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Last month, I attended the South Dakota State Medical Association (SDSMA) Annual Leadership Conference in Deadwood. Thanks to everyone who attended the conference. I would also like to thank Dr. Tom Herman for his efforts as SDSMA president over the past year. It has been a challenging year for our Association. Tom’s leadership has been appreciated by all of us. A special thanks to the Executive Committee and new Board of Directors. Congratulations to Dr. Robert Marciano, who was elected as policy council chair, and congratulations to the newly elected at-large directors: Drs. Kara Dahl, Mark L. Harlow, and Lucio Margallo. I would also like to recognize the SDSMA staff. They always do an exceptional job for our membership.

At our conference, we were honored to have the American Medical Association (AMA) Chair-Elect Dr. Gerald E. Harmon as our guest and to hear what the AMA is doing on behalf of all physicians in our ever-changing health care environment. Dr. Harman spoke about the AMA positions on issues including the following:
- The repeal and replacement of the Affordable Care Act (ACA);
- Physician burnout and what the AMA is doing to help; and
- The national opioid epidemic.

The University of South Dakota Sanford School of Medicine Dean Dr. Mary Nettlemann followed with an update on the medical school. This year’s graduating class had a 100 percent residency match rate. Congratulations to the new residents, and to the new incoming class.

Topics presented at our second annual membership open forum included contraception coverage, health care needs of people who are transgender, Maintenance of Certification, physician training requirements, Physician Orders for Life-Sustaining Treatment (POLST), teen contraception, and Native American health care.

Following the open forum, a panel discussion focused on the topic of physician burnout with panelists Drs. Laurie Drill-Mellum, Mark Harlow, Tad Jacobs, Tim Ridgway, and Craig Utke. These experts provided advice on how we can better understand and respond to burnout, reduce sources of stress, and support physician wellbeing.

Dr. Drill-Mellum spoke at the SDSMA PAC luncheon. Her presentation was entitled “Clinical Health and Wellbeing—Reducing the Cost of Impact of Physician Burnout. Did you know that nearly 50 percent of physicians experience some type of professional burnout? One of the top reasons for this is the increase in administrative responsibilities – increasing regulatory pressures and evolving payment and care delivery models – which reduce the amount of time physicians spend delivering direct patient care. Dr. Drill-Mellum is chief medical officer and vice president of patient safety solutions at MMIC. We were thrilled to welcome her at our annual conference to share her expertise.

Following the luncheon, the Council of Physicians and the Policy Council met. To those of you who have volunteered your time serving on the Council of Physicians over the years, I thank you. In 2016, our bylaws were changed and we have now entered our transition year. At the close of our Council of Physicians meeting, our new Policy Council was installed. The Council of Physicians and the Executive Committee have now been replaced by the new Policy Council and Board of Directors. The Policy Council will meet twice a year and is charged with developing and adopting policy. The Board of Directors will be involved with day-to-day management of the SDSMA.

Following the Policy Council meeting, the Awards Banquet and Scholarship Recognition completed the Conference day. Read more about the annual conference in Member News on page 332.

It is an honor to be the president of the SDSMA. Our organization has a long and rich history. The first meeting of the then-named Dakota Medical Society was held June 3, 1882 – 135 years ago. That meeting was held seven years before South Dakota became a state. That initial gathering was held in the parlor of the Grand Central Hotel in Milbank. Ten physicians attended the first meeting of the Society; attendance was limited because in 1882 the railroad was still under construction between Yankton (the Dakota Territory capital) and Aberdeen. One can only imagine the challenges of practicing medicine in Dakota Territory in 1882. What would that group of pioneer physicians think about the practice of medicine in 2017?

As we enter this new year we face many challenges. Just like past generations of physicians, I know we will work together to develop solutions that will promote the art and science of medicine and improve the health of our patients: the citizens of South Dakota.
PHYSICIANS ARE BUSY, not just because of their practice of medicine, but also due to their community and professional involvement. Physicians are leaders in their own right and often serve as board members for non-profits, associations, and organizations about which they are passionate. Their understanding of the entity’s financial circumstances is critical, and their efforts to maintain financial viability long into the future helps realize the mission. When these organizations have investable dollars beyond their operating budget, it’s important they look to outside experts who can prudently advise and manage these dollars in accordance with the organization’s goals.

An organization’s staff and board are obligated to act in the interest of the organization and its constituents. When it comes to managing the investment portfolio, a completely transparent relationship with a financial advisor who acts as a fiduciary makes everyone’s job much easier.

Organizations today face an ever-more-complex, often turbulent, market environment. They also have different needs than individuals, one being style of communication. An extended, wide-ranging conversation can be very beneficial for an individual, but it generally doesn’t work well in a board meeting. Clear and concise is more likely what is needed. A financial advisor who understands those differences is paramount. Other best practices must be employed to support the sustainability of an institution’s financial resources:

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I would like to welcome our readers to this issue of South Dakota Medicine and hope you will find the articles of interest. In this month’s edition we continue with the point-counterpoint series evaluating personalized medicine through the use of pharmacogenetics in the use of the medication atomoxetine. The authors do an outstanding job of highlighting some of the controversies that surround the use of pharmacogenomics in mental illness. How does one use highly individual and specific information about the pharmacogenetics of a medication to treat a heterogeneous group of diseases with common presentations? What is the effect of the blood-brain barrier? Is the medication or its metabolites even able to achieve therapeutic levels within the central nervous system? This manuscript highlights many of the challenges facing the clinical application of pharmacogenomics.

Fanta and Tyler explore difficulties in advance care planning. The authors interviewed 19 physicians and queried about difficulties they have encountered in advance care planning.

This manuscript identifies a number of potential barriers to discussion of advance care planning with patients. Hopefully this manuscript can help raise awareness about these complex challenges and improve physician-patient communication about end-of-life planning.

This month we also have a number of case reports and case series. Assam and Spanos discuss peritonsillar abscesses developing in two immunocompromised individuals. The importance of diagnosis and appropriate treatment is emphasized. In this issue there is an article on an unusual cause of lymphadenopathy known as Kikuchi-Fujimoto disease. Kikuchi-Fujimoto disease can present with concerning symptoms raising ones suspicion for lymphoma; however, it is a benign condition often treated with antipyretics and continued observation. This manuscript reviews the management of lymphadenopathy and this unusual condition. Gedela et al. also discuss an unusual presentation of carbon monoxide poisoning, atrial fibrillation. The authors review the diagnosis and treatment of this important condition. Aloreidi et al. discuss a case of a patient presenting with brain tuberculoma and some of the challenges in making the diagnosis and treating these subjects. In this month’s edition of South Dakota Medicine, we have a number of thought-provoking case reports and manuscripts.
Personalized medicine, also termed precision medicine, emphasizes treatments specific for individuals based on their unique genetic characteristics. Because clinical traits represent a combination of genetic and non-genetic (environmental) factors, a major contributor to this approach is identifying an individual’s unique genetic make-up. Genetic factors can influence disease risk (risk of onset and/or rate of progression) as well as treatment response (efficacy and/or toxicity). Pharmacogenetics is the study of genetic differences in treatment response. Some of these genetic factors can modify a drug’s mechanism of action (pharmacodynamics), whereas others can modify a drug’s metabolism (pharmacokinetics). The cytochrome p450 (CYP450) enzymes are responsible for metabolizing more than 90 percent of medications. When studying the CYP450 enzyme system variants, individuals are typically identified as poor, intermediate, extensive, or ultrarapid metabolizers based on their genetic evaluation. Atomoxetine (Strattera) is one of the psychiatric medications that is impacted by genetic variation in metabolism.

Atomoxetine is a potent norepinephrine reuptake inhibitor (NRI) approved by the Food and Drug Administration (FDA) for use in attention deficit-hyperactivity disorder (ADHD) in 2002. As the first nonstimulant medication approved for ADHD, it is an important medication for the treatment of ADHD when stimulant medications are contraindicated. However, most treatment algorithms list atomoxetine as a second line agent as most studies show that stimulants have greater efficacy. Atomoxetine has very clear weight based dosing strategies, and it is also impacted by individual pharmacogenetic profiles. This paper explores characteristics unique to atomoxetine, as well as discussing characteristics of psychiatric medications in general.

One of the most pressing issues when studying psychiatric medications is in defining mental illness. Psychiatric illnesses are difficult to define with overlapping, subjective, and potentially unreliable symptom lists. Psychiatric diseases are identified by having a collection of symptoms that do not necessarily correlate to measurable neurophysiologic processes. In other words, ADHD (along with most psychiatric illnesses such as depression and autism) is probably a heterogeneous group of diseases with a common clinical presentation. We are currently redefining mental illness by studying measurable neuronal circuits, genes, and cells that correlate with emotional and behavioral disturbances. Once this paradigm shift occurs, it will be much easier to provide objective measures for diagnosis and treatment response. Until then, we are left to apply personalized precision medication to imprecise illness definition. The current state of psychiatric diagnosis does not allow for optimal study of pharmacogenetic variables because we are dealing with a group of disorders with a common clinical appearance. This would be akin to studying malaise without looking at the underlying pathophysiology.

Landscape
Initially, atomoxetine was called tomoxetine and was being developed as an antidepressant medication. Historically, however, the company never pursued that indication for unclear reasons. The drug was later renamed atomoxetine to avoid confusion with the anticancer drug tamoxifen. Then in 2002 atomoxetine was approved for once daily use to treat ADHD in children, adolescents, and adults by Eli Lilly and Company under the brand name Strattera. The once a day dosing efficacy was surprising given the short plasma half-life (approximately four hours) of atomoxetine for most patients. This dosing paradigm was partly driven by the initial observation that the kinetics of atomoxetine metabolism varied widely in the general population. According to Lilly Research Laboratories, “Perhaps the most striking finding of this study is the evidence that despite the relatively short half-life of atomoxetine, once daily dosing in the morning was associated with effects that persisted into the evening. Factors other than time on receptor could be important determinants of response or that pharmacokinetics in the
central nervous system differ from those in the plasma." Because atomoxetine is primarily metabolized through the CYP2D6 enzyme pathway, the manufacturer was required by the FDA to demonstrate that the drug was safe for CYP2D6 poor metabolizers. CYP2D6 is highly polymorphic; many gene variants exist, and it is common that patients inherit an abnormal copy of this gene. Approximately one in ten patients (10% of the general population) inherits two nonfunctioning copies of CYP2D6. Currently, the published FDA guidelines for CYP2D6 is somewhat nonspecific. FDA recommends that for CYP2D6 poor metabolizers one should start at the normally recommended dose and increase after 4 weeks if the “symptoms fail to improve and the initial dose is well tolerated.” This is a fairly routine clinical practice with or without pharmacogenetic information. There are no FDA dosing strategy recommendations for rapid metabolizers, and this may very well be a more important variant than poor metabolizers. Gene duplications are common and more than one in ten patients are rapid metabolizers for CYP2D6 (estimates vary from 10-30 percent depending upon country of origin and ancestry).

**Implementation**

Atomoxetine appears to have a very wide therapeutic window. A 2008 adverse drug reaction (ADR) study showed discontinuation rates of poor metabolizers at 6% vs 2% for extensive metabolizers which was not clinically significant (p=.08), although statistical power was limited and larger studies are needed. The response rate of poor metabolizers was higher than that of extensive metabolizers. Based on upon these potential differences in risk-benefit ratio, early commercially available pharmacogenetic test reports had recommended using caution when an individual was found to be a poor metabolizer. However, the evidence would suggest that poor metabolizers may be better candidates for atomoxetine.

The studies have not been done, but there is speculation that many of the nonresponders in atomoxetine studies were extensive and ultra-rapid metabolizers who were considerably under dosed. Atomoxetine follows linear kinetics so rapid metabolizers may have a 10-fold lower plasma level than poor metabolizers. Ultra-rapid metabolizers may have a 20-fold lower plasma level. Unfortunately, studies linking plasma drug levels (therapeutic drug monitoring), pharmacogenetic status, and efficacy have not been done with atomoxetine. For atomoxetine, pharmacogenetic studies may prove more useful in impacting dose strategies for rapid metabolizers rather than avoiding side effects in individuals who are poor metabolizers.

In summary, no salient changes in dose strategies are recommended for atomoxetine poor metabolizers as atomoxetine has a fairly mild side effect profile even at high levels. Extensive and ultrarapid atomoxetine metabolizers, on the other hand, may need higher dosing. At this time, studies have not been done to determine what those dosing strategies should be. Additionally, the dose strategies would more than likely recommend atomoxetine doses that are much higher than those currently approved by the FDA. Based on current information, it is not clear that pharmacogenetics studies add any valuable clinical information when prescribing atomoxetine. Furthermore, if clinicians had followed initial pharmacogenetics guidelines warning about using atomoxetine in individuals with poor metabolizer status, they could have excluded a useful and important medication for their patients.

**Future Outlook**

It is a common misunderstanding that pharmacogenetics has reached a point where one can use the information gained to determine the effectiveness of a psychotropic medication and not solely to understand how one metabolizes the medication. Our experiences with atomoxetine provide several valuable lessons as we move forward utilizing genetic studies of drug metabolism to personalize prescribing and improve patient outcomes. Most importantly, pharmacokinetic factors need to be taken into consideration when evaluating genetic information. For atomoxetine and many other medications, plasma levels of the medication do not always correlate to clinical response. Therefore, other pharmacodynamic factors (and pharmacokinetic factors beyond metabolism) are involved with atomoxetine response. Given that serotonin reuptake inhibitors increase serotonin levels immediately, while optimal clinical response can take weeks or months and benefits of these antidepressants are realized even after the medications are stopped, genetic variation in mechanism (receptors, G-proteins and signal transduction) is likely to be a strong contributor. Thus, the clinical efficacy of most psychiatric medication is quite complex, and absorption and distribution appear to be just as important as metabolism and elimination. For example, the genetics of blood-brain barrier function may prove to be just as important as (or even more important than) genetic studies of drug metabolism for psychiatry, because most psychiatric medications act at brain receptors.
Atomoxetine has shown us that pharmacogenetics studies need to be evaluated in the context of therapeutic blood monitoring and efficacy studies. The utility of pharmacogenetics studies with atomoxetine will be greatly enhanced once metabolizer status is correlated with therapeutic drug monitoring and outcome. At the present time, we are only left to guess at dosing strategies in individuals who are rapid and ultrarapid metabolizers of atomoxetine. If an optimal blood level is determined, it may be more predictive to check a blood level of the drug (phenotype) rather than the pharmacogenetic status (genotype).

Pharmacogenetic studies may not be as useful for medications with a wide therapeutic index like atomoxetine. Drugs that have more individual variations in response and severe potentially life-threatening side effects may be better initial candidates for pharmacogenetics studies. Nonetheless, as our knowledge continues to grow and testing costs fall, pharmacogenetics studies will be utilized more and become an increasingly accessible tool in individualized patient care.

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About the Authors:
David Ermer, MD, Associate Professor, Department of Child and Adolescent Psychiatry, University of South Dakota Sanford School of Medicine; Sanford Clinic Psychiatry and Psychology, Sioux Falls, South Dakota.
Tamara Vix, MD, Assistant Professor, Department of Child and Adolescent Psychiatry, University of South Dakota Sanford School of Medicine; Child and Adolescent Psychiatry Residency Director, Avera Medical Group University Psychiatry Associates, Sioux Falls, South Dakota.
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Brain Tuberculoma: A Case Report and Literature Review

By Khalil Aloreidi, MD; Jamal Dodin, MD; Jeremy Berg, MD; and Wendell Hoffman, MD

Abstract
We are reporting on a rare case of central nervous system tuberculosis (TB) in the state of South Dakota. Our case features one of the most infrequent forms of TB in the brain: multiple tuberculomas. A 44-year-old immunocompetent man was admitted complaining of a headache and fever for a week. His physical exam was unremarkable. A magnetic resonance imaging scan of his brain showed two ring-enhancing lesions. The largest lesion was excised surgically and the histopathology exam was consistent with tuberculoma. We will discuss in this report various aspects of this rare disease in term of epidemiology, diagnosis, and treatment.

Introduction
Central nervous system (CNS) involvement is one of the most devastating clinical manifestations of tuberculosis (TB), is noted in 5-10 percent of extrapulmonary TB cases and accounts for approximately 1 percent of all TB cases. The World Health Organization has estimated that one-third of the world’s population is infected with TB. The mortality rate of TB is unacceptably high, but with a timely diagnosis and correct treatment, a high percentage of patients with TB can be cured.

National reporting of TB cases in the U.S. began in 1953. Between 1993-2012, the annual incidence of reported TB cases was declining. Data for 2013-2015 indicate that after two decades of declining incidence, progress toward TB elimination in the U.S. appears to have stalled. A total of 9,421 TB cases (a rate of three cases per 100,000 persons) were reported in the U.S. in 2014. During the last 10 years, the state of South Dakota has averaged 14 TB patients per year, including one case of CNS TB. Seventeen cases total were reported in 2015.

CNS TB manifests as meningitis, encephalopathy, vasculopathy, brain abscess, tuberculoma and vertebral spondylitis. In regions where the incidence rates are low, such as North America and Western Europe, extrapulmonary manifestations of diseases are seen primarily in adults with a reactivation infection. A history of tuberculosis is present in only approximately 10 percent of these patients. The presence of active pulmonary tuberculosis on chest X-ray ranges from 30-50 percent.

Case Report
A 44-year-old male who immigrated from Sudan to the U.S. 15 years ago developed a headache and low-grade fever for a week. His vital signs were normal except for a temperature of 100.2 degrees Fahrenheit. He was alert and oriented to place, person, and time. He had no focal neurological deficits or meningeal signs. A computerized axial tomography (CAT) scan of the head showed a right frontal hypodensity, which was concerning for infarction or tumor. An MRI scan of his brain revealed two ring-enhancing lesions in the right temporoparietal region and the posteromedial aspect of the right cerebellar hemisphere (Figures 1 and 2).

A cerebrospinal fluid (CSF) exam showed a glucose of 49 (50-80 mg/dL), a protein level of 108.7 (12-60 mg/dL) and white blood cell count of 101 (0-5/µL) with 91% lymphocytes. CSF microbiology workup was initially unrevealing which included a bacterial Gram stain and culture, acid-fast bacilli stain, and TB polymerase chain reaction. CSF cytology was negative for lymphoma. Syphilis, HIV, fungal, and viral studies were negative, as was the result of the cysticercosis serology.

The patient reported a history of latent TB which was...
treated with six months of isoniazid (INH) when he initially moved to the U.S. Given this fact, a chest X-ray was done looking for evidence of TB and it was normal but his serum QuantiFERON test was strongly positive, greater than 10 (less than 0.35). As the workup so far was inconclusive, a brain biopsy was planned. A right frontoparietal craniotomy was performed and a 1.2 x 1.0 x 0.6 cm circular mass was excised from the right parietal lobe. The mass was hard and fibrous, with a well-demarcated border. Histopathology of the mass demonstrated a large area of central caseating necrosis ringed by chronic lymphocytic inflammation, epithelioid macrophages, and multinucleated giant cells. Fungal stains with Gomori methenamine silver were negative for organisms. The tissue was then stained with Auramine-O and examined under an ultraviolet laser microscope, which revealed rare acid-fast bacilli that were morphologically consistent with Mycobacterium tuberculosis (Figures 3 and 4).

The patient was then started on an anti-TB regimen, which consists of two months of isoniazid (INH), rifampin, pyrazinamide, and levofloxacin, followed by 16 months of INH and rifampin. He was also started on prednisone 60 mg/day for two weeks, followed by gradual tapering dose over the next six week for a total of eight weeks of steroid treatment. The patient did well after the initiation of treatment in the hospital, experiencing a resolution of his symptoms. Ultimately, his CSF culture test was positive for Mycobacterium tuberculosis (MTB) complex which was sensitive to the first line therapy. An MRI brain scan a month after treatment initiation showed an interval decrease in the posteromedial right cerebellar tuberculcus. The patient continues to do well.

Discussion

Approximately one-third of the world’s population is currently infected with tuberculous bacillus, of which approximately 5-10 percent become sick or infectious at some time during their life. Tuberculosis is among the most lethal infectious diseases worldwide, especially when it comes to its rarest form, CNS TB. Tuberculous meningitis (TBM) is the most common form of CNS TB, followed by tuberculomas, which are granulomas formed by an interaction between the mycobacterial pathogen and the host’s immune response.

Intracranial tuberculomas manifest with features of a space-occupying lesion of the brain including headache, vomiting, drowsiness, papilledema, focal or generalized seizures, and focal neurological deficits or even hemiparesis. Symptoms of systemic illness and signs of meningeal inflammation are rarely observed. CAT and MRI scans of
Figure 3. Granuloma showing caseating necrosis (right side), lymphocytic inflammation (red arrow) and multinucleated giant cells (yellow arrows) (20x).

Figure 4. Fluorescent microscopy with Auramine-O stain shows an acid fast rod consistent with Mycobacterium tuberculosis (50x).
tuberculomas demonstrate the typical features of contrast-enhancing ring lesions with surrounding edema. These lesions can be multiple in up to 15-33 percent of the cases. Unlike CAT scan, MRI is better in demonstrating small lesions and those in the posterior fossa and brainstem. But neither of these imaging modalities is able to reliably distinguish tuberculoma from other causes of ring-enhancing lesions, in particular, pyogenic bacterial abscess, neurocysticercosis, toxoplasmosis, or neoplasia. In the early stages of tuberculoma, the lesions are low density or isodense, often with edema out of proportion to the mass effect and little encapsulation. Later-stage tuberculomas are well-encapsulated, isodense or hyperdense, and have peripheral ring enhancement.

Maintaining a high degree of suspicion is vital in order to initiate therapy promptly because the diagnosis of CNS tuberculosis remains challenging, as granulomatous encasement may preclude MTB detection in serum or CSF samples. Typically, with TBM, the CSF picture shows elevated protein and lowered glucose concentrations with lymphocyte pleocytosis. But with tuberculoma, the findings are normal or nonspecific. Acid-fast bacilli are less commonly found in the CSF of patients with cerebral tuberculoma compared to those with TBM, and tissue examination is usually required to confirm the diagnosis.

Treatment of TB should be started based on strong clinical suspicion, even before having culture proof, as delaying therapy can result in devastating outcomes. Treatment include two months of four anti-tuberculosis agents with good CNS penetration, followed by a longer period of INH and rifampin. The four agents should not include ethambutol, as it does not reach a high enough concentration in the CSF. INH, pyrazinamide, and rifampin can be used, in addition to a fluoroquinolone or an injectable aminoglycoside. Eighteen months is recommended for the treatment of tuberculomas. In addition, glucocorticoid therapy of either dexamethasone or prednisone should be added to the regimen for total of eight weeks to prevent any potential neurological sequelae of the treatment.

**Conclusion**

Tuberculoma of the brain can be challenging to diagnose and treat. Maintaining a high degree of suspicion and initiating treatment early is crucial. Fortunately, CNS tuberculoma prognosis has improved dramatically during the last several decades, from a nearly fatal diagnosis to over an 80 percent survival rate.

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**About the Authors:**

Khalil Akreidi, MD, Resident, Department of Internal Medicine, University of South Dakota Sanford School of Medicine.

Jamal Dodin, MD, Resident, Department of Internal Medicine, University of South Dakota Sanford School of Medicine.

Jeremy Berg, MD, Resident, Department of Pathology, University of South Dakota Sanford School of Medicine.

Wendell Hoffman, MD, Clinical Professor, Department of Infectious Disease, University of South Dakota Sanford School of Medicine.
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Physician Perceptions of Barriers to Advance Care Planning

By Lauren Fanta, MS II; and Jill Tyler, PhD

Abstract

Background: Numerous studies have confirmed the importance of advance care planning. Despite the benefits of directed end-of-life (EOL) discussions, a variety of barriers including discomfort with the topic, physician ideology, lack of time and reimbursement, delaying discussions, and lack of training impede physicians from facilitating these crucial conversations with their patients. This study aims to understand physicians’ perceptions to additional barriers to advance care planning with patients and their families.

Methods: Interviews with 19 practicing physicians (seven women and 12 men). Their perceptions were noted in interviews that were audiotaped, transcribed, and analyzed (n = 19).

Results: Physicians continue to face barriers to advance care planning as well as struggle with additional challenges such as difficulty with families, lack of patient education, inconsistencies and accessibility of advance directive documents, and lack of physician-physician communication or agreement in care. Further analysis reveals contradictions regarding physician comfort level and the role of primary care. These results reveal the complexity of providing medical care and the continued need for improvements in physician-patient communication about EOL care.

Conclusions: Complex challenges in communication impede the delivery of successful EOL experiences for patients and their families. With improvements in the practices of advance care planning, many of these challenges can be removed – enabling individuals to remain in control as they near the end of their lives and preventing unnecessary pain and suffering on behalf of the patient and family.

Introduction

In recent decades, there has been rising recognition of the shortfalls in end-of-life (EOL) care, including potentially unwanted or unwarranted interventions and lack of clinician knowledge regarding patient preferences. The 2014 Institute of Medicine report, Dying in America, acknowledges the inadequacies in EOL care but is optimistic about the potential benefits of advance care planning (ACP). ACP encompasses any discussion of EOL care, such as discussion of values and goals of care, and should occur with the patient’s primary clinician before the patient’s condition deteriorates. Patients who have these EOL discussions with their doctors are more likely to have their wishes known and respected and less likely to receive aggressive treatments than those without, and family members report higher satisfaction and are less likely to develop major depressive disorder, experience regret, or feel unprepared for the patient’s death. ACP enables patients and families to prepare mentally and emotionally for death, allows patients to stay involved and maintain some control, and can alleviate the burden of decision-making on family members. Despite the apparent benefits, a review of the literature reveals that physicians are struggling to facilitate ACP conversations with their patients. Barriers to discussion include physician and patient discomfort with the topic of death, physicians continuing to recommend curative treatments given the perception of death as a failure, a delay on the part of the physician to initiate discussion due to difficulties prognosticating and reluctance to destroy the
patient's hope,\textsuperscript{15-17} a systemic shortage of time and reimbursement,\textsuperscript{3,18-20} and a failure to adequately address these topics in medical education.\textsuperscript{3,19-21} Due to the mounting evidence confirming the value of ACP, understanding additional reasons that such conversations are not occurring is vital to the future well-being of physicians, patients, and their families. Only after barriers are identified and analyzed can potential ways to overcome, negotiate, and even eliminate these barriers be initiated.

Accordingly, qualitative interviews were conducted to explore the experiences and emotions of practicing physicians. Analysis reveals greater complexity, contradiction, and insight than has been previously described.

\textbf{Methods}

Qualitative interviewing is used to gain an understanding from the participant’s point of view and is beneficial in the study of occurrences that are not easily observable.\textsuperscript{24} The fact that these were self-reporting interviews allowed physicians to use their own words to reflect upon EOL care situations and to identify their own understandings of barriers to these discussions.

University of South Dakota Institutional Review Board approval (exempt) was obtained in March 2015. A snowball sampling method was used as recruitment emails were sent to potential participants requesting first their participation and then asking that they forward the email on to other physicians who may be interested. Family practice, internal medicine, and subspecialists in internal medicine were targeted due to the likelihood that they had encountered and counseled patients at the EOL. Face-to-face interviews were scheduled at a time and location convenient for the participant. Interviews began in May 2015 and continued through August 2015 upon identification of data saturation. All interviews were conducted by the student investigator.

Nineteen participants were included in this study. All 19 were practicing physicians from South Dakota and Nebraska. Eleven primary care physicians including six family practice and five internal medicine doctors, and eight specialists including two hospitalists, two pulmonologists, and one each in nephrology, cardiology, oncology, and emergency medicine were interviewed. The years in practice ranged from two to 37 with a mean of 18.5 years. There were seven female and 12 male physicians in this study. Each physician was randomly assigned a pseudonym to preserve subject anonymity.

Interviews lasted approximately 20 minutes and were audio recorded. An informed consent document was used to confirm that participants agreed to be recorded and that participation was voluntary. The semi-structured interview protocol was designed to encourage physicians to speak openly and spontaneously about physician-patient communication and EOL care. Interviews began with a general question about an experience involving EOL care communication followed by questions about what physicians perceived as successful and unsuccessful interactions. The interview became more focused as physicians were asked to identify additional barriers and potential solutions to problems in EOL care. Further questions examined the use of advance directives, hospice, and palliative care.

Audio-recordings were transcribed following each interview. Grounded theory, “an analytical process that culminates in the development of a formal, propositional theory,” was used in the analysis.\textsuperscript{24} After several careful readings of the transcripts, the textual data was labeled and unitized by the project director and the student investigator. Trends and common themes emerged which were grouped into comprehensive, carefully defined categories. Some of the data supported the previously identified list of barriers while the unique perspectives of practicing physicians, rare in studies of this sort, revealed new barriers which were not present in prior reports.

\textbf{Results}

This study confirmed many of the barriers to advance care planning identified in previous literature, including discomfort with the topic, physician ideology, lack of time and reimbursement, delaying discussions, and lack of training, but also revealed additional challenges that physicians face when facilitating a successful EOL experience for patients and their families. The results of the interviews are reported according to the four prevalent themes that emerged upon analysis. Physician contradictions and solutions to problems in EOL care are also included.

\textit{Family Disagreement}

The most frequently mentioned problems reported by physicians involve the patients’ families. Almost all physicians mentioned some sort of turmoil that results due to family denial, grief, and disagreement.

Michael: And the problem usually arises, not with the patient, but with the patient’s family. And frequently it’s in families that have a lot of conflict. Where parent and
child have a problem that dates back 40 years...And the child thinks if you can just make mom or dad live for another week, we can get this sorted out.

Many physicians stated that families with previous conflict or feelings of guilt tend to experience the most problems. Furthermore, physicians indicated that often, the family members that cause the most difficulty are those from farthest away geographically. These members are most often removed from the situation and uninvolved in the patient’s care until times of crisis.

Ian: The problem is the child that they have from California, or who knows where, who hasn’t seen mom or dad in six, seven years and now all of a sudden are hearing that mom or dad are near the end-of-life and that can’t possibly be. ‘We need a better doctor. We need a Mayo Clinic. We need something more.’

However, family is not always a barrier as one physician stated and many others implied through their reflections on successful experiences involving family involvement and agreement.

Nathan: She had a very supportive family. And we spent a lot of time talking about her options and where we move. We talked a lot about what her life goals were as time went on....She ended up passing away peacefully a few months later, but that overall went pretty smooth.

Lack of Patient Understanding and Education
Physicians reported trying to have EOL discussions with their patients; however, patients are often misinformed regarding the reality of their disease process and the capabilities of medicine. This makes facilitating appropriate care difficult.

Heidi: It seems that when you talk about end-of-life care, to me the general public just thinks that they are going to live forever. And that you’re going to give me medications – we have technology and it’s going to get better.

Many physicians mentioned that it would be easier to help patients at the end of their life if the general public were more knowledgeable about their options for EOL care.

Paul: I think that’s probably where there is a lot of room for improvement...helping patients understand the disease process and how to manage symptoms and you know, going to the emergency department or being admitted to the hospital when you have a chronic terminal illness is not the best way to do that.

Physicians expressed the most frustration with patients’ lack of understanding of hospice and palliative care.

Pamela: When talking about hospice or palliative care they think, ‘Oh I’m just going to die,’ and it’s like, ‘No, that’s not what we’re saying.’

Difficulties in the Management of Advance Directives
Difficulties with the administrative practices associated with advance directives (AD) present another challenge to physicians. Although ADs are intended to grant patients autonomy at the end of their lives, many physicians acknowledged that it doesn’t always work that way. According to physicians, one difficulty with ADs is that they are not standardized. Many physicians recalled situations in which patients would go to a lawyer to fill-out an AD and return with a document that was not useful.

Brian: And a lot of [ADs] are filled out by lawyers; nothing against lawyers, but it doesn’t often involve language that is practically useful to a physician leading their care.

Other physicians expressed frustration that, as the doctors managing their patient’s care, even they have difficulty interpreting ADs.

Ian: When I’m admitting a patient the last thing I do before I walk out of the room is I discuss code status. And I can’t tell you how many times I’ve gotten ‘I have advance directives,’ and uniformly nobody has a damn clue what that means! I don’t know what that means. It’s always somebody’s version of a six to 12 page document that I can’t understand.

In addition to the lack of standardization, many physicians discussed other problems with ADs. Often, a written document is not present in an acute situation. They are also not always followed despite the fact that they are understood to be a legal document.

Disagreement and Lack of Physician-Physician Communication
Disagreement and lack of communication among physicians are additional barriers that physicians repeatedly identified. Physicians do not always agree with their colleagues on the best method of treatment for a patient, resulting in difficulty at the EOL.
Pamela: I remember in residency a few instances when physicians did not always agree on things which made it harder. For example, somebody with a cancer diagnosis where they have been admitted multiple times and it seems like, okay, ‘is this somebody who we should be – or could be – considering looking more toward comfort or palliative care sort of situation versus aggressive treatment?’ And maybe the oncologist felt there’s still some other things that we can do, more that we can do. And primary felt, but how much is that really going to benefit them? And that’s where it can be a struggle, too.

Interestingly, several physicians specifically mentioned that oncologists were more aggressive in continuing to recommend additional medications and treatments. An oncologist also acknowledged that discussion of hospice and palliative care does not always occur soon enough and described the challenge faced by cancer specialists.

Sherry: Who’s going to be giving that conversation? Is it going to be the oncologist who’s going to talk about end-of-life care? Is it going to be the primary care because some primary care doctors bring it up and discuss it?

Clearly, there is disagreement among physicians as to the best treatment plan for a given patient as well as which professionals should be facilitating EOL discussions.

While the preceding factors were repeated throughout the interviews and generally agreed upon among physicians, analysis reveals that physicians made statements that contradicted one another and even themselves.

**Physician Contradictions**

When asked if they were comfortable discussing EOL care with their patients, all but one physician answered yes. Throughout the interviews, however, physicians made statements that suggested otherwise. After stating that they felt comfortable having the discussion, one physician later admitted, “I’m not sure there is a comfortable” (Ian), and another disclosed, “So it’s uncomfortable to talk about death” (Michael). Physicians also conveyed the notion that although they may be comfortable discussing EOL options, their colleagues are not. Furthermore, while most physicians said they were comfortable, many mentioned the need for improvements in medical education on the subject.

Another discrepancy expressed by physicians regards the role of primary care. Many doctors believed that it is the duty of the primary care physician to address EOL issues with their patients.

Natalie: I think it is really our responsibility as physicians – I’m not saying dermatologists and radiologists – but certainly as internists, family physicians, even OBGYN people, people who are really doing primary care, to address these issues with their patients.

Primary care physicians specifically addressed the pivotal role that they play at the EOL.

Heidi: And then I think primary care probably has a really big role. Because I can see all the specialists they’ve seen, look at it all, and then present it to the patient and say, ‘let’s take a step back.’

Physicians conveyed that patients are often much more receptive to discussions about the EOL with someone they know and trust, and one primary care physician even claimed, “If you know the patient well, there really are no barriers” (Nolan). Although physicians recognize the importance of longstanding relationships and the trust that primary care physicians are able to establish with their patients, many of these same physicians admitted that they do not have enough time to discuss patient preferences for EOL care. One even suggested that the primary care physician is not the right person for the job.

Benjamin: I don’t know if the primary care physician is the right person to do this or not. Because with all honesty primary care is over-burdened with too many things.

These contradictions reveal some of the complexities that complicate EOL care. While there are some aspects that physicians seem to agree upon, clearly there are others that they do not.

**Doctors’ Solutions**

When asked directly, physicians had many ideas for solutions to the problems associated with EOL care. Several mentioned improvements in physician and patient education including more continuing medical education hours for physicians as well as seminars, public announcements, brochures, or television broadcasts for the public.

Floyd: I think one of the things is to educate patients and the family more. Maybe if it’s through television. If there are things we could have here at the clinic, you know, little brochures or things in the room or having the nursing staff mention that to them sometimes when
they check them in. Just things to bring it up for them at times.

Increasing the utilization of hospice and palliative care was also recommended and several physicians suggested continued improvements in communication.

Pamela: Trying to get as much of that discussion done as a routine thing on an outpatient basis is huge. I think that is the biggest thing.

Some participants acknowledged the need for more systemic changes in the assumptions that are made regarding EOL care. One physician suggested that do not resuscitate (DNR) orders should be assumed for every patient unless the patient specifically states otherwise. Another physician suggested that the Medicare payment system should require patients to be responsible for a portion of the cost. While these later ideas represent a departure from current medical practice, they reveal a glimpse into the minds of physicians who are struggling to deliver quality care to their patients. Clearly, the issues surrounding communication at the EOL are complex and cannot be solved simply. As one physician put it, “it’s going to be a constant struggle” (Pamela).

Discussion

A major finding of this study is that significant and complex barriers prevent physicians from discussing EOL care with their patients. Almost all physicians discussed difficulty with family members who have unrealistic expectations or have experienced previous family conflict. Some physicians described successful experiences in which family was engaged and supportive, demonstrating the importance of family communication and involvement in EOL decision-making. In a multicenter survey of 1,256 clinicians, family members’ or patients’ inability to accept a poor prognosis, family members’ or patients’ difficulty understanding the limitations and complications of aggressive treatments, and disagreement among family about goals of care were identified among the most important barriers to goals of care discussions. This finding as well as the findings of this study suggest that physicians should encourage patients to communicate their EOL wishes to their family in an attempt to avoid disagreements at the EOL.

Another obstacle physicians face concerns the lack of patient knowledge and understanding. Physicians voiced frustration that in general, the public holds unrealistic expectations of medicine and has considerable misunderstandings of hospice and palliative care. In a survey conducted by the Center to Advance Palliative Care, 78 percent of participants stated they did not have a basic understanding of palliative care, suggesting that many Americans lack knowledge about EOL care choices. Improving community awareness through programs sponsored by health care institutions in the community as well as increasing the prevalence of both in-patient and out-patient palliative care teams could help to alleviate this problem.

Inadequacies with ADs represent yet another barrier to success given that ADs are not specific and are often worded in a way that makes them difficult to understand. This poses a significant problem in EOL care as physicians are forced to infer what the patient may or may not have wanted. In addition, ADs are not always present when needed and are not always followed when they are present. While inadequacies with ADs can be found in the literature, this study revealed the degree of frustration that many physicians feel when working with the documents and underscores the need for a standardized and simplified advance directive.

Finally, physicians recalled that disagreement among doctors regarding patient care in conjunction with a lack of inter-professional communication are problematic. This demonstrates that issues of responsibility for ACP have not been negotiated at the policy level, or at institutional or community levels.

This study also exposed some interesting contradictions among physicians. When asked, all but one physician said they were comfortable discussing EOL care with their patients. However, many physicians later described difficulties initiating and guiding these conversations, admitting their discomfort and allowing that even if it was not uncomfortable for them, it may be uncomfortable for their colleagues. Furthermore, the same physicians who claimed to be comfortable with EOL discussions still suggested the need for more education and training. This reveals that doctors are not as comfortable with the discussion as they may perceive themselves to be and need further training before they can become more effective and confident facilitating these discussions.

Ambivalence was also expressed in perceptions of the role of primary care. Many doctors believed that primary care physicians are best suited to have EOL care discussions with patients. However, many also acknowledged that primary care doctors are overburdened and too busy to
facilitate these long and potentially difficult discussions. Physicians seem to be pushing the conversation on to their colleagues and failing to effectively communicate with one another to establish responsibility for this dimension of care. In addition, this finding suggests that the conversation ideally should occur with a patient’s primary care clinician, but without changes to the current system, this may not be feasible.

This research also reflected physician perceptions of the continued need for improvements in EOL care. Physicians suggested the need for more education directed at both patients and physicians as well as an increased presence of hospice and palliative care. Physicians also proposed more systemic solutions including changes to DNR orders and the Medicare payment system.

An additional interpretation of the data concerns the depth and breadth with which ACP was being conducted by the physicians in this study. While the physicians that were interviewed reported discussing patient preferences at the EOL and were clearly empathetic and concerned about the wishes and experiences of patients and families, they frequently described a brief conversation that occurred in the hospital or only after the patient’s condition was deteriorating. Rarely did physicians report conducting thorough conversations with both patients and their families throughout the patient’s lifetime. While physicians may have interpreted the phrase “end-of-life care discussion” as a conversation that occurs when the patient is near death, even this interpretation, as well as these findings suggest that the current facilitation of EOL care discussions may not be the early and ongoing conversations that the best practice of ACP requires, hence the numerous problems, including family disagreement, lack of patient understanding, difficulty with advance directives, and lack of physician communication. Advances in physicians’ understanding and utilization of ACP would have profound implications for improvements in the quality of EOL care.

There are some limitations to this study. This study consisted of voluntary interviews, and as a result, physicians who were familiar with EOL care discussions may have been more willing to participate. The physicians who participated in this study practiced in predominantly rural areas and these findings may not be generalizable to all physicians. Furthermore, these interviews are self-reporting and rely upon the memory and integrity of participants.

The data produced in this study is unique in that it represents the perceptions, experiences, and insights of practicing physicians who daily deal with communication at the EOL. These findings are particularly useful for researchers attempting to improve quality and reduce the cost of care at the EOL. By identifying the most important barriers, this study can contribute to prioritizing future work aimed at improving physician-patient communication about EOL care. Only after the barriers to success are identified can researchers begin developing multifaceted interventions to address these issues.

**Conclusion**

This study examined physicians’ perceptions and identification of the barriers to advance care planning discussions between physicians and their patients. Complex challenges in communication impede the delivery of successful EOL experiences for patients and their families. With improvements in the use of ACP, many of these barriers can be removed — enabling individuals to remain in control as they near the end of their life and preventing unnecessary pain and suffering on behalf of the patient, the family, and the physician.

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REFERENCES


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About the Authors:
Lauren Fanta, MS II, University of South Dakota Sanford School of Medicine.
Jill Tyler, PhD, Chair, Department of Communication Studies, University of South Dakota.
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A Rare Case of Lymphadenopathy: Kikuchi-Fujimoto Disease

By Josh Rezkalla, MD; and Douglas W. Lynch, MD

Abstract

A relatively unknown cause of cervical lymphadenopathy is Kikuchi-Fujimoto disease, also known as histiocytic necrotizing lymphadenitis. This is a rare and benign condition that presents with painful cervical lymphadenopathy, fevers, night sweats, and weight loss. This disease is most prevalent in Asian women between the age of 20-35 years. The diagnosis of Kikuchi disease is made histologically and is characterized by paracortical areas of necrosis and a notable complete absence of neutrophils. The painful lymphadenopathy can be simply treated with antipyretics, but due to its presenting symptoms of Kikuchi disease, it is often mistaken for malignant lymphoma. As such, accurate diagnosis is required to avoid unnecessary testing. The evaluation of lymphadenopathy without an obvious cause can be quite challenging. When patients present with relapsing remitting lymphadenopathy, Kikuchi disease may warrant consideration.

Introduction

The causes of lymphadenopathy encompass a wide differential and can be alarming to physicians and patients alike. Despite our best efforts, the evaluation of lymphadenopathy identifies a specific cause only 42 percent of the time. A lesser known cause of cervical lymphadenopathy is Kikuchi-Fujimoto disease. This is a rare, benign condition of painful cervical lymphadenopathy that presents with some alarming “B” symptoms (fever, night sweats, or weight loss). The treatment for Kikuchi disease is antipyretics and observation; however, it is often confused with lymphoma which leads to extensive work-up and evaluations. We present a case histologically consistent with Kikuchi disease as an opportunity to review the best management of lymphadenopathy and to give providers insight to this rare disease.

Case Details

We present a case of a 33-year-old Thai female with a past medical history of ankylosing spondylitis and hypothyroidism with a complaint of a painful neck lump. Upon initial evaluation, she denied any trauma or recent infections. There was definite isolated left sided anterior and posterior cervical lymphadenopathy, but there was no supraclavicular adenopathy or erythema/drainage of the affected area. The enlarged nodes were mobile, firm, and tender. She was treated with corticosteroids, but the adenopathy persisted for the next two weeks. Upon follow-up, she developed fevers in addition to the adenopathy, but denied weight loss or night sweats. She mentioned that she has had right sided lymphadenopathy in the past that resolved with antibiotics in a few months. Given this new history, she was felt to have reactive lymphadenopathy secondary to an infection and was treated with an antibiotic, but the node remained tender and continued to enlarge over the next two weeks. The concern for malignancy continued to grow and initial lab work was pursued. Complete blood count and comprehensive metabolic panel were within normal limits. Ultrasound of the neck showed a palpable left neck soft tissue mass due to lymphadenopathy. Computed tomography (CT) scan of the neck and soft tissues showed asymmetric enlarged lymph nodes in the posterior triangle of the neck with the largest node measuring 2.1 x 1 cm (Figure 1). An excisional biopsy was then performed revealing a soft, normal appearing node about 1.3 cm in size. Pathologic examination revealed that the lymph node architecture was partially maintained with focal areas demonstrating a histiocytic proliferation of pale staining cells (Figure 2). In addition, areas with increased
karyorrhexis/apoptotic bodies with the notable absence of neutrophils and eosinophils were identified (Figure 3). The main differential diagnosis included Kikuchi-Fujimoto disease or systemic lupus lymphadenitis. The patient was treated with analgesics and a short course of corticosteroids given her history of recurrent lymphadenopathy. She experienced resolution of the lymphadenopathy within 1 month, but she was scheduled with rheumatology for further management given her autoimmune history and recurrences of lymphadenopathy.

**Discussion**

The evaluation of lymphadenopathy should begin with a thorough history and physical examination. The history identifies the patient age, duration of the lymphadenopathy, associated symptoms, and patient exposures such as recent infections or insect bites. The physical exam starts by determining the anatomic location of the nodes and whether the lymphadenopathy is regional or generalized. Node location such as the epitrochlear nodes of the elbow are always pathologic, whereas supraclavicular nodal location has up to an 80% chance of malignancy. The next step of the physical exam serves to distinguish between node size, node consistency, and the presence of skin ulceration or fixation. Normal nodes are usually less than 1 cm. In fact, lymph node size less than 1 cm squared essentially rules out a cancer diagnosis. Only three factors have been proven to correlate well with the need for biopsy: lymph node size greater than 2 cm, node location, or serum levels of thymidine kinase.

If clinical suspicion of malignancy is high after history and physical exam, the best option is to proceed directly to an open lymph node biopsy. Unfortunately, fine needle aspiration is often misused as a screening test and has low value in the initial diagnosis of malignancy. However, if the goal is to avoid unnecessary biopsy, the patient can be observed for three to four weeks for resolution.
safe to do as the prevalence of lymphadenopathy due to malignancy has been estimated to be as low as 1.1 percent in the primary care setting. Using other factors or scoring systems to determine the need for excisional biopsy have not been validated. Evaluations using imaging or laboratory tests have not been in agreement and are largely unproven.

Kikuchi-Fujimoto disease, also known as histiocytic necrotizing lymphadenitis, is a benign self-limiting disease of unknown etiology but has been associated with other autoimmune disorders. Kikuchi disease presents with painful cervical lymphadenopathy, fevers, weight loss, night sweats, and lymphocytopenia. Kikuchi disease is most prevalent in young Asian women between the age of 20-35 years. The disease is diagnosed histologically and is characterized by paracortical areas of necrosis with a predominance of CD8+ T cells and histiocytes around the areas of necrosis. Most notably, eosinophils and neutrophils are rare or completely absent. Kikuchi-Fujimoto disease has a very favorable outcome and is usually treated simply with antipyretics. The lymphadenopathy caused by this disease usually resolves in one to four months, but there can be recurrences. However, the disease is often mistaken for malignant lymphoma. As such, accurate diagnosis is required to avoid unnecessary testing.

Kikuchi disease differs from lymphoma in that it generally affects women of Asian descent between the ages of 20-35 years whereas lymphomas tend to have a bimodal age distribution (first peak around 20 years of age and a second peak around 55 years of age). Kikuchi disease and lymphoma are both diagnosed histologically, which means the best way to reach the diagnosis of either disease is from an excisional node biopsy. Immunohistochemical analysis on the node can also be used to distinguish between Kikuchi disease or malignant lymphoma. For either disease, treating unclear lymphadenopathy with corticosteroids may hinder or delay diagnosis. Pursuing the diagnosis with other imaging studies may also complicate the diagnosis. For example, if fluorodeoxyglucose positron emission tomodraphy/computed tomography (FDG PET/CT) is performed, the maximum standardized uptake value in patients with Kikuchi disease is actually higher than patients with non-Hodgkin lymphoma. This has been a big factor of misdiagnosis.

When the diagnosis of Kikuchi disease is made, it is usually treated simply with analgesics and antipyretics. With this treatment, 87-95 percent of patients will have resolution of the lymphadenopathy within one to four months. However, there can be recurrences in up to 20 percent of these patients. In the case of recurrence, short-duration corticosteroids may be used. In complicated Kikuchi-Fujimoto disease with many recurrences, hydroxychloroquine has been used with success. Lastly, regardless of recurrences, Kikuchi-Fujimoto disease has an association with systemic lupus erythematosus in 13-28 percent of the cases, and follow-up with rheumatology may be warranted.

**Conclusion**

The evaluation of lymphadenopathy without an obvious cause can be quite challenging. When patients present with relapsing remitting lymphadenopathy, Kikuchi disease may warrant consideration. If clinical suspicion for malignancy is high after history and physical exam, an excisional biopsy should be performed. However, if clinical suspicion is low, the patient can be safely observed for one month.

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**About the Authors:**

Josh Rezkalla, MD, University of South Dakota Sanford School of Medicine.
Douglas W. Lynch, MD, Pathologist, Sanford Health Pathology Clinic; Assistant Professor, Pathology, University of South Dakota Sanford School of Medicine.

July 2017 313
Treatment of Peritonsillar Abscess in Immunosuppressed Patients

By Jed H. Assam, MS, MD; and William C. Spanos, MD

Abstract
Peritonsillar abscess (PTA) is a common pathology in otolaryngology emergency. The treatment of PTA is usually bedside drainage or surgical removal of the tonsils (Quincy tonsillectomy) in combination with antibiotic treatment. However, patients with immune suppression might have a more difficult treatment course. Such difficulties may be further magnified within older patients. This case report will describe successful multi-modality treatment of two separate incidents of PTA developing in the context of immunosuppression. Two separate incidents of PTA occurring in immunosuppressed, thrombocytopenic, cancer patients after recent chemotherapy are presented. Early utilization of incision and drainage, antibiotics, and granulocyte colony stimulating factor (G-CSF, filgrastim) for PTA presenting in the setting of chemotherapy related neutropenia appears to be a viable option in patients with immunosuppression. Review of the current literature also demonstrates that reporting of PTA in older patients is important for future research efforts.

Background
Peritonsillar abscess (PTA) is a common deep cervical tissue pathology constituting an otolaryngology emergency. If not treated promptly it can progress to have fatal consequences. Complications of PTA have included carotid artery erosion, airway obstruction, spread to the mediastinum, and septicemia.

While a common otolaryngology emergency, the annual incidence of PTA is relatively rare in the U.S. (approximately 30 out of 100,000 cases per year). Incidence is highest in children and young adults with the majority of cases occurring between the ages of 10-40 years old. Several studies have reported estimated rates of older (greater than 40 years old) patients within the overall pool of PTA cases to be less than 25 percent. Such discrepancy has consequently made information on disease presentation and treatment strategy in older patients with PTA quite limited.

Classic signs and symptoms of PTA include presentation of a muffled, “hot potato” voice with severe pain, fever, soft palate swelling, and tonsillar asymmetry. An important “red flag” sign of PTA includes the identification of trismus. Under any circumstance, when evidence of either a lack of swallowing or diminished airway patency are present an immediate consult with an otolaryngologist is warranted. It is noteworthy to mention, however, that in elderly patients or cases with immunosuppression these classic signs may be less obvious making clinical suspicion of critical importance for early detection of PTA.

The treatment of PTA involves decompression of the abscess through needle or bedside incision and drainage versus tonsillectomy. Systemic antibiotics are used in combination with drainage, but not instead of surgical decompression. Practice preferences for surgical management and postoperative care have been noted in multiple studies to be variable at geographical and institutional levels.

Antibiotic selection tends to be driven by consideration for penicillin allergy and providing broad spectrum coverage since mixed infections involving aerobes and anaerobes are most commonly encountered. The most common anaerobic organisms isolated include Prevotella, Porphyromonas, Fusobacterium, and Peptostreptococcus species. Aerobic species typically identified include Streptococcus pyogenes, Staphylococcus aureus, and Haemophilus influenzae. Initial antibiotic preferences tend to be driven by institution specific protocol. This usually includes a penicillin agent covered for beta-lactamase
which may be combined with metronidazole to improve coverage. In cases of penicillin allergy, lincosamide (clarithromycin) and macrolide (clindamycin) derivatives have been preferred.\textsuperscript{2,5} As an example, the use of amoxicillin-sulbactam (intravenous) transitioning to amoxicillin-clavulanate (oral) in patients without penicillin allergy is a common and appropriate regimen.

The standard treatment options assume a functional immune system as cases of PTA in the context of immunosuppression have not been well described. Patients receiving chemotherapy may present with neutropenia and thrombocytopenia that may create increased risk associated with surgical intervention as well as possible treatment failure due to lack of a robust immune response to the infection. Such risk may be further magnified in older patients. In this case study, we present the treatment strategy employed for two separate incidents of unilateral PTA developing after chemotherapy in immunosuppressed, thrombocytopenic, cancer patients.

**Case Reports**

**Case 1**

A 58-year-old female on chemotherapy (nab-paclitaxel, bevacizumab, and gemcitabine regimen) for stage IIIa triple negative breast carcinoma presented to the emergency department with complaints of throat pain for three days. Associated symptoms included left-sided retromandibular neck pain, left otalgia, and dysphagia. There was no accompanying fever. Pertinent patient medications included acetaminophen with propoxyphene as well as ibuprofen for the throat pain. A course of azithromycin initiated at the onset of her condition failed to prevent progression of her symptoms. Medical history was significant for administered chemotherapy 10 days prior to her presentation. The patient had no prior history of tobacco use or recurrent group A streptococcal pharyngitis.

Physical examination revealed a mild peritonsillar swelling and bulging of the soft palate. Left-sided neck tenderness with level II and III non-fluctuant lymphadenopathy without crepitus was identified. There was no trismus and no pharyngeal exudates with good dentition observed. Vitals signs demonstrated tachycardia (105 bpm). Labs presented a white blood cell (WBC) count of 2.1 $\times$ 10$^3$/μL (Abs. Neutrophils were 693), hemoglobin of 13.5 g/dL, hematocrit of 38.5 percent, and platelets of 178 $\times$ 10$^3$/μL. A rapid strep screen performed was negative.

The patient underwent a bedside incision and drainage (I&D) procedure with incision entry made along the anterior tonsillar pillar and blunt dissection to the abscess pocket using a hemostat. A total of 5 cc’s of purulent material was evacuated during the procedure. Microbial culture performed on the purulent material was negative for \textit{β}-strept isolates. The patient tolerated the I&D procedure well with minimal bleeding. Postoperative I.V. piperacillin-tazobactam was used until discharge, two days later, after stabilization of WBC counts with filgrastim and improvement to a solid food diet. At discharge, a 10-day regimen of amoxicillin-clavulanate 875-124 mg tablets was prescribed with oxycodone-acetaminophen 5-325 mg tablets for pain as needed. The patient continued chemotherapy one day thereafter with no recurrence of PTA documented through to death from succumbing to her metastatic comorbidity 18 months later.

**Case 2**

A 56-year-old female on chemotherapy (bendamustine) for chronic lymphocytic leukemia (CLL) presented to the emergency department with four days of sore throat. Associated symptoms included neck swelling, dysphagia, voice changes, difficulty opening her mouth (trismus), and fever. Pertinent medication history included a course of azithromycin as well as ibuprofen and acetaminophen with codeine. The patient’s past medical history was significant for administered chemotherapy 17 days prior to presentation. Additional significant history included a 30-pack-year smoking history and surgical history of tonsillectomy.

Physical exam revealed a swollen, tender, and non-fluctuant left-side cervical lymph node chain without crepitis. Oral examination demonstrated moderately-poor dentition with asymmetric swelling of the left pharyngeal area. Trismus was observed with a 2.5 cm interincisor oral opening. Oropharyngeal mucosa was non-erythematous and without exudates or plaques. Patient vitals were significant for a temperature of 103 degrees Fahrenheit and tachycardia (104 beats per minute). Patient labs showed pancytopenia with a white blood cell count of 1.3 $\times$ 10$^3$/μL (absolute neutrophils were 300), hemoglobin of 8.2 g/dL, hematocrit of 26 percent, and platelets of 25 $\times$ 10$^3$/μL. A computed tomography (CT) scan revealed a 1.3 cm rim-enhancing fluid-filled pocket located in the left pharyngeal area.

Flexible fiberoptic endoscopy was performed to ensure airway patency followed by an I&D procedure with incision entry along the left anterior tonsillar pillar and blunt dissection to the abscess pocket using a hemostat. A total of 5 cc’s of purulent material was evacuated during the procedure. Microbial culture performed on the purulent material was negative for \textit{β}-strept isolates. The patient tolerated the I&D procedure well with minimal bleeding and was placed on intravenous (IV) clindamycin. No additional
blood product transfusions were used prior to the procedure or during recovery. Despite a low platelet count, the limited bleeding encountered through the small incision performed was characteristic of this type of I&D procedure making the need for platelet and blood products less essential when weighed against the risk of transfusion. The patient was discharged 13 days later after hematologic stabilization with filgrastim, darbepoetin alfa, and iron dextran. Chemotherapy was continued one month later. There was no recurrence of PTA documented for this patient through to death from succumbing to their neoplastic comorbidity 22 months later.

Discussion

While PTA is a common emergency pathology within otolaryngology, the low incidence in the general population and high diversity in its presentation has made elucidation of the pathophysiology for this disease a complex problem.1,4,5 There is controversy in literature for uniformly agreed upon guidelines for disease treatment.2,12,13 Such controversy exists for both the medical and surgical management of this disease.7,11 Appropriate treatment strategies for PTA have been debated for almost two decades without consensus.12

With neutropenia and thrombocytopenia, the patients of this study present several unique challenges to surgical therapy and postoperative management of PTA intractable to initial antibiotic therapy. Patient immunodeficiency presents questions about how traditional antibiotic approaches with abscess drainage may need to be augmented to ensure successful recovery. The use of granulocyte colony stimulating factor (G-CSF) therapy, as was used in this study, to boost immune response has been well documented as an effective modality in instances of immunosuppression by chemotherapy.14 An apparent concern with coexistence of thrombocytopenia is the intraoperative bleeding risk.

One other study discussing PTA formation in a 20-year-old thrombocytopenic patient with chronic myelogenous leukemia raised similar concerns.15 The authors of this case described delaying initial abscess drainage due to concerns of bleeding risk. Yet, the initial thrombocyte resuscitative measures undertaken were noted to fail due to coexisting alloimmunization complications and thereby delayed definitive treatment with I&D for another several days allowing the infection to spread further into the deep neck space. As a result of infection spread, incision drainage was performed with coexisting thrombocytopenia (51 K/µL) and described to have experienced no postoperative bleeding complications.

A question that is raised by this study’s comparison with our own is whether undertaking I&D early in PTA treatment despite the bleeding risks outweighs the potential sequela of infection spread risked by attempting to resuscitate platelet count prior to surgical intervention. Although contrasting results obtained between our cases and those results documented by Gonen et al.15 may suggest a benefit in early intervention, the applicability of these findings within a broader patient population will need to be assessed in larger studies. Additionally, given the present conflict in the literature regarding the use of I&D versus needle aspiration drainage of an abscess, an investigation into the efficacy of each technique in the setting of high bleeding risk patients could be beneficial to future treatment decisions.

This study’s demonstration of PTA in individuals of older age further highlights another concern within research efforts on this disease process. As the majority of PTA cases occur within younger populations of individuals, identifying risk factors and symptom characterization for PTA in older populations remains an area of research interest.1,6-8 Some recent studies have undertaken the task of attempting to elucidate demographic trends within older (greater than 40 years old) populations affected by PTA, but have found the presence of information from which to draw data from to be limited.18,19 Despite these limitations it is recognized that PTA in older populations represents substantially greater morbidity and mortality risk. Factors contributing to the magnification of PTA in this age group have included increased prevalence of concurrent comorbidities, longer hospitalizations, and higher complication rates.9 As such, continued reporting of PTA events within this patient age group will be important to further improving future treatment efforts.

Currently, there is no data available from larger studies examining the treatment of PTA in patients with neutropenia and thrombocytopenia. These cases, therefore, provide examples of how standard therapy can be successful with early intervention for PTA in an immunocompromised setting.
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Atrial Fibrillation Induced by Carbon Monoxide Poisoning and Successful Treatment with Hyperbaric Oxygen

By Maheedhar Gedela, MD; Nathan Y. Weltman, MD, PhD; Naga Sushma Chavvakula, MBBS; Paul L. Carpenter, MD, FACC; and Tamera Sturm, DO

Abstract
Carbon monoxide (CO) intoxication is one of the major public health hazards which may go unnoticed as this is a colorless, odorless and tasteless gas. The manifestations of the CO poisoning are far-reaching. Although CO affects almost every organ in the body, cerebral and myocardial involvement are predominant due to the hypoxia-induced cellular damage. The mainstay treatment is providing high-flow oxygen and in some instances hyperbaric oxygen therapy. In the literature, there have been few cases of CO poisoning-induced atrial fibrillation (AF) reported. We hereby report an AF caused by CO toxicity in a young male patient and successful conversion to sinus rhythm with the hyperbaric therapy.

Introduction
Carbon monoxide (CO) poisoning is a toxicological emergency, which is largely preventable by careful operation of household appliances and combustion engines. Although the majority of the cases of CO poisoning present with flu-like symptoms, neuro-psychiatric sequelae such as dementia, depression, personality changes, movement disorders and neuropathy have all been reported. Myocardial injury is another serious consequence of CO poisoning as the myocardium is susceptible to hypoxic damage. In this paper, we present a 22-year-old male who presented with acute onset atrial fibrillation (AF) following CO exposure and successful conversion to sinus rhythm with hyperbaric oxygen treatment.

Case Report:
A 22-year-old African-American male with no known medical history was brought into our facility by emergency medical services after he was found unresponsive in his car. The patient had backed his running vehicle against a snow embankment, inadvertently covering the cars exhaust pipe. The patient was sitting in the car with his friend and smoking marijuana when he noticed nausea and headache just prior to loss of consciousness. Upon admission to the emergency department, the patient's vital signs were as follows: temperature of 94.7 degrees Fahrenheit rectally, irregular pulse rate of 134 beats per minute, respiratory rate of 29 breaths per minute, blood pressure of 132/71 mmHg and oxygen saturation of 98 percent while on 2 liters' oxygen through the nasal cannula. The patient was drowsy and cranial nerves II through XII were intact without focal deficits on neurological exam. His cardiovascular examination revealed an irregular rhythm. Otherwise remaining physical exam was essentially unremarkable. His initial complete blood count, comprehensive metabolic panel, troponin and thyroid stimulating hormone values are shown in Table 1. The patient’s arterial blood gas revealed pH of 7.36, pCO2 of 40 mmHg, pO2 of 94 mmHg, and bicarbonate of 22 mmol/L. His blood CO level was 42.3 percent (reference range 0.0-3.0 percent) and lactic acid level was 3.5 mmol/L (reference range 0.5-2.2). His urine toxicology screen was positive for cannabinoids. The patient’s blood alcohol level was less than 10 (reference range < 10 mg/dL). His initial electrocardiogram (ECG) revealed an AF with heart rate 130 (Figure 1). A transthoracic echocardiogram was performed,
which showed ejection fraction 55-60 percent and no wall motion abnormalities.

Given the acute CO poisoning, the patient received 100 percent oxygen at 2.5 atmospheres absolute (ATA) for 90 minutes followed by another hyperbaric oxygen therapy at 2.0 ATA for 90 minutes for a total of two treatments. Subsequently, his CO level was brought down to 2.1 percent and lactic acid normalized to 1.0. The patient eventually converted back to normal sinus rhythm as shown below in the telemetry (Figure 2).

**Discussion**

Each year 40,000 patients are admitted to the hospital due to CO poisoning with associated mortality ranging from 0-31 percent. Due to its lack of odor, color, tastelessness and irritancy, CO inoculation is often initially unrecognized. CO exerts its toxic effects on almost every organ in the body through tissue hypoxia and direct CO-mediated cell damage. The central nervous system and myocardium are particularly affected by CO poisoning as these are most sensitive organs to oxygen deprivation. The clinical manifestations of the CO poisoning are wide-ranging and presents with headache, dizziness, lassitude, muscular weakness, nausea, vomiting, cherry-red colored lips and skin, diminished vision, seizure, unconsciousness and ultimately death.

The affinity of CO for hemoglobin is 200-250 times that of oxygen and this forms a carboxyhemoglobin (CO-Hb) complex which leads to a leftward shift of the oxygen-hemoglobin dissociation curve. These biochemical alterations ultimately produce cellular and tissue hypoxia due to impaired oxygen release. When CO attaches to the myoglobin within cardiac myocytes, it diminishes the transport of oxygen to mitochondria and leads to myocardial dysfunction by impairing myocyte cellular respiratory function. Moreover, direct toxic damage to the coronary arteries and CO-Hb induced hypoxia contribute to the myocardial damage. The various cardiovascular manifestations of CO poisoning include tachycardia, bradycardia, atrioventricular conduction disturbances, cardiomegaly, T-wave and ST-segment changes on ECG, angina pectoris, acute myocardial infarction, AF, premature ventricular contraction, ventricular fibrillation and cardiogenic shock. The most prevalent features of the ECG are flattening or biphasic changes in T-wave morphology followed by a variable extent of T-wave inversion. The persistence of ECG abnormalities in each patient typically varies from minutes up to several hours. However, Shafer et al. reported progressive and persistence of ECG abnormalities and symptomatic sequelae for approximately two years in a 35-year-old male patient who has myocardial disease from acute CO poisoning. The actual incidence of AF-related CO intoxication is unknown. In a study examining 2,579 Korean patients with acute CO poisoning, AF was noted in a total of eight (0.3 percent). Although several cases of AF secondary to CO poisoning have been reported in the literature, there is only one published case report of an 82-year-old female who was successfully treated with hyperbaric oxygen therapy. Akademir et al. reported a case of 42-year-old female who had AF due to CO poisoning, in which the rhythm restored to sinus rhythm with normobaric oxygen therapy.

The management of CO poisoning should focus on the correction of tissue hypoxia. High-flow oxygen is essential in the management of CO poisoning as it decreases the half-life (t1/2) of CO-Hb to four to six hours and the hyperbaric oxygen therapy further reduces the t1/2 to 15-30 minutes.

### Table 1. Laboratory Data

<table>
<thead>
<tr>
<th>Laboratory Parameter</th>
<th>Result</th>
<th>Reference Range</th>
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</thead>
<tbody>
<tr>
<td>White blood count</td>
<td>9.4</td>
<td>4.5-11.0 K/µL</td>
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<tr>
<td>Red blood count</td>
<td>5.48</td>
<td>4.70-6.10 M/µL</td>
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<tr>
<td>Hemoglobin</td>
<td>17.1</td>
<td>14.0-18.0 g/dL</td>
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<tr>
<td>Hematocrit</td>
<td>48.5</td>
<td>40.0-54.0 %</td>
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<tr>
<td>Platelet count</td>
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<td>140-440 K/µL</td>
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<tr>
<td>Sodium</td>
<td>143</td>
<td>133-145 mmol/L</td>
</tr>
<tr>
<td>Potassium</td>
<td>4.2</td>
<td>3.5-5.1 mmol/L</td>
</tr>
<tr>
<td>Chloride</td>
<td>102</td>
<td>98-107 mmol/L</td>
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<td>Anion gap</td>
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<td>7-17 mmol/L</td>
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<tr>
<td>Blood urea nitrogen</td>
<td>12</td>
<td>6-20 mg/dL</td>
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<tr>
<td>Creatine</td>
<td>0.7</td>
<td>0.7-1.2 mg/dL</td>
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<tr>
<td>Glucose</td>
<td>112</td>
<td>70-105 mg/dL</td>
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<tr>
<td>Calcium</td>
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<td>8.4-10.4 mg/dL</td>
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<tr>
<td>Phosphorous</td>
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<td>2.7-4.5 mg/dL</td>
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<tr>
<td>Magnesium</td>
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<td>1.6-2.6 mg/dL</td>
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<tr>
<td>Aspartate aminotransferase</td>
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<td>Alanine aminotransferase</td>
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<td>0-41 U/L</td>
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<td>Alkaline phosphatase</td>
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<td>Total bilirubin</td>
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<td>Troponin T</td>
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<td>0.00-0.10 ng/mL</td>
</tr>
<tr>
<td>Thyroid stimulating hormone</td>
<td>0.428</td>
<td>0.270-4.200 µIU/mL</td>
</tr>
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</table>
To our knowledge, in the English literature, this report represents only the second known case of successful conversion of AF to sinus rhythm using hyperbaric oxygen therapy in acute CO poisoning. In patients with suspected acute CO poisoning, a thorough exposure history, blood CO-Hb levels and ECG should be obtained to identify the patients who require hyperbaric oxygen therapy to prevent myocardial damage.

Figure 1. ECG shows atrial fibrillation with rapid ventricular response.

Figure 2. Telemetry shows sinus rhythm (red arrows demonstrating P waves).
Hepatitis C virus was discovered in 1989, and it is believed that 2.7-3.9 million persons in the U.S. are chronically infected. Chronic hepatitis C may lead to liver cirrhosis, hepatocellular carcinoma, and liver transplantation. In 2014, it was estimated that 19,659 deaths occurred in patients with hepatitis C as the contributing or underlying cause of death. Treatment of hepatitis C with interferon, ribavirin, and first generation protease inhibitors has been fraught with significant adverse effects, long treatment durations, and mediocre efficacy. However, the fight against the hepatitis C virus changed significantly in 2014 with the advent of highly effective, oral direct acting antiviral (DAA) therapy. Now DAA therapy reliably cures over 90 percent of patients and is very well tolerated. DAA therapy makes identifying and treating all patients wishing treatment the next step in the battle against hepatitis C.

Given the rapid changes occurring in the treatment of hepatitis C, it is overwhelming to stay current with all the latest therapy options. For providers wondering where to start, the first step is screening patients for a positive hepatitis C antibody. Patients to screen include those with high risk behaviors, and the group of patients born between 1945-1965. If a positive antibody is found, the next test is a hepatitis C viral RNA test which can confirm active disease. If active disease is found, other tests needed when considering DAA therapy include hepatitis C genotype, liver enzyme and bilirubin levels, albumin, prothrombin time/INR, complete blood count, human immunodeficiency virus, hepatitis B virus (hepatitis surface antigen and hepatitis B core antibody), and serum creatinine. Evaluation on whether the patient needs the hepatitis A and B vaccines should also be considered.

Once patients with active disease are identified, then referral to a specialist for treatment may be needed. When discussing hepatitis C therapy, patient education regarding new oral DAA therapy is important. Many patients still associate cures for hepatitis C with old information related to interferon adverse effects and long treatment durations making them reluctant to treatment. Information used to determine which therapy to use for a patient includes hepatitis C genotype, liver fibrosis stage, renal function, drug interactions, history of prior DAA treatment, patient compliance/adherence, and cost. Excellent resources are available to guide treatment such as the AASLD/IDSA hepatitis C treatment guidelines and identify drug interactions with DAA therapy. A team consisting of a provider, nurses, and pharmacists is very helpful in all aspects of hepatitis C treatment. Once therapy is prescribed, monitoring hepatitis therapy with hepatitis C viral RNA, liver function tests, and a CBC (if using ribavirin), is needed.

Hepatitis C virus is an RNA virus that needs certain viral proteins such as NS3, NS4A, NS5A, NS5B, and others for replication. The three classes of DAAs used to treat hepatitis C target the viral proteins involved with the replication of the hepatitis C virus. DAAs include protease (NS3/4A) inhibitors (grazoprevir, paritaprevir, simeprevir), NS5A inhibitors (daclatasvir, elbasvir, ledipasvir, ombitasvir, velpatasvir), and NS5B inhibitor (sofosbuvir). Current therapy involves treatment regimens of eight to 16 weeks with medications containing two to three DAAs from the classes of NS5A, NS5B, and protease inhibitors. DAAs are well tolerated with the most common adverse effects being fatigue, headache, nausea, insomnia, and diarrhea. Currently ribavirin, a remnant of past hepatitis therapy, is still needed to improve treatment outcomes in patients with advanced liver disease, certain genotypes, and previous treatment failures. Ribavirin adverse effects include fatigue, decreased hemoglobin, rash, and itching.

Treatment success or “cure” with DAA agents is defined by a sustained virologic response which is the absence of hepatitis C viral RNA in the blood 12 weeks after completion of therapy. Benefits to hepatitis C treatment include improvement in liver inflammation (decreases in
aminotransferases), a reduction in progression of liver fibrosis, a 70 percent decreased risk of liver cancer, and a 90 percent reduction in the risk of liver-related mortality and liver transplantation.\textsuperscript{5}

While most aspects of hepatitis C therapy are positive, a significant concern of DAA therapy is resistant associated substitutions (RAS) which have occurred following treatment failures in the NS5A region of the hepatitis C virus. The presence of RAS effects the efficacy of DAA when retreating patients and it is hoped new pangenotypic agents with high barrier to resistance, expected in 2017 and 2018, will allow successful treatment of these patients.\textsuperscript{6}

A reliable, very well tolerated cure for hepatitis C now exists. Having been involved in hepatitis C treatment since 1998, I have witnessed this amazing advance in therapy and truly treasure the ability to easily provide a cure. A cure may also provide benefits such as decreased hepatocellular carcinoma risk, decreased liver fibrosis, and a decreased need for liver transplantation. New pangenotypic agents expected in 2017 and 2018 will further change/simply treatment recommendations and offer even more treatment options, especially for the retreatment of DAA failures. The advent of DAA therapy has changed the focus of hepatitis C providers from thinking it was impossible to treat all the hepatitis C patients, to now thinking of how to secure resources to cure all patients wishing to be treated.

**REFERENCES**


**About the Author:**
Michael Lemon, PharmD, College of Pharmacy & Allied Health Professions, South Dakota State University.

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In his poem *Birches*, Robert Frost weaves a tale about the bending and arching of supple birch trees and admits how much he’d like to attribute the trees’ posture to the innocent efforts of a young farm boy, swinging from tree to tree to subdue them. The reality of the ice storm collides with Frost’s imagination: “...what I was going to say when Truth broke in with all her matter-of-fact about the ice storm...”1 For Frost and for all of us, the facts and details of human experience don’t always conform to what is imagined and desired. Certainly this is true for illness care, especially when values/ethics issues bubble to the surface. As with all aspects of medicine, clinical ethics is a story about details, the matters of fact. One can argue that an ethical dimension, with value and judgment questions, exists for virtually every patient encounter. The constancy of such issues is coupled with the reality that often the context of concerns is ordinary and implicit. Questions may not ever rise to the level of thorny ethical quandary. Rather, they may reside in the matter-of-fact reality of coping with seemingly routine illness care. The truth of Frost’s birches is that the bending was caused by ice. The truth of clinical care is that human lives are often tangled in webs of conflicts, emotional turmoil, and hope. Medicine is filled with the stories we would prefer to tell before truth breaks in with a different script. Finding the best way forward often depends on whether the clinician is sufficiently attuned to the particulars of a given patient’s situation.

This perspective on relevant matters-of-fact is some distance from the orientation that bolstered the field of medical ethics in its early years. Albert Jonsen chronicles the people and events that led to the emergence of the modern discipline in his text *The Birth of Bioethics*. Jonsen extols the “serious, disciplined and deep philosophical reflections” among a trinity of theologians and a quintet of philosophers who provided the architecture for the enterprise.3 He notes that the “lofty nature of the problems” that faced modern medicine required reflective and systematic study, applied normative ethics, and the teleological and deontological approaches that could inform decision-making.4 In the early years, this philosophical genesis created a somewhat specialized and insular discipline, a field quite rigorously guarded by academic philosophers.5 They championed their orientation and their work in textbooks that became the bibles for bioethics programs throughout the country. So it is not surprising that, as the field entered the realm of clinical care, core elements of the formal, scholarly orientation – the bioethics portfolio – became institutionalized and viewed as the “proper way to do ethics.” To a considerable extent, most of the emphasis focused on the macro dimensions of care – the big controversies and landmark cases that generated great debate and media attention. The early days of bioethics were also the days when there were growing concerns about the use of human subjects for biomedical research and the allocation of resources for experimental procedures like organ transplantation.6 This reliance on Anglo-American analytic philosophy typically removed or isolated value assumptions (context, relationships, emotions, uncertainty) from the institutional, technical, and conceptual realities that influence the provision of medical care.7 Indeed some of the early leaders in the field ardently disputed the value of undertaking empirical studies that explored the actual work of ethicists because bioethics was defined as a *conceptual* and not an *empirical* enterprise. But with the passage of time, the field has blossomed and now widely recognizes, and increasingly seeks to accommodate, an expanded field of variables. The central importance of context is now endorsed. Social, political, economic, religious, and cultural influences are acknowledged. Clearly such factors inform our moral sensibilities and our perceptions of appropriate behavior when providing for patients and making health care decisions. Context provides a way to explore and appreciate the constant small ethical decisions that accompany all patient encounters, and help us appreciate how important it is to understand who does what to whom and how and under what circumstances and to what extent –
even at those times when the concerns at play seem very ordinary. Clinical ethics is more than giving patients proper information, respecting choices, and following advance directives. It is making space for the fear, guilt, isolation, fatigue, and despair that populate the world of serious illness. By more systematically adding the dimension of context, an understanding of ethical dilemmas in healthcare has matured.

This maturation of bioethics has major implications for medical students and clinicians alike. In truth, rigid philosophical approaches to immediacies of illness care have always seemed a bit awkward. Students have typically gravitated to the “real medicine” of organic illness, with the presumption that ethical concerns were of secondary importance or perhaps something to be added at a nebulous future time. Such thinking has been hard to combat, especially given the enormous amount of data about illness and therapies that a student is expected to absorb. But a more global approach to illness care necessarily alters how students and clinicians perceive values/ethics issues. When context is emphasized, it is hard to ignore the emotional turbulence and unease that envelopes many patients. And it becomes easier for the student to understand the complexity of the clinician/patient interaction as they seek a satisfactory outcome. In other words, values/ethics issues move from the metaphorical sidelines to a central role in effective clinical care.

In 2005, members of the Section of Ethics and Humanities at the University of South Dakota Sanford School of Medicine proposed a simple rubric for ethical decision-making – C/CPR (covenant, context, principles, response). Rather than focusing primarily on basic ethical principles (a venerable approach famously championed by the Kennedy Institute at Georgetown), the C/CPR model utilizes ethical principles but starts with the premise that all therapeutic interactions should be undergirded by covenant, the clinician’s unwavering commitment to the patient’s welfare. And the model’s emphasis on context has proven to be prescient and attuned to the contemporary focus of bioethics. Our medical students have reported that the C/CPR mnemonic to be memorable and practical. The model can be particularly useful as it helps students and clinicians integrate ethics into the routine patient encounters of daily practice. And that is precisely where every day clinical ethics belongs – clearly situated in the relational space between the provider and the patient.

The practice of medicine will never be easy. It is complex, multi-faceted and evolving rapidly. The science of medicine is complicated by the lack of absolute answers regarding an individual’s response to illness and by the emotional and ethical issues inextricably interwoven into the lives of patients and caregivers. Contemporary bioethics is well situated. It continues to be nurtured by the philosophical reflections of past generations. Most clinicians understand that consideration of ethical principles can help sustain medical judgments and actions. But bioethics has now assumed a new gravitas and relevance by moving beyond theoretical constructs to become immersed in the realities of illness care. The nuances of individual needs are better appreciated. The matters of fact, a myriad of individual specifics, are more readily recognized. Attitudinal attributes – kindness, virtue, compassion and conscience – assume more importance. Overall, the credibility and accountability of clinical ethics seem heightened.

The importance of joy and meaning in clinical work has been emphasized. To be challenged and satisfied in one’s career is a crucial element to performing well. The greatest rewards in medicine reside in the depths of the human spirit. Uncertainty and ambiguity are unavoidable and often daunting. But clinical ethics can serve as an antidote that is accessible, practical and useful in illness care. Indeed, the daily recognition of values/ethics in the clinical realm can reveal medicine at its most challenging and best. We can better see where we are going and why.

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3. Jonsen A. Ibid; 64.

### About the Author:

Ann Freeman Cook, PhD, Adjunct Professor, Department of Neurosciences, University of South Dakota Sanford School of Medicine; Sanford Clinic Neurology, Sioux Falls, South Dakota.
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The proper prescribing of antipsychotic drugs (AD) especially in long-term care residents remains a challenge for providers. These medications are frequently used to manage resident behavior, but they may also cause harmful side effects such as falls, strokes or even death. From Black Box warnings to national campaigns to curb their overuse, there are multiple efforts to encourage safe prescribing of antipsychotics. Adequate documentation and appropriate use are key to the efforts to reduce the unnecessary use of these powerful agents. Information provided by the Centers for Medicare & Medicaid Services for the Nursing Home Quality Initiative show South Dakota AD rates in 2016 rose from 15.6 percent in Quarter 3 to 16.5 percent in Quarter 4 (see graph).

As with all medication for the elderly, there should be documentation for any AD dose that exceeds manufacture recommendation, clinical guidelines, evidence-based medicine or standard of care. Providers should document clinical rationale for a medication that may cause an adverse consequence. Clearly the benefits need to exceed the risk. There are a number of clinical conditions that are not an indication for AD use including wandering, restlessness or anxiety. Likewise, insomnia, decreased memory and poor self-care are not clinical indications either. The patient may be uncooperative or exhibit refusal behavior, however, this does not present an immediate need for AD use unless there is a danger to the resident or others. The Centers for Medicare & Medicaid Services’ Nursing Home Compare Antipsychotic Long Stay Quality Measure allows three diagnostic exclusions for the use of these medications including Huntington’s disease, Tourette’s syndrome and schizophrenia. If ADs are being used, there should be adequate documentation for need. Efforts should be made, and well documented, showing attempts at gradual dose reductions and the use of behavioral interventions.

The effective use of these agents could be enhanced by the creation of a culture of understanding between all elements involved in their use from providers to nursing home staff to families. Behavioral issues will eventually affect all these individuals. The culture must emphasize the concept that “behavior is a means of communication.” All need to understand that physical, psychological and environmental factors should be assessed and addressed. The resident’s basic needs including hydration, pain control, toilet needs and positioning must be met. Non-pharmacologic intervention therapies should be attempted. Describing the behavior should be comprehensive. The term “agitation” may not adequately describe all that is occurring. Especially important is the potential consequence that the behavior may be a danger to the resident or others, or there is evidence of functional decline.

Family engagement has evolved as a major element of the care of the elderly. AD use represents a decision involving timely medication administration and drug safety. It ranks as one of those areas much like end of life care where the family benefits from clear and concise discussion. There is no single component of culture change and/or programming that will act alone to support a reduction in AD usage. Through accurate person-centered care, resident engagement and the efforts of a multidisciplinary team, AD reduction may be achieved.

For further resources and recommendations, please contact Lori Hintz, RN, at 605.354.3187 or lori.hintz@area-a.hcqis.org.
What is a confidential monitoring program?
When an applicant or a licensee has been determined by an evaluation to be impaired in a manner where the individual demonstrates the inability to practice in their health-related profession with reasonable skill and safety due to mental health issues, physical issues, or substance use related disorders (alcohol or drug abuse, dependency, or addiction), the applicant or licensee is enrolled in a confidential monitoring program. The confidential monitoring program is an agreement between the participant (applicant or licensee) and the BMOE staff review panel to defer any recommendation for discipline on a license as long as the participant can be monitored to ensure their ability to safely practice. See the flowchart graphic for the process.

What is the purpose of the BMOE staff review panel?
The review panel administers the program for the individual. The participant’s case stays at the staff level and does not go to the full BMOE unless the participant is unable to comply with the MBMP. The review panel consists of the BMOE executive director and one BMOE board member who will, in effect, “be considered one of the staff” in order to make the recommendation as to whether the individual is eligible for the MBMP.

What are the eligibility requirements for the MBMP?
The MBMP monitors impaired healthcare providers. The potential participant will have undergone an evaluation that demonstrates their inability to practice in one's health-related profession with reasonable skill and safety due to mental health issues, physical issues, or substance use related disorders (alcohol or drug abuse, dependency, or addiction).

Do I need to enroll in the MBMP if I already participate in a monitoring program administered by my employment or other entity?
You can continue in your current monitoring program without enrolling in the MBMP. However, you must report your participation in any and all monitoring/wellness programs, other than the MBMP, on or before you submit your annual license renewal application. You also need to be aware that the MBMP is the only state BMOE approved confidentially protected program for South Dakota licensees.

I am licensed in another state and am enrolled in that state’s monitoring program. Now I am also licensed in South Dakota where I currently practice. Do I have to enroll in the MBMP, and how do I keep my previous monitoring program informed that I am in compliance?
Yes, you do need enroll in the MBMP as it is the only state BMOE approved monitoring program. The MBMP will then contact your previous monitoring program and send reports regarding your compliance.

Do the BMOE members know who is in the MBMP?
The MBMP participation list is only known to designated BMOE staff and the BMOE investigative review panel. The BMOE members do not know who is in the MBMP except for the one board member who is assigned to the BMOE.
investigative review panel. All monitoring will remain confidential to the BMOE board members as long as the participant is compliant and doing well in the monitoring program.

**Does the public know who is in the MBMP?**

An individual’s participation in the MBMP is confidential to the public as long as the participant is in compliance with program requirements. The public does not have access to information that would identify participants in the program, except in rare cases where the BMOE staff files formal disciplinary charges against a participant which may include noncompliance with an MBMP contract.

**Who administers the MBMP?**

The MBMP is administered by BMOE staff and the established review panel pursuant to authority granted by administrative rules promulgated by the BMOE.

**What happens when a licensee or applicant self-reports?**

The MBMP monitors participants struggling with impairment issues related to substance abuse, mental health issues, or physical disability, and is not a disciplinary program. The MBMP considers a licensee’s or applicant’s self-report to be a positive first step toward bringing a potentially harmful situation under control before their professional reputation is damaged.

The MBMP will gather information and make referrals for evaluation as needed. The MBMP then works with the licensee or applicant to put the required supports in place to ensure the participant is able to continue to practice safely. The majority of individuals participating in the program are actively practicing.

**Who evaluates the potential participants?**

Potential participants are evaluated depending upon the case history of each individual. Some individuals may self-report or apply to the MBMP after having been involved in the judicial system; for example, a DUI or other incident where evaluations are already available. In other cases, there may be questions as to whether a diagnosis indicative of impairment exists. That individual would be referred to the appropriate evaluator or evaluation team prior to entering the confidential MBMP.

**Who treats the participants?**

Once a determination of impairment is made and the participant enters the MBMP, the participant chooses a medical and support team. The MBMP participant is an active participant with their medical and support team. As determined by the previously mentioned evaluation recommendations, this team is comprised of a monitoring physician or other healthcare provider; a monitoring therapist, psychologist, or counselor; a work-site monitor, and an aftercare monitor. The medical and support team will be approved by the MBMP.

**Is it a good idea to have the licensing board administer the program?**

The BMOE has a legal obligation and mission to ensure safe medical practice for the protection of the public who seek professional medical services within the State. The BMOE has promulgated administrative rules that provide a transparent process for the investigation and regulation of medical practice while providing due process rights to applicants and licensees. While the process is transparent, participation remains confidential. Healthcare facilities have immunity when reporting employees to the BMOE staff.

**Who is the contact person?**

For the convenience of the licensee or applicant, one person on the BMOE staff is designated for contact purposes. Separate and dedicated phones, both mobile and land-line with a toll-free phone number option, are available. A separate and dedicated email is also accessible. A separate and dedicated website is being developed.

Please contact:

- Randi Sterling
  Medical Board Monitoring Program (MBMP)
  Phone: 605-367-7700 | Toll free: 888-340-4371 |
  Cell: 605-400-4542
  Email: mbmp@state.sd.us

**Who answers general questions?**

Any general questions should be directed to the BMOE executive director, Margaret Hansen.

**Summary**

The BMOE has a long history of monitoring its licensees. The BMOE has agreements in place with the monitoring companies, Affinity eHealth and Soberlink to serve the MBMP. The BMOE is continuing to research other regional and national monitoring programs including protocols, processes, budgets, and program services, to identify best practices.
Thank You
to these Diamond Sponsors for their support of SDSMA’s Annual Leadership Conference
There is something about that word “cancer”—the big C.

When the pathology report displays those abnormal type cells on biopsy and the report spells out those six black letters, then, whether it is a simple treatable condition or one that will most certainly predict an earlier death, the patient hears cancer and it changes everything.

Through the years, I have had to inform too many patients about a diagnosis of cancer. I have learned there is often a paralyzing fear that comes with the word. Due to advancements in science, many more people are winning the fight against cancer compared to when I first started practicing medicine. Still, whenever I have to say, “you have cancer,” often the word “cancer” is the only thing they’ll think about for next several days.

Unfortunately, some people who hear the word come to face their mortality for the very first time, even when the chance of cure is good. I dare say this goes for too many of us, resulting both from unrealistic expectations in this scientifically advanced world, and the cover-up of the dying process in this everything-is-going-to-be-alright society.

This week a friend told me she and her husband were preparing to sell their house by thinning out their stuff collected over 15 years and remodeling with that new carpet they’ve needed for a long time. It reminded me of a how a realtor friend of mine once told me how he keeps his house ready for sale at all times, even if he has no intention of selling it. Why not put in the carpet, paint the bedroom, and fix the steps so that he can enjoy it right now? Why put off until tomorrow what can be done today?

In a similar vein, I have heard it said that every once in a while, perhaps yearly, we should all have some kind of significant brush with death and then be rescued. Maybe that would help us to remember how impermanent life really is; maybe that would help us to get and keep our house in order. Then, when each of us has our turn to cross the river into that land of the Sweet Bye and Bye, we can feel what the young neurosurgeon, Paul Kalanithi, said before dying of cancer, “(I have found a joy)...unknown to me in prior years... a joy that does not hunger for more and more, but rests... satisfied in this time, right now...”*

We shouldn’t have to come down with cancer to get our house in order.

For Your Benefit:

Shaping Your Profession

The SDSMA has a member-driven focus on issues, programs and policies, professional involvement, personal development and representation in organized medicine.

- Leadership opportunities on SDSMA committees and task forces;
- Representation for students, residents, young physicians and senior physicians;
- Low-interest educational loans and scholarships for students and residents;
- Collaborating with the University of South Dakota Sanford School of Medicine on physician workforce and medical education funding; and
- Networking with colleagues during SDSMA meetings, conferences, seminars and social events.

We want to help nurture your professional development and your personal development. If you have questions about these programs, give us a call at 605.336.1965, or visit www.sdsm.a.org.

“For Your Benefit” is the SDSMA’s monthly update on programs and services available to members.

SDSMA Leaders Announced at Annual Leadership Conference

Robert E. Van Demark, Jr., MD, of Sioux Falls became the 136th president of the SDSMA on June 2 at the association’s annual banquet at SpringHill Suites in Deadwood. Dr. Van Demark has been a member of the SDSMA since 1983. Other Directors announced at the banquet during the SDSMA Annual Leadership Conference are:

- President-elect – Christopher T. Dietrich, MD, of Rapid City
- Vice President – Robert J. Summerer, DO, of Madison
- Secretary-Treasurer – Benjamin Aaker, MD, of Brandon
- Immediate Past President – H. Thomas Hermann, Jr., MD, of Sturgis
- Policy Council Chair – Robert C. Marciano, DO, of Mobridge
- At-Large Director – Kara L. Dahl, MD, of Aberdeen
- At-Large Director – Mark L. Harlow, MD, of Rapid City
- At-Large Director – Lucio N. Margallo II, MD, of Mitchell
- Delegate to the American Medical Association – Mary S. Carpenter, MD, of Winner
- Alternate Delegate to the American Medical Association – Robert L. Allison, MD, of Pierre

Congratulations to all Directors elected!
The SDSMA honored South Dakota physicians on June 2 at the association’s annual banquet at SpringHill Suites in Deadwood.

The SDSMA’s Distinguished Service Award recognizes a physician or lay person who has been of outstanding service to the medical profession in South Dakota. This year’s Distinguished Service Award was presented to Richard P. Holm, MD.

The Outstanding Young Physician Award was presented to Nathan J. Miller, MD. This award is given to a young physician under 40 or within the first eight years of professional practice after residency and fellowship training. This physician is recognized for outstanding achievements, dedication and service to the community and the SDSMA at the local, state and national levels.

The SDSMA’s Community Service Award is presented each year to a physician who separates himself or herself through outstanding work in the area of community affairs. This year the award was given to Julie T. Raymond, MD.

Cara Hamilton, MD, received the SDSMA’s Media Award. The Media Award recognizes an individual who has helped promote the medical field and medical issues.

The Young at Heart Award is presented to a physician who has inspired young physicians as a mentor, role model and leader. This year’s recipient is David P. Munson, MD.

Tim M. Ridgway, received the SDSMA’s Past President’s Award. This award is presented each year to the immediate past president of the SDSMA in recognition of their many years of work and dedication to organized medicine.

Two physicians were recognized with the SDSMA’s 50-Year Award for medical practice in South Dakota: Richard W. Friess, MD, and Joseph P. Sejvar, MD. These physicians have been practicing medicine for a half-century and have contributed greatly to the medical profession.

Source: SDSMA staff
With the 2017 South Dakota Legislative Session ending three months ago, it is time for more than 200 new laws passed to take effect. July 1 not only brought forth the new fiscal year for the state and its respective agencies, it also brought forward the enactment of newly passed laws. Some changes impacting medicine include:

• PDMP registration – any person who has a controlled drug or substance registration pursuant to South Dakota Codified Law (SDCL) 34-20B-29 to prescribe or dispense controlled substances must register with the South Dakota Prescription Drug Monitoring Program. This requirement includes prescribers with the exception of veterinarians. Of note, the legislature approved approximately $600,000 in funding to be utilized for the expansion of methamphetamine treatment in the state. To register, go to southdakota.pm Paware.net.
• Mental health holds – Legislation was designed to reduce the amount of time spent in jail for those awaiting a competency hearing. As of July 1, the defendant must receive an examination within 21 days of the court order by a licensed professional – unless the court grants a continuance for good cause.
• Independent practice of advanced practice nurse practitioners (APRNs) – as was signed into law, as of July 1, APRNs may practice independently and without physician collaboration upon reaching 1,040 practice hours. For additional information, members are encouraged to review the SDSMA legal brief, Advanced Practice Nurses: Scope of Practice and Collaboration Requirements.

Through the SDSMA Center for Physician Resources, the SDSMA has developed more than 50 legal briefs that are available to members. In addition, the Center for Physician Resources develops and delivers programs for members in the area of practice management, leadership and health and wellness. 

Source: SDSMA staff

Scholarship Recipients Recognized at Annual Banquet

The SDSMA Foundation announced medical student scholarship recipients for the upcoming school year at the banquet during the SDSMA Annual Leadership Conference on June 2, and thanked donors for making a difference by supporting the next generation of physicians.

• DAKOTACARE Scholarships – Julia Nichols from Winner, Carson Eisenbeisz from Pierre
• Howard and Mary Ann Saylor Scholarships – Erik Burnison from Huron
• J. Michael McMillin Scholarship – Katelyn Loutsch from Vermillion
• J. Michael McMillin Renewal Scholarships – Anthony Rauschenbach from Sioux Falls, Eric Habbe from Rapid City, and Kathryn Kroeger from Rapid City
• Mickelson Memorial Scholarship – Natalie Mushitz from Yankton
• SDSMA Alliance Scholarships – Breann Bowar from Faulkton, Brody Brisk from Canton, David Christianson from Yankton, Eric Habbe from Rapid City, Caitlin Hof from Yankton, Nathan Jacobson from Sioux Falls, Kelly Landeen from Sioux Falls, Daniel Pfeifle from Rapid City, Nicholas Purcell from Rapid City, Kayla Riswold from Pierre
• SDSMA Freshman Scholarship – Jaelin Otta from Sioux Falls
• Surgical Associates, Ltd. Scholarship – Anthony Fiegen from Madison
• T.H. Sattler Memorial Scholarship – Spencer Ferrell from Yankton
• Wulbers Memorial Scholarship – Kathryn Kroeger from Rapid City

Congratulations to all scholarship recipients.
New Tool Helps Navigate MACRA

The Physicians Advocacy Institute (PAI) recently launched the Medicare QPP Physician Education Initiative to help physicians understand and successfully navigate Medicare’s Quality Payment Program (QPP), implemented pursuant to the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA).

The new resources are available at www.physiciansadvocacyinstitute.org and include the following:

- Taped webinar tutorials;
- Summary and in-depth resources on all aspects of the QPP, including information on how to succeed under the MIPS and APM tracks;
- A step-by-step guide for physicians who are new to the QPP; and
- A searchable FAQ resource.

Source: PAI

Reducing the Opioid Epidemic

The American Medical Association (AMA) has launched a new website focused on reversing the nation’s opioid epidemic. The site is www.end-opioid-epidemic.org. The site features the six recommendations from the AMA Opioid Task Force and more than 250 education/training resources from states and specialty societies. More enhancements are planned and membership will be updated when new features launch. In addition, the SDSMA’s Whitepaper on opioids is posted at sdsma.org.

Source: AMA

“The Issue Is” is the SDSMA’s monthly update on key policy issues of importance to physicians.

Don’t forget to send in your favorite scenic photo for South Dakota Medicine front cover consideration.
Send photos to ereiss@sdsma.org.

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Elizabeth Reiss, South Dakota Medicine
PO Box 7406, 2600 W. 49th Street, Suite 200
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- Steven Powell, MD

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