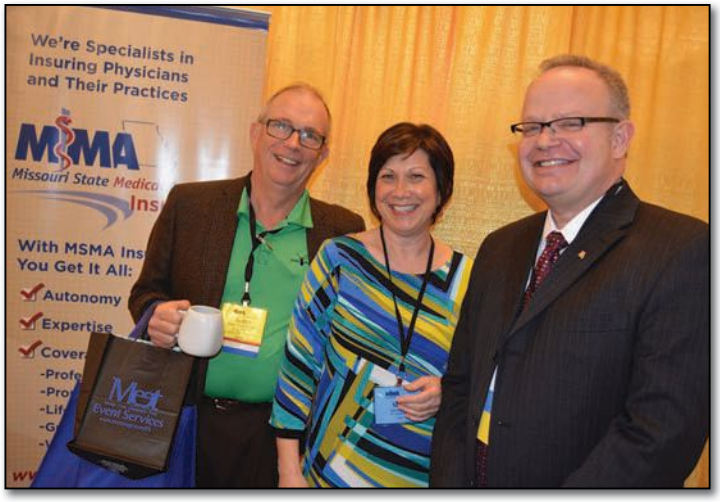
Action: Adopted Substitute Resolution

Resolved, that MSMA support legislation to raise the state's tax on tobacco and nicotine-containing vapor products and to raise the age required for the purchase of those products from 18 to 21.

Resolution #7 – Missouri Generic Medication Price Control

Action: Adopted Amended Substitute Resolution

Resolved, that MSMA petition Congress in support of better federal scrutiny of drug pricing policies.



Physicians visit with the MSMA Insurance Agency in the Exhibit Hall. From left, Jim Petersen, MD, Mary Hogan, MSMA Insurance Agency, and Jeff Thomasson, MD.



Medical Students Craig Yugawa, Ramin Lalezari, Meghna Srinath review resolutions before the House of Delegates.

Resolution #8 – Private Ambulance Services

Action: Adopted Substitute Resolution

Resolved, that MSMA support the continued requirement that all ambulance services be compelled to follow existing state law which requires the ambulance service to take patients to their preferred hospital in non-life threatening situations when logistically feasible.

Resolution # 9 – Nurse Practitioners

Action: Referred to MSMA Council

Resolved, that the MSMA advocate that nurse practitioners be under the same jurisdiction, that being the Board of Registration of the Healing Arts, as are practicing physicians and other medical professionals in the state of Missouri.

Resolution #10 – Medical Marijuana Usage in Missouri

Action: Adopted Substitute Resolution

Resolved, that the Missouri State Medical Association appoint an ad hoc committee to evaluate what may be appropriate for inclusion as medical marijuana usage in Missouri.

Resolution #11 – Physician Right of Conscience for Healthcare

Action: Not Adopted

Resolved, that MSMA respect and encourage physicians and their associates to practice by their conscience in providing exemplary moral ethics including the virtue ethics of honesty, compassion, responsibility, perseverance, and hope.

Resolution #12 – Humanities in Medical School Curriculum

Action: Adopted Amended Resolution

Resolved, that MSMA supports accredited schools of medicine to encourage further education in humanities, particularly as they relate to medicine.

Resolution #13 – Parental Leave

Action: Referred to MSMA Council

Resolved, that MSMA support increasing employee eligibility under the Family and Medical Leave Act of 1993 by expanding the mandate to all employers with 10 employees or more within 75 miles, and be it further

Resolved, that MSMA support increasing employee eligibility under the Family and Medical Leave Act of 1993 by expanding the mandate to cover all employees who have worked at least 1000 hours in the past 12 months, and be it further

Resolved, that MSMA support promoting longer parental leave by amending the Family and Medical Leave Act of 1993 to increase the minimum length of protected parental leave to 24 weeks, and be it further

Resolved, that MSMA support amending the Family and Medical Leave Act of 1993 to mandate paid protected leave rather than unpaid leave, and be it further

Resolved, that the MSMA forward this resolution to the 2016 AMA House of Delegates.

Resolution #14 – Direct Primary Care and HSAs

Action: Adopted Substitute Resolution

Resolved, that MSMA support the inclusion of Direct Primary Care, and other direct care practice models for physicians of all specialties, as a Health Savings account qualified medical expense by the IRS, and be it further

Resolved, that this resolution be forwarded to the AMA for its June 2016 meeting. **MM**

Awards: Legislative

Each year MSMA recognizes a legislator or two who has demonstrated unusual support for our profession and our patients. Over the years we have applauded some truly outstanding individuals. And this year is no exception. This year MSMA honored Senator Dan Brown.

Senator Dan Brown represents the 16th Senatorial district, which is located in mid-Missouri and includes portions of the Lake of the Ozarks and the city of Rolla. He was elected to the Senate in November 2010, and quickly earned the respect and admiration of his colleagues on both sides of the aisle.

For the past four years, Senator Brown has served as Chairman of the important Senate Veteran's Affairs and Health Committee. In this position, he controls legislation which addresses virtually every aspect of health care. The legislation in his committee significantly impacts physicians and the practice of medicine. This year, Senator Brown assisted MSMA by quickly moving our telemedicine bill, SB 621, through his committee.

Senator Brown has come to medicine's aid countless times during his service in the General Assembly.

For the past three legislative sessions, he was the Senate sponsor of our commonsense tort reform measure, which restored the noneconomic damage cap in medical malpractice lawsuits.

Equally as important, he is a stalwart protector of the practice of medicine when other health care professionals attempt to expand their scope of practice.



MSMA's Legislative Award is presented to Senator Dan Brown by Dr. Stanley.

He has been a tireless advocate for physicians. In the past, Senator Brown has supported MSMA policies ranging from physician licensing to MO HealthNet reimbursement to insurance issues.

Senator Brown regularly seeks the advice of MSMA on important healthcare issues at the Capitol, and shares that information with his colleagues and the members of his committee.

Whether it is big issues, like tort reform and scope of practice, or the less visible ones, like public health, Senator Brown has been a terrific supporter of Missouri physicians and their patients.

Awards: Arthur Gale Freedom of Expression



Timothy Woods, MD, (center) receives the annual "Arthur Gale, MD, Freedom of Expression Award," presented by MSMA President John Stanley, MD, (left), and Arthur Gale, MD (right).

MSMA presents the Arthur Gale freedom of Expression Award, on behalf of its Journal, *Missouri Medicine*. It is awarded annually to the author of the best commentary article published in Missouri Medicine, in honor of Arthur Gale, MD, one of the Journal's Contributing Editors and MSMA member since 1976.

The 2015 recipient of this award is Dr. Timothy Woods, of Springfield, Missouri. His article, "Honoring Military Physicians: Taking Care of America's Heroes" was published in the July/August 2015 issue.

Dr. Woods, an MSMA member since 2013, is a general surgeon with Ferrell Duncan Clinic and Medical Director of Trauma Services for Cox Health in Springfield. He served in the United States Air Force as a general surgeon from 1997 to 2006.

This prestigious and monetary award is offered to encourage MSMA physicians to submit personal perspective essays on issues that are topical and provocative. **MM**

Sponsors & Exhibit Partners

MSMA thanks the following Sponsors and Exhibit Partners who supported the Annual Convention through educational grants.

- Healthcare Services Group
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MM

Credentials & Appointments

The 158th Annual Convention of the Missouri State Medical Association was held at the St. Louis Renaissance Airport Hotel, March 18-20, 2016. David Chalk, MD, Washington, Missouri, presided as Speaker of the House of Delegates. Parliamentarian was Jo-Ellyn M. Ryall, MD, St. Louis.

The Committee on Credentials announced there were 8 Officers, 12 Councilors, and 50 Delegates in attendance for the Opening Session of the House of Delegates.

This report and the minutes of the 157th Annual Convention as published in the May/June 2015 issue of *Missouri Medicine* were approved.

At the Second Session of the MSMA House of Delegates, the Committee on Credentials reported there were 9 Officers, 18 Councilors, and 95 Delegates in attendance.

Reference Committee A members were Jeffrey Glaser, MD, Lake St. Louis, Chair, David Kuhlmann, MD, Sedalia, Chris Swingle, DO, St. Louis, I. J. Singh, MD, St. Louis, and Mr. Ramin Lalezari, St. Louis. Reference Committee B members were Lisa Thomas, MD, Columbia, Chair, Brian Andrews, MD, O'Fallon, Douglas Wallace, MD, Cape Girardeau, Robert McMahon, MD, St. Louis, and Tonia Singh, MD, St. Louis

The MSMA Nominating Committee members were: 2nd District - John Memken, MD, Hannibal; 3rd District - Edmond Cabbabe, MD, St. Louis; 4th District - Martin Willman, MD, St. Peters; 6th District - William Haynie, MD, Butler; 7th District - Marc Taormina, MD, Lee's Summit; 8th District - Andy Wright, MD, Springfield; 10th District - Sharon Wallace, MD, Cape Girardeau; Organized Medical Staff Section & Chair - James Conant, MD, St. Joseph; Young Physician Section - Raghav Govindarajan, MD, Columbia; Medical Student Section - Matt Faubion. **MM**



Kansas City physician Betty Drees, MD, and Medical Student Kartik Sreepada catch a break between General Sessions.

Summary of Council Actions: 2015-2016

Meeting of April 19, 2015 – Kansas City

John O. Stanley, MD, Kansas City, President, presided. Ravi Johar, MD, St. Louis, was elected President Elect. Warren Lovinger, MD, Nevada, was elected Chair. Rob Schaaf, MD, St. Joseph, was elected Vice Chair. David Redfern, MD, Springfield, was reelected Secretary. George Hruza, MD, St. Louis, was reelected Treasurer.

Meeting of July 12 – Jefferson City

Proving that MSMA provides value for your annual Association dues, the MSMA Council voted during its July Council Meeting in Jefferson City to keep your membership dues steady for 2016 at $395, which is one of the lowest state medical association dues in the nation. Studying its membership to increase quality programming and services, MSMA will undertake new processes to reach out to new and established members.

MSMA also celebrated big wins for medicine this year with the passage of tort reform in Missouri and the elimination of the SGR, nationally. MSMA's Legislative Review, a complete summary of the 2015 legislative session, showcases the strength of organized medicine in Missouri. Watch for it in the mail.

David Redfern, MD, Chair of the Legislative Committee, updated members on the Assistant Physician licensure, and other important issues, such as the ICD-10 transition, tort reform, APRN scope of practice expansion, Medicaid managed care, and maintenance of licensure.

The Legislative Committee also considered several resolutions referred by the House of Delegates. MSMA Staff will carry out amended Resolution #3 - Patient-Physician Continuity upon Health Plan Termination, which calls for extension of the continuity of care window when a physician is terminated from a health plan.

Resolution #4 - Opposing the Interstate Medical Licensure Compact directs MSMA to oppose the Federation of State Medical Board's Interstate Medical Licensure Compact. Two resolutions, Resolution #5: Truth in Advertising and Resolution #6: Qualification for Usage of the Term "Board Certified" in Physician Marketing were combined and adopted, directing MSMA to support Truth-In-Advertising legislation for all health care providers in Missouri, and empowering individual licensing boards to adopt advertising requirements and restrictions and allowing them to discipline licensees or violations thereof.

In other Council activities, MSMA President, John Stanley, MD, reported that he represented MSMA at component societies in Washington and Poplar Bluff. Growing membership and encouraging early career physicians to become active are priorities. Dr. Stanley also represented Missouri physicians at the Iowa Medical Association Annual Meeting and at the AMA Annual Meeting in June.

Your Association is continuing to receive reports of tax fraud on physicians through an IRS identity theft scam, and has reported more than 100 cases to the FBI, Secret Service, and the IRS. If you think you are a victim, visit www.msma.org/TaxIdentityTheftScam.

A national publisher is considering printing a book based on articles featuring near-death experiences that were published in MSMA's Journal, Missouri Medicine, over the last two years.

Resolutions from Annual Convention

Resolution #13 calls on MSMA to support the "Start by Believing" public awareness campaign, which encourages victims of sexual assault to report incidents. Council instructed staff to draft a policy statement in support of the following resolution's intent to be considered at the next board meeting.

Resolution #7 - Flexibility in Scheduling Pre-Authorized Events - calls on MSMA to initiate conversations with Missouri insurance companies to better understand what their policies are and to alleviate some of the administrative difficulties faced by physician offices related to pre-authorizations for re-scheduled appointments and/or procedures.

Resolution #8 - Reduced Payments for Subsequent Services with the Global Period - asked MSMA to oppose the medical insurance company practice of reduced procedural fees for services performed during the global period, was not adopted. The AMA has opposed this practice since 1992 and has since reaffirmed opposition numerous times.

Resolution #11 - Preparation of Inpatients for Discharge - directs MSMA to collaborate with Missouri Hospital Association on a medication reconciliation quality initiative related to patient discharge.

Missouri Physicians Health Program

Bob Bondurant, Director of Missouri Physicians Health Program (MPHP), reported an addiction psychiatrist, Dr.

Dan Angres, will make presentations across the state to physicians on the topic "Disease of Addiction." Charles Sincox, MD, MPHP Medical Director, stated that in addition to alcohol and drug addiction, the MPHP is seeing more workplace disputes and boundary issues.

MSM Foundation

In 2016 the Missouri State Medical Foundation will increase its $2,500 scholarship to each of the six schools in the state from the current five per school to eight per school.

Continuing Medical Education

After evaluation summaries from the 2015 Annual Convention indicated the CME content was clinically relevant, potential topics for CME at the 2016 Annual Convention include Physician Burnout; Physician Addiction; Fee-for-Service Physician Reimbursement; and Ethics/Ethical Issues.

MSMA granted reaccreditations to SSM St. Mary's Hospital, Jefferson City and Mercy Hospital, St. Louis. The Commission accepted progress reports from Lake Regional Health System and Cape Girardeau County Area Medical Society, and accepted an activity review from the Phelps County Medical Center.

Alliance

As one of the main functions of the Alliance is to raise funds for the MSM Foundation, the organization will sponsor its annual Holiday Sharing Card this fall, and also "Wild, Wild West" fundraiser at the 2016 MSMA Annual Convention.

Alliance President Elect Jana Wolfe reported that Alliance President Sue Ann Greco traveled across the state to preside over officer installations at five local Alliances. Missouri was represented by eight Alliance members at the AMA Alliance Annual Meeting in Chicago in June. She also encouraged all Council members to make sure their spouses are members.

AMA Report

Lent Johnson, MD, Missouri Delegate, reported your state was well represented at the AMA Annual Meeting in June, with representatives discussing the ongoing lack of residency slots for recent medical school graduates, improving medical education, Maintenance of Certification, possible elimination of the three-day inpatient requirement for long-term care under Medicare, implementation of ICD-10, brain damage to young athletes, e-cigarettes, and repeal of the SGR. David Barbe, MD, an MSMA Past President and the Immediate Past Chair of the AMA Board of Trustees, has announced that he will run for AMA President Elect in 2016.

District Reports (selected)

David Pohl, MD, District #3, stated that Washington University medical students are working on projects with University engineers. The SLMMS Physician Leadership Institute will be held in January 2016. Lancer Gates, DO, District #7, reported that the Kansas City Medical Society will host a program on practice modalities on September 22, and Betty Drees, MD, indicated there is some support for the establishment of an Academic Physician Section at the AMA.

James Conant, MD, representing the Organized Medical Staff Section at the state and national level, applauded the programming for medical staffs during the AMA Annual Meeting, which included the increasing event of overdoses, expansion of Medicaid, and nurse practitioners being given medical staff privileges. Josephine Doo, Medical Student Section, reported each allopathic and osteopathic school in the state is working on joint projects getting ready to launch a new school year.

Meeting of October 18 – Jefferson City

MSMA's new website was unveiled at the October Council Meeting in Jefferson City. The new vendor, Weblink International, and MSMA staff worked diligently to create a more user-friendly and mobile website and to also expand online dues payment options.

In other actions, the Council discussed proposed guidelines for prescribing opioid drugs in hospital emergency departments, and approved a request to endorse the "Tobacco 21" campaign to raise the lawful age for buying or selling tobacco and nicotine products from 18 to 21. The Council also established an ad hoc committee to study possible MSMA support for Missouri to become a "Start by Believing" state and to send a message to the Missouri General Assembly in support of this initiative.

Advocacy

Your MSMA, along with the Missouri Association of Osteopathic Physicians and Surgeons and Missouri Hospital Association, recently sent letters to the Missouri Department of Social Services and the Centers for Medicare and Medicaid Services regarding the implementation of ICD-10 and its effect on the MO HealthNet and the Medicaid programs. And MSMA voiced deep concern in a letter to the Missouri Department of Insurance regarding

the merger of Anthem and Cigna insurance companies, emphasizing the implications for physicians and their patients.

David Redfern, MD, chair of MSMA's Legislative Committee, reported two new issues for the 2016 Legislative Session: exclusion of team physicians for state licensing requirements while traveling with their team in the state; and requiring real-time Explanation of Benefits. Issues from 2015 that will return in 2016 are APRN practice restrictions, Missouri's Prescription Drug Monitoring Program, maintenance of licensure, and Medicaid managed care. Also MSMA member Senator Bob Onder, MD, was elected Assistant Floor Leader in the Missouri Senate.

The Council heard that the Board of Healing Arts is close to promulgating the final rules for public comment on Assistant Physician licensure. And in ongoing collaboration efforts, MSMA met with the Board of Healing Arts, MAOPS, and the Missouri Academy of Family Physicians.

Annual Convention

Topics for the 2016 MSMA Annual Convention General Sessions are Genome Testing Ethical Issues; Patient Access to Cost Prohibitive Drugs/Therapies; Update on Transition from FFS to Value-Based Reimbursement, Evolving Alternate Payment Models and Measurement Programs; Update on Stroke Management; and Physician Burnout.

The following entities were reaccredited for CME activities: CoxHealth, Hannibal Regional Hospital, Esse Health, and St. Louis STD/HIV Prevention Training Center.

MSMA hosted a CME provider training session in October for 11 CME coordinators. Sandra Ahlum, MD, and MSMA staff will attend the ACCME State Medical Society in Chicago in December.

Membership

MSMA has surveyed both members and non-renewals to get feedback on programs and services. A list of new statewide members was distributed to Council who were urged to contact and welcome them to the Association.

Missouri Physicians Health Program

Bob Bondurant, MPHP Executive Director, reported on fundraising activities for contributions to the MPHP. Contributions for the MPHP can be made in honor of Jack

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Croughan, MD, its first medical director, who passed away earlier this year.

Alliance

Alliance President Sue Ann Greco reported the group co-hosted the North Central Leadership Conference in St. Louis in October. To celebrate the 20th anniversary of the AMA Allance's SAVE (Stop America's Violence Everywhere), Missouri's own Alliance Fall Conference was held in Columbia in October with presentations on the Missouri CASA program and MU's campus safety against sexual assault. The Alliance is planning its Foundation fundraiser, "Wild, Wild West," scheduled for March 18, 2016, in conjunction with the MSMA Annual Convention. Council members also received the Alliance's Holiday Sharing Card.

AMA

Edmond Cabbabe, MD, chair of the Missouri AMA Delegation, reported the AMA Interim Meeting will be held in Atlanta this month. Issues such as the Code of Ethics and price increases for generic drugs will be considered. At the June 2016 AMA Annual Meeting, MSMA Past President David Barbe, MD, will run for AMA President Elect. Dr. Cabbabe also encouraged all Council members to make contributions to the AMA Missouri Honor Fund. Once the fund has reached its fundraising goal, it will make a donation to a clinic in Missouri.

Councilor District Reports (Selected)

David Pohl, MD, District #3, St. Louis, reported that its members are supporting World Food Day. SLMMS will also conduct a Physician Leadership Initiative program in February 2016. Michael Stadnyk, MD, SLMMS President, contacted the St. Louis Dispatch regarding ads placed by health professionals other than physicians that were not identified as advertisements. The Post Dispatch will now label these as advertisements.

James DiRenna, DO, District #7, Kansas City, stated physicians in Cass County requested that they be incorporated into the Kansas City Medical Society rather than be part of the West Central Medical Society. MSMA staff is investigating the procedure for incorporation.

Charles Lawson, MD, District #10, reported the Cape Girardeau County Area Medical Society is participating in the matching funds program with the Missouri State Medical Foundation, which provides scholarships to medical students. The Cape Society has presented membership society meeting programs on breast cancer and human trafficking.

Meeting of January 17, 2016 – Jefferson City

At its meeting on January 17, 2016, your MSMA's Council approved teaming up with the Missouri Hospital Association (MHA) and the Missouri Association of Osteopathic Physicians and Surgeons (MAOPS) in a letter to the Missouri Department of Insurance and the Missouri Attorney General, asking for a thorough review of the individual and cumulative effects of the Anthem-Cigna merger, as well as the proposed Aetna-Humana consolidation (particularly for its impact on Medicare Advantage patients). The letters, distributed at the January Council Meeting in Jefferson City, can be found on MSMA's website at www.msma.org. We will keep you posted as this issues continues to develop.

In other advocacy efforts, a joint press release on Opioid Prescribing Recommendations was issued by MSMA, MHA, MAOPS, the Missouri Academy of Family Physicians, Missouri College of Emergency Physicians, and the Missouri Dental Association.

Councilors received a recap of issues discussed at the recent State Legislative Strategy meeting in Washington, DC, including a push to increase GME funding and the termination of meaningful use. Discussion was held on numerous issues already before the 2016 General Assembly, including APRN independent practice, defining pain clinics, telehealth, and expert witness. The Committee recommended that Senator Dan Brown be the recipient of the 2016 MSMA Legislative Award, to be presented at MSMA's Annual Convention in March.

The Council adopted the following policy statement regarding victims of sexual violence:

"The Missouri State Medical Association believes that victims of sexual violence should be met with full compassion and understanding in the health care setting, no matter the circumstances. MSMA further believes that all such victims should be strongly encouraged to report the incident and seek out appropriate emotional support services and follow-up care to aid in their recovery."

PCPI and MIPS Update

Alexander Hover, MD, reported on recent activities on PCPI/MIPS. MACRA has consolidated PQRS/VBPM/MU into MIPS. The Measure Development Plan draft was published on December 18 with a comment period until March 1 and the final rule due May 1. Current MIPS/MDP priorities include PROMS-person and caregiver centered experience and outcomes; communication and coordination of care and treatment with other providers; appropriate use and resource use. The MDP strategy includes continuum of

care; patient outcomes including PROM; multiple level of accountability; uses EHR data across national population; aligns multiple models and required reporting.

Commission on Medical Education

Sandra Ahlum, MD, reported the Commission is planning the upcoming MSMA Annual Convention and will offer ABIM Maintenance of Certification points for four of the General Sessions. The Commission adopted the ACCME's 2015 Markers of Equivalency. Dr. Ahlum and staff attended the AAM/ACCME SMA Meeting in Chicago in December. Attendees received a Council on Medical Education Update, discussed AMA's strategic initiatives, and AMA/ACCME alignment of policies. Discussion was held regarding an increase in annual maintenance fees; Council directed staff for more research and information.

Membership

The Membership Committee is researching new vendors and partners with potential benefits to MSMA members. New programs will be announced soon.

MSMA Insurance Agency

MSMA members are encouraged to contact the Agency for any insurance needs they may have.

Missouri Physicians Health Program

Bob Bondurant, MPHP Executive Director, reported there were 24 new participants in 2015 and there are currently 97 participants in the program.

AMA

Edmond Cabbabe, MD, reported highlights of the recent AMA Interim Meeting. David Barbe, MD, is up for election for AMA President Elect at the June AMA Annual Meeting. Jerry Kennett, MD, continues as a member of the Council on Legislation. Dr. Cabbabe is seeking an appointment to the AMA Council on Long Range Planning and Development. He encouraged the Council members to make a donation to the MSMA AMA Foundation Honor Fund and urge their colleagues to do the same.

Alliance

The Alliance held its Fall Conference and Board Meeting on October 20- 21. The Conference honored the 20th Anniversary of the AMA Alliance SAVE Program – Stop American's Violence Everywhere. Presentations included a program on the Missouri CASA program, which provides advocates for children in foster care in the State, and a presentation from the University of Missouri Police Department who spoke on the University's efforts to protect students from sexual assault on campus.

The Alliance raised over $2,500 with their Holiday Sharing Card. The Alliance Day at the Legislature and Winter Board meeting will be held February 23- 24. The Alliance Fundraiser at the MSMA Annual Convention is themed "Wild, Wild West' and will include a Jail and Bail fundraiser.

District Reports – (Selected)

In District #3, Samer Cabbabe, MD, was installed as the President of the St. Louis Metropolitan Medical Society (SLMMS). Dr. Cabbabe is the son of Edmond Cabbabe, MD, and this is third instance of a father and son as President of the Society. SLMMS, the Anders Health Care Services and Healthcare Management Alternatives will be holding a Physician Leadership Institute on February 13, February 27, March 12, April 2, and April 23. The Institute topics include Foundations of Healthcare; Finance and Revenue; Practice Management; Risk and Compliance; and Leadership Skills.

Martin Willman, MD, in District #4 reported that the St. Charles-Lincoln County Medical Society presented an MSMF scholarship award to a local medical student.

David Kuhlmann, MD, thanked MSMA President Dr. Stanley for attending a meeting of the Pettis County Medical Society and reported Districts #6 and #7 are working together as Cass County is in the process of moving from District #6 to District #7.

Brian Biggers, MD, reported from District #8 that eight medical students from the University of Missouri-Columbia will soon be doing their third and fourth years at the new educational facility in Springfield. The number of students will increase within a few years.

Charles Lawson, MD, reported physicians in Cape Girardeau, District #10, are working with foster children in the area and providing some financial assistance to help meet their basic needs. The Cape Girardeau Society also recently held two CME events.

Additional reports included the Organized Medical Staff Section, the International Medical Graduate Section, the Young Physician Section, and the Publications and Editorial Board. **MM**

Reports of the Delegate Handbook: 2014-2015

Secretary

The Missouri State Medical Association had 4,536 members as of the December 2015 audit. This was a net gain of 61 members from our membership of 4,745 as of the December 2014 audit. Following is a breakdown according to classification.

Year	Students	Residents	Active	Honor	Total
2014	1,019	56	3,194	476	4,475
2015	1,047	98	2,936	455	4,536
	+28	+42	-258	-21	+61

Number of member deaths reported during 2015 totaled 19.

The Committee on Nominations, which is appointed by the President, from the House of Delegates, must submit nominations for the following offices:

President Elect to fill the expired term of Ravi Johar, MD, Chestefield.

Three Vice Presidents to fill the expired terms of Charles W. Van Way, III, MD, Kansas City; Thomas P. Allen, MD, Kansas City; and William A. Turner, MD, Nevada. A Speaker and Vice Speaker to fill the expired terms of David Chalk, MD, Washington, Speaker and Lancer Gates, DO, Kansas City, Vice Speaker. Neither is eligible for re-election to their current position.

Three Delegates and four Alternate Delegates to the AMA to fill the vacancies created by the expiration at the conclusion of the 2016 Annual Convention of the terms of Delegates: Drs. Edmond Cabbabe, St. Louis; Ted Groshong, Columbia; Lent Johnson, Hannibal and Alternate Delegates: Drs. Elie Azrak, St. Louis; Michael O'Dell, Kansas City; Charles W. Van Way, III, Kansas City; Nathaniel Murdock, St. Louis. The new two year-terms will begin at the conclusion of the 2016 MSMA Annual Convention and end at the conclusion of the 2018 MSMA Annual Convention.

The terms of the following Councilors will expire in 2016: 1st District – Rob Schaaf, MD, St. Joseph; 3rd District – Elie Azrak, MD, St. Louis and David Pohl, MD, Town & Country; 5th District – Joseph Corrado, MD, Mexico and George Hubbell, MD, Lake Ozark; 7th District – James A. DiRenna, Jr., DO, Gladstone and Lancer Gates, DO, Kansas City; 8th District – Brian Biggers, MD, Springfield; Organized Medical Staff Section – Peggy Barjenbruch, MD, Mexico; International Medical Graduate Section – Sri Devi Kolli, MD, St. Louis; Resident & Fellow Section – Brad Harr, DO, Fairview, IL; Medical Student Section – Ms. Josephine Doo, Kansas City.

The terms of the following Vice Councilors will expire in 2016: 1st District – Robert Corder, MD, St. Joseph; 3rd District – Stephen Slocum, Chesterfield; 5th District – Lisa Thomas, MD, Columbia; 7th District – Marc C. Taormina, MD, Lee's Summit; 9th District – David Barbe, MD, Mountain Grove; Organized Medical Staff Section – James Conant, MD, St. Joseph; International Medical Graduate Section – Ramona Aitken, MD, St. Louis; Resident & Fellow Section – Vacant; Medical Student Section – Mr. Ramin Lalezari, St. Louis.

Delegates shall meet during the Annual Convention to elect the Councilors and Vice-Councilors for their respective districts and sections. The election shall be certified to the House of Delegates on the prescribed form which will be furnished.

The entire session will be held at the Renaissance St. Louis Airport Hotel, St Louis, MO. The House of Delegates will hold its First Session on Friday, March 18, 2016, at 8:00 am and the Second Session is on Sunday, March 20, 2016, at 8:15 am.

Registration facilities will be open on Thursday, March 17 at 3:30 pm; Friday, March 18 at 6:30 am and Saturday, March 19 at 6:30 am. Registration will be in the Concourse Foyer.

Treasurer

The report of the Treasurer is covered in the Financial Statement which is published in the March/April issue of *Missouri Medicine*.

Executive Vice President

The report of the Executive Vice President is covered in President's State of the MSMA speech on page 218.

Alliance

The MSMA Alliance began their 2015-2016 year with an executive board meeting in the Primaris conference room on May 18, 2015.

During the month of May, President Sue Ann Greco traveled across the State to preside at officer installations in five counties. Sue Ann Greco and President-elect Jana Wolfe, along with 6 other Alliance members attended the AMA Alliance Annual Meeting in Chicago this past June. Members found it very enlightening and informative.

The MSMA Alliance co-hosted the North Central Regional Leadership Development Conference in St. Louis October 9-11 along with the Kansas State Alliance. Eleven members from Missouri attended the conference. Julie Newman, AMA Alliance president, and Rosemary Xavier, president-elect, were in attendance. Mrs. Newman addressed the group on tips to engage members and leaders for a healthy Alliance.

Highlights of the conference included visiting the Health Resource Clinic on North Kingshighway which is staffed by St. Louis University Medical Students. We were fortunate enough to have five wonderful students show our attendees around the clinic. St. Louis Metropolitan Medical Society Alliance brought three Loyola Academy student winners from their Voices of Excellence speech and writing contest to present their speeches on how they can help decrease violence in their community.

The Alliance held their Fall Conference and Board Meeting on October 20-21 at the Old Hawthorne Country Club in Columbia, Missouri. The theme of the two-day conference was honoring the 20th Anniversary of the AMA Alliance SAVE (Stop America's Violence Everywhere) program. Featured speakers included Mrs. Beth Dessom, Executive Director of the Missouri CASA program, who spoke on the need for volunteers to be advocates for children in foster care across the State.

We also heard from Chief Doug Schwandt from the University of Missouri Police Department who spoke on the University's efforts to protect students from sexual assault on campus.

Chief Schwandt reported that the number of sexual assaults reported is small compared to what national surveys regarding sexual assault suggest. Alcohol continues to be a major contributor in sexual assault, so the University is concentrating on alcohol education and restriction across campus.

The Alliance also participated in a hand on project to make fleece blankets which were then taken to Rainbow House, an emergency shelter for children in Columbia.

This year's Holiday Sharing Card was a huge success. Thank you to all who contributed to the MSM Foundation or the MSMA Alliance Foundation scholarship funds. Over $2,500 was raised. The Sharing Card was published in Missouri Medicine and the Show Me Alliance Newsletter.

The Alliance held their annual Day at the Legislature and winter board meeting on February 23-24. Input from the Legislative Committee and our lobbyists on issues were helpful in planning our agenda.

The Alliance's Annual Meeting will be held in conjunction with the MSMA Convention on March 18-19. Guest speakers will include AMA Alliance President Julie Newman, Dr. Carrie Hruza, and Mrs. Carol Weisman, a nationally known speaker on board development and fundraising. The theme for our Foundation Fundraiser will be the Wild, Wild West. In will include a Jail and Bail fundraiser. We are asking Council Members to please volunteer to be arrested by one or our deputies. Dr. George Hubbell has volunteered to act as Sheriff. Bail for all arrestees will be set at a $100 contribution to the Foundation of their choice. Bail can be in the form of multiple checks from your friends and family. Members need not attend the dinner to be arrested, however it would be a lot more fun. Entertainment will include a Willie Nelson imitator, horse shoes, and a specialty drink at Miss Sue's Saloon.

Membership

MSMA closed out the 2015 membership year with 2,938 physician members; 1,049 medical student members; 100 resident/fellow members; and 455 retired physician members. AMA had a total of 2,339 active members from Missouri last year, and has shared its membership list with MSMA staff to utilize for customized outreach to non-members.

Membership certificates and member ID cards for the 2016 membership year were reformatted to lower costs and help capture more information by encouraging members to update their profile information online. MSMA's database now uses the physician's e-mail as the member ID. We also now accept all forms of credit card payments.

Surveys were developed and distributed to gather feedback from three groups. New members were surveyed regarding why they chose to join MSMA; members that did not renew in 2015 were asked why they did not renew; and young physicians were surveyed to gauge an interest in YPS events. The YPS met during the last MSMA Convention and elected a full board of officers.

MSMA President John O. Stanley visited with many members in the local component societies around the state this past year. He and MSMA staff have been providing support to help revitalize some local societies by inviting and encouraging non-members to attend events. Staff is asking for opportunities to have a presence during practice staff meetings, with a member physician to speak during the meeting. If you can provide us with that opportunity, please let us know.

We have carried out special recruitment efforts with many non-member physicians, including in the Meritas Health network and attendees of a Capital Region Healthy Review Conference. Staff and leadership are engaged in discussions with Mosaic about a group membership, and a Group Membership Program is now available for clinics or hospitals with 10 or more MSMA member physicians, offering exclusive benefits.

MSMA is always seeking ways to increase our non-dues revenue and the added-value benefits we offer members. We

have fresh contracts inked with LifeLock, MedJet Assist, and Officite. Any feedback you are able to provide about your benefits is greatly appreciated, and so are any new ideas you may have to expand the menu. MSMA is proud to have such amazing leadership and members. Please read about them, acknowledge their accomplishments in each issue of Missouri Medicine, and tune in to our Facebook page: www.facebook.com/momedical. You might just be the reason a colleague physician renews their membership, or joins as a new member.

Missouri Physicians Health Program

This has been a busy year as indicated by the number of referrals and the numerous Missouri physicians that were assisted. The MPHP provides a variety of services. This includes consultation, intervention, referral for treatment, monitoring and advocacy. The consultive service is especially active. Hospital administrators, physicians, colleagues and family members call the Program Coordinator or Clinical Coordinator to make a referral, discuss a potential referral or brainstorm about the necessity of making a referral. Information is often requested about how to identify problems, what services are available and how to handle issues of impairment should they occur. Many hours are required to meet their needs. The MPHP provides a safe and knowledgeable venue for any question or concern about physician health.

Missouri State Medical Association Insurance Agency

Your MSMA Insurance Agency is an independent insurance agency that offers insurance consultation to all Missouri physicians. The Agency offers policies primarily for professional liability and health, but also covers workers compensation, business office coverage, disability, long-term care, and life.

The board of the Insurance Agency reviews budget and financial statements at each quarterly meeting. Agency financial statements are audited and consolidated into the MSMA financials.

The board is supportive of the Agency and encourages all MSMA members to contact the Agency for a competitive health insurance or professional liability insurance bid.

Missouri State Medical Foundation

Your Missouri State Medical Foundation is in excellent health and doing excellent work. It has made over 3000 medical school student loans over 50 years totaling almost $12 million.

Over ten years ago we began funding the MSMA Scholarship. This consists of $2500 scholarships awarded to eight Missourians at each of the six medical schools. Last year 45 Missouri medical school students received $112,500 in MSMA Scholarships.

The Foundation has also matched funding up to $5000 for local medical societies and the MSMA Alliance which have initiated their own scholarship funds.

Finally, the MSMA Alliance has been an important partner to the Foundation through generous fund raising activities. As president of the Foundation board I would like to thank the Alliance for their efforts supporting your Foundation.

Commission on Medical Economics

The Commission met by conference call on June 30, 2015. Participating were Drs Jeff Copeland, David Barbe, Jim DiRenna, Alex Hover, and Jim Rogers.

The MSMA Council sent three resolutions to Med Econ for consideration. All had been referred by the MSMA 2015 House of Delegates to the MSMA Council.

Resolution #7 – Flexibility in Scheduling Pre-Authorized events

Resolved, that the Missouri State Medical Association (MSMA) seeks, through appropriate channels, to adopt a policy whereby the pre-authorization of a point of care event, at a particular facility, is good for a minimum span of twenty-eight (28) days in order to provide flexibility in scheduling that physicians need to accommodate their patients' schedules and needs.

The Commission recommended adopting Substitute Resolution #7.

Resolved, that MSMA initiate conversations with Missouri insurance companies to better understand what their policies are and how we might alleviate some of the administrative difficulties faced by physician offices related to pre-authorizations for re-scheduled appointments and/or procedures.

Resolution #8 – Reduced Payments for Subsequent Services with the Global Period

Resolved, that the Missouri State Medical Association (MSMA) oppose the medical insurance company practice of reduced procedural fees for indicated, necessary, and appropriate medical services performed by physicians during the global period.

The Commission recommended not adopting Resolution #8.

Reduced payments for subsequent services within the global period was a practice initiated by Medicare in 1992. AMA first established policy opposing global payments in 1992 and has reaffirmed opposition nine times since. The commission also noted the global billing aspect encourages patients to keep post-op office visits since no additional co-payment is required.

Resolution #11 – Preparation of Inpatients for Discharge

Resolved, the MSMA and AMA pursue legislation and regulation at the State and federal levels that assures the following:

At discharge, the patient's regimen will be appropriately adjusted by the discharging physician, in collaboration with pharmacists, social workers, and those familiar with any formularies that impact the patient's access to necessary medications, and

The patient's physician providing ongoing care and the patient's pharmacy of record will be informed of changes in the patient's drug regimen, including deleted medications and changes to dose, frequency, route, duration, and other critical matters.

The Commission recommended adopting Substitute Resolution #11.

Resolved, that MSMA collaborate with Missouri Hospital Association on a medication reconciliation quality initiative project related to patient discharge.

The commission discussed various aspects of the project which might include avoiding re-admission, affordability, access, medication safety, coordination with hospital pharmacists and coordination with the patient's pharmacist. Since the proposed resolution is a statement of policy it was decided to keep it short.

The MSMA Council approved this report July 21, 2015.

Publications Committee

Volume Number 112 of *Missouri Medicine* showcased national authors and featured ground-breaking scientific articles. This volume published four issues featuring "theme" articles and two issues featuring a variety of scientific topics and micro-series. It contained 452 pages and 51 scientific articles. The *Journal* received a record number of scientific manuscripts for peer-review and continued regular departments.

Your current *Missouri Medicine* is peer-reviewed, indexed by MEDLINE, The National Library of Medicine, and linked to PubMed Central. We are included in EBSCOhost databases, the largest premium online information resource for researchers.

In 2015, Missouri Medicine signed a contract with Missouri University Press to publish a book on Near Death Experiences - 13 chapters, based on a series of editorials and articles appearing in *Missouri Medicine* beginning September/October 2013 and concluding July/August 2015. Thanks go to our world-known near-death experiences scientific authors for their expertise and quality contributions. The *Missouri Medicine* near-death experience series republished in this book is the most encyclopedic and up-to-date in the world's medical literature. Publishing date is mid-2016. This is the second book to be published based on a theme series appearing in Missouri Medicine. The first was "Care of the Dying Patient" (Missouri University Press, Editor David A. Fleming, MD Co-editor John C. Hagan, III, MD 2010)

Themes:

- Health Information Technology by University of Missouri Health Management and Informatics
- Emergency Medicine: Current Issues & Methods by University of Missouri - Kansas City School of Medicine
- Saint Louis University Department of Dermatology
- Siteman Cancer Center/Barnes Jewish Hospital/ Washington University School of Medicine New Developments in Radiation Oncology

Mini-Series:

- Novel Therapy Nicotine Addiction
- Artificial Vision
- Sleep Medicine
- Death & Near Death Experiences

In 2015, our Journal presented its second The Arthur Gale Freedom of Expression Award to physician Charles Van Way, III, MD. It is to be presented annually to the author of the best commentary article published in *Missouri Medicine*, in honor of Arthur Gale, MD, one of the Journal's Contributing Editors and MSMA member since 1976.

Special thanks to our Editorial Board for their good work year after year: Drs. David Fleming, Art Gale, William Reynolds, and Charles Van Way, III, Justin Albani, and Jeffrey G. Copeland, MD. Added experts in 2015-2016: Elizabeth A. Piontek, MD (Urology), C. Daniel Kingsley, MD (Hematology & Oncology), Katherine R. Lichtenberg, DO (Public Health) and Gregory R. Galakatos, MD (Orthopedics). We thank Pamela Honeycutt, MD, PhD (Hematology & Oncology), James Magera, MD (Urology) and Roger P. Jackson, MD (Orthopedics) for their past service.

Missouri Medicine provides reprinted papers for several prestigious medical specialty magazines and journals, and also selectively reprints articles from the medical component societies in Missouri and from national publications appropriate for our audience.

The Publication Committee Chair and Editor, John C. Hagan, III, MD, and Managing Editor, Lizabeth Fleenor, appreciate the many contributions of the MSMA, Alliance members, and others who have contributed to *Missouri Medicine*. The Committee appreciates the Association's continued support of the Journal.

International Medical Graduate Section

MSMA had an uneventful year at the state level for the International Medical Graduate Section. It continues to need participation of members on the state level for awareness of activities in the medical community on a broader perspective and political level. We welcome new members and active participation.

The local chapters of St. Louis continue with their

activities as follows. The Indian Medical Council of Greater St. Louis, which has incorporated into American Association of Physicians of Indian Origin (AAPI), has been under the presidency of Seema Jain, MD, and continues to target projects throughout the US and also in India with the collaboration of the Indian government and the current Indian president, Narendra Modi. She also met with the past US President Bill Clinton of the Clinton Foundation, due to his particular interest in the Obesity campaign that AAPI was working on. The other projects they were concentrating on were Trauma and Head Injury, Diabetes, Cardiovascular Disease, Mental Illness, including Depression, and others. AAPI reduced their life membership fees to $250 last year to increase their membership.

APPNA, the Pakistani medical association, has been under the presidency of Mubasher E. Rana, MD, and had several events, including a historic election, which was their 37th election. It was their first electronic election. It had an 80 percent voter response and was deemed successful with also having financial savings in that their past election expenses were over $20,000, as opposed to less than $9,000 for this election. They had a National Health Care Day on October 25 with free health care screening at the Islamic Community Center in South St. Louis City, serving a Bosnian American community. Services were provided using interpreters, and 20 internists, counselors and students served with the help of local vendors and the St. Louis University Center for Cancer Prevention and Outreach. The APPNA Alumni Scholarship fund, since its inception in 2013, has collected close to $2 million, and its purpose is to provide scholarships to deserving students in medical schools in Pakistan.

NAAMA, the Arab medical association, has been under the presidency of Assad Merchak, MD, and they had a special event in that they elected four new FAAMA's to their association. FAAMA is a fellow to NAAMA which is a distinctive honor bestowed upon a physician whose contributions to the organization, their profession, patients and community are considered above and beyond the call of duty. The fellows were honored during a gala at their national convention in San Diego with a certificate and lapel pin. One of the members is Edmond Cabbabe, MD, a proud member of MSMA, Past President and AMA Delegate.

Young Physicians Section

The Young Physician Section (YPS) met for the first time in many years at the 2015 Annual Convention. This meeting included a presentation from David Barbe, MD, on Work-Life Balance, and the 2015-16 officers were elected.

A survey was sent to all MSMA YPS-qualifying members. The survey was used to gauge the interest level of young physicians in participating in YPS, and also to find out what type of activities would most interest them. The results were used to define outreach and activities for the next year.

YPS has developed a theme for educational sessions during 2016, "Protecting Your Biggest Asset – You." YPS worked with MSMA partner Resolve Physician Agency to host a webinar in February regarding employment contracts. Another event will be held during the 2016 Annual Convention to help physicians prepare for their future regarding insurance and financial needs. Additional webinars and resources will be developed through the year to provide resources to Young Physicians and residents that will soon be eligible for YPS.

The MSMA website will soon include information about YPS, a letter from the YPS Chair, information about upcoming events, and links to educational resources.

Resident Fellow Section

During the past year, efforts for expansion and strengthening of the resident and fellow section continued at the state and national level. At the 2015 AMA Annual Convention, the RFS discussed building and maintaining strong state resident/fellow organizations at the state level as a necessary foundation to create a stronger national voice. To this end, the AMA-RFS has started the "50 States – 1 Voice" initiative to advance the causes of the resident and fellow physician and to promote the AMA through initiatives that are relevant to our peers across the country. By creating a nationwide network, the program also hopes to foster a sense of camaraderie and support. Missouri is proud to be involved in the first phases of the development, and encourage any interested residents or fellows to contact Megan Clark for further information.

Medical Student Sections

A.T. Still University – KCOM

The A.T. Still University - KCOM MSMA-MSS Chapter welcomed the incoming class during their first week, with a booth at the Taste of Kirksville event. After a few weeks of classes, we held our informational meeting for first- and second-year students with the aid of Haley Wansing, MSMA staff, further depicting our mission and the many benefits of our wide-reaching organization.

The Chapter this year has expanded by 19 new members across the four graduating classes of KCOM students. The fall started off with a Fellows Panel for second-year students, focused on preparing for boards. In December, we partnered with the Red Cross to host a blood drive, collecting 57 units. This winter we were lucky enough to have Dean Wilson, DO, present on Ethics in Medicine. This spring will bring exciting events, such as an Interactive Case Presentation with Dr. Hardee, DO, a Suture and Knot-Tying Clinic, and another blood drive. We look forward to bringing more events to our members and exploring new opportunities in the coming years. Spring elections are just around the corner, and so is the

graduation of members from our Class of 2016.

We would like to thank Larry Ciesemier, DO, our faculty advisor, and also the MSMA-MSS Division for their continued support of our organization. We are thankful for this fall's success and are excited to see what the future has to offer.

Kansas City University of Medicine & Biosciences

The Kansas City University of Medicine & Biosciences (KCU) MSS Chapter has had another great year of recruiting new members and organizing new activities and events as we continue to grow as a Chapter. Ours is the largest organization at KCU. Currently, our chapter has over 300 members and continues to grow with every event we have.

This year, our organization continued the work started by our predecessors' community service initiatives on international community of public health. We collaborate with the Medical Mission run by the Sisters of St. Francis of the Holy Eucharist in Independence. Volunteers from our group have worked to sort donated medical supplies from Kansas City hospitals and clinics in order to be shipped to third-world health clinics and hospitals across the world. The Medical Mission ships approximately two large shipping containers each month to places in need with the help of our organization.

In addition to service work, we have continued our annual tradition of welcoming incoming medical students with a recruitment rally, where we not only share the benefits of joining MSMA, but we also provide an opportunity for upperclassmen to offer advice, tips, and encouragement to first-year medical students as they begin their transition to medical school. This event was a great success as usual, and numerous new members were recruited.

We have also hosted several academic review sessions for our members to help them prepare for exams, our most popular being a musculoskeletal anatomy review at the beginning of the year to help first-year students understand how anatomy is tested in medical school. We are currently gearing up for our second annual "Surviving Clerkships" panel, along with our colleagues in the Student Osteopathic Medical Association and the Missouri Association of Osteopathic Physicians and Surgeons. Third- and fourth-year KCU students will be coming to share their experiences during rotations, and we have close to 200 students who have already RSVP'd for the event.

Saint Louis University School of Medicine

The Saint Louis University MSMA-MSS Chapter welcomed the incoming class during orientation week by having a breakfast with the officers to answer questions about MSMA and AMA. During the first couple weeks of classes, we had a table set up at our interest group fair where students approached us with very good questions about our Chapter. Later that week, we held an introductory meeting where Dr. Ravi Johar spoke to us about MSMA and current medical topics in MSMA.

This was our first year hosting a round-table discussion, and that included various topics relevant to MSMA and AMA. Our first roundtable discussion focused on GME funding, and our second one focused on the resolutions presented at the AMA-Interim conference in Atlanta. In October, we held our 3rd Annual Fall Conference at SLU SOM where Dr. Jeffrey Copeland gave an exceptional presentation on important topics regarding business in medicine and private practice. He also spoke to students about HIPAA, EMR, and ICD-10. During the conference, we hosted a talk on resolution writing and parliamentary procedure.

In early January, we held a fundraiser at ITAP with pizza and raffle prizes. The funds we raised were donated to the Institute for Family Medicine, a family practice located in South St. Louis County, which also participates in community and school health programs. We continue to partner with Health Protection & Education Services, located in the Delmar Loop, where free health-screening services are offered on the third Saturday of the month. We were able to have two representatives from SLU, Emily Siebert and Shivani Singh, attend the 2014 AMA Interim Meeting in Atlanta. Our Chapter looks forward to participating in more events, such as MSMA Annual Convention and AMA Annual Convention in coming months.

University of Missouri – Columbia

The MSMA-MSS at University of Missouri-Columbia started off the year with a recruitment table at the annual organization fair for first-year students. We continued this effort with a luncheon to provide information on the benefits and rewards of organized medicine, where we answered questions about membership. We were able to recruit many new students to join and get excited about being more involved.

We also had a very successful fall fundraiser, our annual Halloween party Terrortoma, organized by Chapter Vice-President Ariel Carpenter. We raised and donated $900 to MedZou, the free local clinic operated by Mizzou medical students. They are especially passionate about uninsured patients and have partnered with other students in Missouri on an ongoing project to assess the state of the uninsured in Missouri.

Tort reform provided an issue to rally behind in March,

as Lauren Stephenson, Emma Frank, Ariel Carpenter, Lucas Blount and Brandon Gallemore attended the White Coat Rally in the Capitol and spoke to legislators about the importance of this.

Mizzou has represented well on the state and national levels. We sent eight first-year students to last year's MSMA convention and many of them had their first chance at exposure to organized medicine. Chapter Delegate Ariel Carpenter was elected Chair of the State MSMA-MSS. She and Jared Lammert, UMC-MSS Legislative Chair, attended the AMA meetings in Chicago and Atlanta and were elected as Alternate Delegates to the AMA House of Delegates for the coming years. First-year student Matt Faubion also accompanied them for his first experience at a national meeting.

Upcoming events for students at the University of Missouri-Columbia include: AMA-MSS Supermeeting in Washington D.C., MSMA Annual Convention in St. Louis, and Chapter Executive Board Elections for the upcoming 2015-2016 year.

University of Missouri – Kansas City

The UMKC Chapter of the MSMA-MSS has had another excellent year with a focus on furthering our reach in the medical school and local community. Our main goals this year are to present resolutions written by our own students and hold monthly meetings and events.

Our first recruitment event was in August on the undergrad campus where Jimmy John's and root beer floats were served. We appreciated the presence of Haley Wansing, MSMA-MSS Liaison, and current AMA members, who were able to illustrate the benefits of being a member. The MSS was also represented at the Annual Roo Fair on UMKC campus, where we were able to promote the organization as a whole to the general student body. Overall, our Chapter continues to grow through these events and promotions.

Our Chapter is involved on the national and local levels. Last April, we attended the MSMA Convention in Kansas City, where a resolution written by our Chapter on food labels for nutritional purposes was passed. In November, we sent six students to the AMA Interim Meeting in Atlanta, where a resolution regarding mental health screenings in medical schools was defended and passed. This resolution was a collaborative effort with the St. Louis University MSS and new connections were established through the process.

This past semester, we teamed up with the UMKC-AMWA Chapter to arrange a panel of female physicians to speak on Women in Medicine, which was a huge success. We also invited Dr. Thedinger from the KC Care Clinic to speak about healthy lifestyles and diet modifications for our clinic patients. By popular demand, we had our annual Pie-and-Cider Social to help students relieve their stress and socialize with other chapter members.

This year, we continue to involve our chapter with community service. We participated in the "KC Fun-and-Fitness Day," a community-wide health fair, for the third year in a row. Our Chapter is also active with the local Kansas City Medical Society, and we hope to continue expanding our Chapter with another exciting year ahead.

Washington University

Last year's strong Chapter leadership once again set a firm foundation for us at Washington University. This year, we continued to grow as a group, broadening our reach into our own community and working to strengthen ties throughout the state.

This past summer, Steve Eckman served another year as Vice-Chairperson of the MSMA-MSS, Michelle Mendiola served as Advocacy Chair for the Midwest Region AMA-MSS, and several of our students co-authored an article with Dr. Joseph Craft, III, which was published in Missouri Medicine. Additionally, four students attended the AMA Annual Meeting in Chicago, and eight students attended the Interim Conference in Atlanta. Our partnership with the St. Louis Metropolitan Medical Society remains strong, with first-year medical student Craig Yugawa beginning his term and serving as a voting member of the SLMMS Council.

Our Chapter is actively engaged in advocacy in St. Louis, organizing meetings with Senator Keaveny and Senator Dr. Bob Onder to enable Wash U medical students to ask important questions to these lawmakers. We invited them to host a dinner discussion with medical students on our campus, and are setting up additional meetings in Jefferson City for the upcoming legislative session.

We began a partnership with Wash U Law School to work with law students interested in health policy and writing resolutions for future AMA and MSMA meetings. We will be hosting resolution-writing workshops in the coming months where law and medical students will discuss and research mutually important issues.

The Wash U MSS Chapter continues to host lectures and symposiums for members of the St. Louis medical student community to foster discussion about health policy and other relevant topics. We have held blood drives, introduced students to the matching process, and partnered with SLU on several events. As a Chapter, we keep with the Wash U and MSMA traditions in cultivating health leaders. We are excited and grateful for this past year's success, and

MSMA Elects Leadership

MSMA Officers

President
Ravi Johar, MD, St. Louis
President Elect
Warren Lovinger, MD, Nevada
Secretary
Brian Biggers, MD, Springfield
Treasurer
David Pohl, MD, St. Louis
1st Vice President
David Bean, DO, Florissant
Honorary Vice President
William Reynolds, MD, Springfield
Honorary Vice President
Greg Terpstra, MD, Potosi
Immediate Past President
John O. Stanley, MD, Kansas City
Speaker
Lancer Gates, DO, Kansas City
Vice Speaker
Sam Page, MD, St. Louis

Councilors

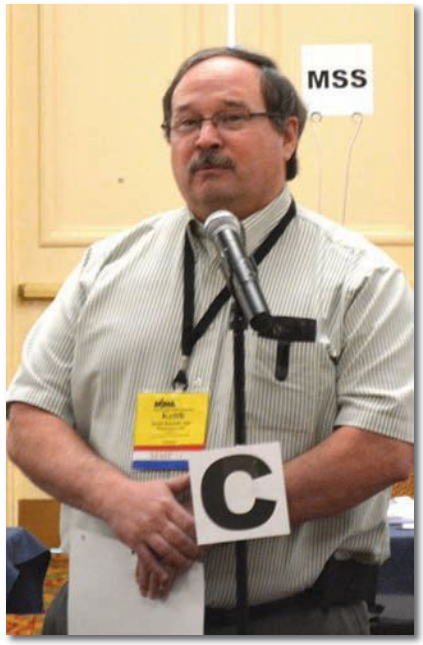
Chair, MSMA Council
Robert Schaaf, MD, St. Joseph (1st Dist)
Vice Chair, MSMA Council
Joseph Corrado, MD, Mexico (5th Dist)
2nd District
Sandra Ahlum, MD, Hannibal
3rd District
Elie Azrak MD, Chesterfield
Robert Brennan, MD, St. Louis
George Hruza, MD, Chesterfield
Michael Stadnyk MD, Chesterfield
4th District
Kevin Weikart, MD, Lake Saint Louis
5th District
George Hubbell, MD, Osage Beach
6th District
David Kuhlmann, MD, Kansas City
7th District
James DiRenna, Jr., DO, Gladstone
Betty Drees, MD, Kansas City
Lancer Gates, DO, Kansas City
8th District
David Redfern, MD, Springfield
Alexander Hover, MD, Springfield
9th District
Lirong Zhu, MD, Rolla
10th District
Charles Lawson, MD, Poplar Bluff
Organized Medical Staff Section
Peggy Barjenbruch, MD, Mexico
International Medical Graduate
Sri Devi Kolli, MD, St. Louis
Young Physician Section
Ramona Behshad, MD, Chesterfield
Medical Student Section
Kartik Sreepada, Kansas City

Vice Councilors

1st District
Robert Corder, MD, St. Joseph
2nd District
John Memken, MD, Hannibal
3rd District
Stephen Slocum, MD, Chesterfield
4th District
Martin Willman, MD, St. Peters
5th District
Lisa Thomas, MD, Columbia
7th District
Marc Taormina, MD, Lee's Summit
8th District
Ellen Nichols, MD, Joplin
9th District
David Barbe, MD, Mountain Grove
10th District
Sharon Wallace, MD, Cape Girardeau
Organized Medical Staff Section
James Conant, MD, St. Joseph
International Medical Graduate
Ramona Aitken, MD, St. Louis
Young Physician Section
Sarah Florio, MD, Lee's Summit
Medical Student Section
Shivani Singh

Winners of Convention Survey Drawing

Congratulations to **Steve Slocum, MD, Chesterfield and David Chalk, MD, Springfield!**
They won the $100 drawing for answering MSMA's Convention Survey.



Keith Ratcliff, MD, Washington, addresses the House of Delegates during the debate of the Reference Committee reports.

AMA Delegates & *Alternate Delgates

Edmond Cabbabe, MD, St. Louis
James Conant, MD, St. Joseph
Ted Groshong, MD, Columbia
Rebecca Hierholzer, MD, Leawood, KS
William Huffaker, MD, St. Louis
Lent Johnson, MD, Hannibal

*Elie Azrak, MD, Chesterfield
*Michael O'Dell, MD, Kansas City
*Charles Van Way, MD, Kansas City
*Warren Lovinger, MD, Nevada
*Nathaniel Murdock, MD, St. Louis
*Matt Faubion, Columbia, Student

AMA Regional Student Alternate Delegate
Jared Lammert, Columbia
Ariel Carpenter, Columbia

AMA Board of Trustees
David Barbe, MD, Mountain Grove

Alliance

President Jana Wolfe, Springfield
President Elect Marsha Conant, St. Joseph

2016 Annual Convention Attendance

Delegates	*99*
Members	*126*
Exhibitors	*33*
Staff	*8*
Guests	*172*
Officers	*9*
Councilors/Vice	*29*
Alliance	*28*
Total	*504*

(Actual numbers will not balance due to overlaps in positions served.)

Officers
Allen, Thomas, MD
Chalk, David, MD
Copeland, Jeffrey, MD
Gates, Lancer, DO
Hruza, George, MD
Johar, Ravi, MD
Stanley, John, MD
Turner, William, MD
Wolfe, James, MD

Councilors
Ahlum, Sandra, MD
Azrak, Elie, MD
Barjenbruch, Peggy, MD
Behshad, Ramona, MD
Biggers, Brian, MD
Brennan, Jr., Robert, MD
Corrado, Joseph, MD
DiRenna, Jr., James, DO
Drees, Betty, MD
Doo, Josephine
Gates, Lancer, DO
Hover, Alexander, MD
Hubbell, George, MD
Kolli, Sri Devi, MD
Lawson, Charles, MD
Lovinger, Jr., Warren, MD
Pohl, David, MD
Schaaf, Rob, MD
Weikart, Kevin, MD

Vice Councilors
Barbe, David, MD
Conant, James, MD
Corder, Robert, MD
Lalezari, Ramin
Memken, John, MD
Slocum, Stephen, MD
Taormina, Marc, MD
Thomas, Lisa, MD
Wallace, Sharon, MD
Willman, Martin, MD

Delegates
District 1
Buchanan County Medical Society
Conant, James, MD
Corder, Robert, MD
Gupta, Chakshu, MD
Weigand, Robert, MD

District 2
Northeast Missouri Medical Society
Bukstein, Michael, MD
Johnson, Lent, MD
Memken, John, MD

District 3
St. Louis Metropolitan Medical Society
Arnold, Donald, MD
Bean, David, DO
Best, Michael, MD
Butler, David, MD
Cabbabe, Edmond, MD
Cabbabe, Samer, MD
Corder, J. Collins, MD
Craver, Jeffrey, MD
Dehner, Jonathan, MD
Druck, Norman, MD
Eggleston, Harry, MD
Gale, Arthur, MD
Goodhope, Karen, MD
Greco, Thomas, MD
Hruza, George, MD
Huffaker, William, MD
Johar, Ravi, MD
Laird, John, MD
McMahon, Robert, MD, JD
Meyer, Jay, MD
Murdock, Nathaniel, MD
Page, Jennifer, MD
Page, Sam, MD
Payne, Meredith, MD
Ruzycki, Janet, MD
Ryall, Jo-Ellyn, MD
Shariff, Anjum, MD
Singh, Toniya, MD
Slocum, Stephen, MD
Stith, John, MD
Swingle, Christopher, DO
Thomasson, Jeffrey, MD
Vickar, Garry, MD
Walz, Bruce, MD
Wild, Alan, MD
Williams, Carol, MD

District 4
St. Charles-Lincoln Medical Society
Andrews, Brian, MD
Copeland, Jeffrey, MD
Glaser, Jeffrey, MD
Petersen, James, MD
Rigg, Lee, MD
Sill, William, DO
Willman, Martin, MD

Tri-County Medical Society
Chalk, David, MD
Moore, John David, MD
Ratcliff, Keith, MD

District 5
Audrain County Medical Society
Taylor, Steve, MD

Boone County Medical Society
Cowden, John, MD
Cunningham, Milamari, MD
Early, Bridget, MD
Govindarajan, Raghav, MD
Groshong, Ted, MD
Heimburger, Richard, MD
Kennett, Jerry, MD
Murrell, H. Jerry, MD
Rajcher, Wilma, MD
Thomas, Lisa, MD

District 6
West Central Medical Society
Haynie, William, MD
Torontow, John, MD
Turner, William, MD

District 7
Kansas City Medical Society
Allen, Thomas, MD
Dorzab, William, MD
Hahn, Jr., Frederick, MD
Hierholzer, Rebecca, MD
O'Dell, Michael, MD
Potts, Donald, MD
Stanley, John, MD
Taormina, Marc, MD
Youmans, Ronald, MD

District 8
Greene County Medical Society
Blaine, Jim, MD
Knowlton, Norman, MD
Reynolds, William, MD
Wolfe, James, MD
Woods, Tim, MD
Wright, Andy, MD

Ozarks Medical Society
Hamilton, William, MD

District 9
South Central Counties Medical Society
Barbe, David, MD
Zhu, Lirong, MD

District 10
Cape Girardeau County Area Medical Society
Jung, John Marshall, MD
Talbert, Clifford, MD
Wallace, Douglas, MD
Wallace, Sharon, MD

Mineral Area Medical Society
Terpstra, Gregory, DO

Medical Schools
St. Louis University
Gallogly, Jim
Singh, Shivani

University of Missouri-Columbia
Faubion, Matthew
Goodson, David (Alex)

University of Missouri-Kansas City
Alikhan, Muhammad
Sreepada, Kartik

Washington University
Javaherian, Kavon
Yugawa, Craig

Young Physician Section
Zguta, Amy,MD

Delegates-At-Large
Past Presidents
Barbe, David, MD
Cabbabe, Edmond, MD
Copeland, Jeffrey, MD
Dorzab, William, MD
Hahn, Jr., Frederick, MD
Johnson, Lent, MD
Kennett, Jerry, MD
Knowlton, Norman, MD
Murrell, H. Jerry, MD
Slocum, Stephen, MD
Thomasson, Jeffrey, MD
Williams, Carol, MD
Wolfe, James, MD
Youmans, Ronald, MD

Speaker
Chalk, David, MD

Members
Ahlum, Sandra, MD
Ajans, Z. A., MD
Alias, Susy, MD
Averill, Christine,
Azrak, Elie, MD
Banton, William, MD
Banton, Milagros, MD
Barjenbruch, Peggy, MD
Behshad, Ramona, MD
Biggers, Brian, MD
Boschert, Mark, MD
Brennan, Jr., Robert, MD
Brown, Michael, MD
Bucol, Kevin, MD
Butcher, Joan, MD
Cabbabe, Amy, MD
Carpenter, Ariel,
Carter, Jeffrey, MD
Casey, Matthew, MD
Cassat, James, MD
Chang, CW David, MD
Char, Douglas, MD
Chirino, Octavio, MD
Chow, Timothy,
Colbert, Stephen, MD
Collins, Jr., John, MD
Connor, Chris, MD
Corrado, Joseph, MD
Corrigan, Gilbert, MD
Daus, Arthur Steven, MD
Dawson, Patrick, DO
Diamant, Aristides,
DiRenna, Jr., James, DO
Doo, Josephine,
Drees, Betty, MD
Ekman, John Steven,
Erkmann, John, DO
Eschbacher, Kathryn,
Ettelson, Charles, MD
Fischer, Keith, MD
Fisher, Marsha, MD
Fleming, James, MD
Flores, Jhonson, MD
Forand, Joseph, MD
Frederick, Keith, DO
Friedman, Michael, MD
Gates, Lancer, DO
Gelhot, Helen, MD
Glenski, James, MD
Gwin, Edward, MD
Hagen, John, MD
Hardy, David, MD
Hover, Alexander, MD
Howard, Barbara, MD
Hubbell, George, MD
Iqbal, Sherifa, MD
Johnson, Quinn, MD
Johnson, Jr., Joseph, MD
Jorgensen, Jeffrey, MD
Jung, Christopher, MD
Kelly, Jim, MD
Kim, Chul, MD
Kiyanclar, Mehmet, MD
Kolli, Sri Devi, MD
Kras, Joseph, MD
Krucylak, Catherine, MD
Lalezari, Ramin,
Lammert, Jared,
Landrum, Alice, MD
Lantos, John, MD
Lawson, Charles, MD
Lovinger, Jr., Warren, MD
Maitz, Carlos, MD
Manalaysay, Alvin, MD
Metlis, Schuyler, MD
Meyer, Neal, MD
Middleton, Jerry, MD
Miller, Steve, MD
Minchin, Susan, MD
Montes, Arturo, MD
Moore, Andrew, MD
Musco, Jonathan, MD
Ojascastro, Alejandro, MD
Olomon, Angela, DO
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