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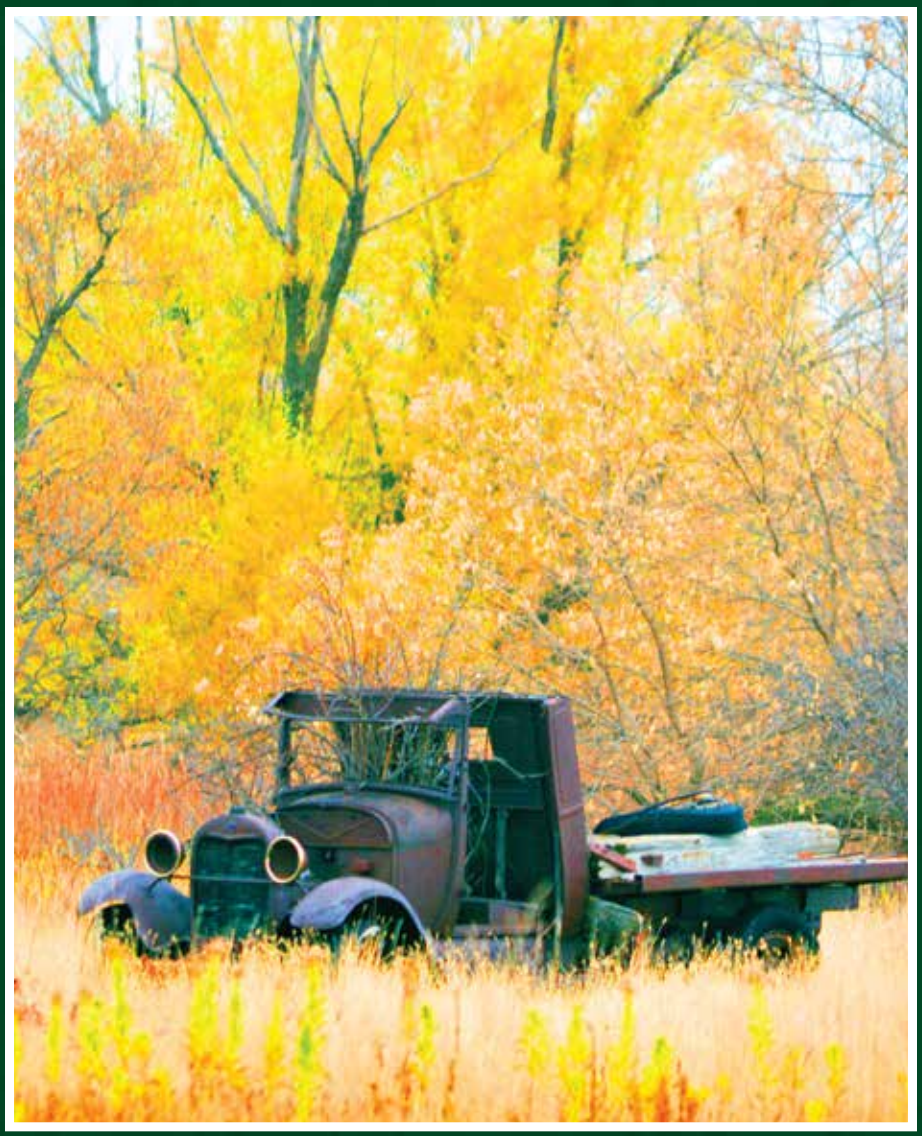

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THE SECOND HOME: A DIFFERENT KIND OF "BOND" INVESTMENT

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ASHLEE VIEREGGER, JD, CFP®, CTFA, AEP®, Senior Lead Advisor

In the work we do as advisors, we often talk with client families about evaluating decisions and measuring success. What were our expectations? Did our choice produce the intended results? In the context of making long-term portfolio investments, there are a few ways we can gauge our success.

There's the absolute measure: Did the investment grow or decline in value? There's the relative measure: Did the investment do better or worse than a comparable asset? There's the goals-based measure: Did the investment produce enough income and growth to meet cash flow needs?

These measures work well for stock and bond investments, whether they're mutual funds or individual securities. However, they don't work as well for a special type of investment that client families often dream of pursuing, a second home. We need a different approach to evaluate an investment of the heart, a different kind of "bond" investment. An investment in joy requires a unique type of cost-benefit analysis.

Costs are easy to quantify.

The costs of making a second home investment are straightforward and relatively easy for families to quantify. There are dollar amounts built into the purchase price of the home: a monthly mortgage payment, the property taxes and homeowners' insurance premium, the homeowners' association dues, utilities, the regular maintenance, the unexpected repairs or replacements, and the furniture and home furnishings.

Other financial decisions a family may consider in making a second home investment. For instance, should they pay cash or take out a mortgage? Do they want to list the home for rent when the family is not using it? And, how should the home be titled for estate planning purposes? As advisors, we often help our client families navigate these decisions.

Benefits are more qualitative.

Unlike costs, the benefits of making a second home investment are priceless, often non-financial, and much more difficult to measure. There isn't a simple formula to calculate the value of creating a generational retreat where a family can make years of memories together. The joy of hosting holiday gatherings, milestone celebrations, or family reunions at a beloved family haven simply can't be reduced to a dollar amount

Like all sound investments, a family makes a second home investment with the hope that its emotional value compounds over time. The second home is a special place where grandparents can spend quality time with their grandchildren before the busy activity calendar takes over the family schedule. It's a place where cousins and siblings can ditch the devices and have a few adventures outside. Someday, the youngest in the family will bring their own children to this special place where they had so many happy memories in their youth. The true returns on a second home investment can't be measured in dollars and cents, but rather in the strength of the family bonds that it helps create.

Deciding to buy a different kind of "bond" investment.

Making a second home purchase decision calls for a special set of evaluation criteria. At Foster Group, we understand that purchasing a second home is more than adding a real estate asset to the balance sheet. It's an investment in family bonds that may appreciate in value across generations. If you are considering a second home investment, remember to consider the returns of the heart in addition to the financial costs. Connect with us today, and let's talk about a different kind of "bonds." Foster Group takes the time to truly know our clients—not just their financial goals, but what's in their hearts.

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From GRIT to Determination

Jason J. Kemnitz, EdD

If you are not familiar with the name Angela Duckworth, I am sure that you are familiar with the subject of her first TED talk. In the 5 minutes and 59 seconds it took her to deliver that presentation she singlehandedly set off a reformation in educational theory that has been wide reaching and applied to almost every facet of education, including medical education. The topic was GRIT. In these few minutes Duckworth took what many of us once knew as a measurement of abrasiveness and turned it into a lifestyle. In 2016 she penned the book *Grit: The Power of Passion and Perseverance*, which was a New York Times best seller for an amazing 21 weeks, cementing the idea that grit describes a good learner in society's subconscious. Duckworth's 12-question grit scale focuses on items like being a diligent worker, keeping your focus over a period of a month, to not letting a setback dissuade you. On the surface that seems innocuous, but when compounded with situation parameters they often become something different.

Every so often I hear or read comments like, if the student had "more grit" they would be a better physician. Or, when our students go through a mentally challenging time in our curriculum, we hear comments like "this generation just isn't gritty." Do our students lack that sense of perseverance and tenacity? Our graduation statistics would tell you no, and our students would as well. What does that even mean, and how can we help our students overcome this lack of grit? Possibly by changing the way we think. As my favorite linguist (yes, I have a favorite linguist) SI Hayakawa wrote, "The meaning of words are not in the words, they are in us." So how do we take the ideas behind "grit" in medical education and apply them in a manner that is more understandable to the learner and the instructor? Perhaps by embracing and adapting Self Determination Theory (SDT) as posit by Deci and Ryan (2000). SDT states "... that people are fundamentally seeking autonomy, competence, and relatedness, and that they thrive in environments that enable them to maximize these qualities." In the case of medical education, it would hold that medical students want to work to make self-guided decisions to grow their clinical knowledge and practice and feel connected with those of like mind. By applying the tenets of SDT to your teaching you could be increasing the very item you have been calling grit.

Help strengthen their autonomy. Talk to your students to understand their wishes and perspectives. This will help you understand their point of view and how you can help them connect to what they are learning in your specialty and why it is important to their education.

Build their competence. Provide them with specific challenges and opportunities that will enable them to grow their skills. Provide the structure they need to understand why you suggest specific behaviors and provide specific feedback.

Offer a sense of relatedness. Simply show interest in them as a student and offer some reliability when the student struggles. Help them to remember we all started somewhere. (I like to think the SSOM faculty is particularly good at offering relatedness).

The beauty of SDT is that the evidence suggests that by embracing concepts of SDT learners understand that there will be periods of time and tasks which are not highly motivating and enjoyable, but they are willing to endure them longer as a tradeoff to achieving their goal.

In the final analysis our students don't lack grit, they lack a way to find their way over obstacles to accomplish their final goal, and you can provide that path. Remember, as Hayakawa said, "good teachers create the conditions under which learning takes place."

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Medication-Assisted Treatment for Opioid and Alcohol Use Disorders

Jen Tinguely, MD, MPH
President, South Dakota State Medical Association

Hopefully, we all have those patient interactions that remind us why we love our jobs and reinvigorate our passion for medicine. For me, there is no better visit than when I get to see someone who has just celebrated a sobriety anniversary. Hearing a patient talk about their kids who are back in their life or their job that they love because they are now sober brings me joy. They are often very grateful and will thank me for "saving their life" when they did all the hard work. I tell them what I did was easy...I prescribed a medication that worked. I suppose I was also a constant believer they could win the battle if they just kept at it. But that's not hard, either. We cheer our patients on all the time, whether it is helping them get through their chemotherapy treatments or watching their blood sugars come down after starting a new medication. As physicians, we can see what life might look like on the other side. We can remind them that temporary setbacks are part of the process and that we'll stand by their side even during those setbacks.

According to the National Institute on Drug Abuse, 40.3 million people in the U.S. had a substance use disorder in 2020. Sadly, only 6.5% of people with a substance use disorder receive treatment. Stigma both keeps people from reaching out for help and keeps medical providers from embracing medication assisted treatment (MAT) as part of their routine practice. But for anyone who had to renew their DEA license recently, you know we are all now required to do a one-time, eight-hour additional training on treating and managing patients with substance use disorders. Obviously, doing eight hours of training does not mean that all physicians are going to start providing MAT to their patients but the hope is there that it becomes more accessible to patients.

It is important to remember that MAT is not isolated to opioid use disorder. There has been so much attention placed on the opioid crisis in this country and it feels like MAT has become synonymous with buprenorphine (Suboxone). And while the number of people dying from opioid overdoses is staggering, we need to remember that alcohol use disorder is still the most common substance use disorder in our country. This is fueled by the fact that alcohol is legal and easy to obtain. There are some great medication options for patients who are struggling with unhealthy alcohol use and all providers should be familiar with them and comfortable prescribing them. Naltrexone is one of the medications and it never required any special training or certification to prescribe.

While alcohol use disorder often results in more prolonged suffering for patients and their families, opiate use disorder can end someone's life very quickly. The introduction of buprenorphine into the medical world has revolutionized the way that we can treat patients who are struggling with this deadly disease. I see patients on this medication every day and I can vouch for its incredible success. The other medication we should all be comfortable prescribing is naloxone (Narcan) which can reverse the effects of an opioid overdose. This medication is also available OTC (for patients who can afford it) and we are now starting to see Narcan dispensing units in public use areas.

I'll close with a story that involves two of the medications I mentioned above and has both a bitter side as well as a hopeful and bright side. I have a patient who successfully beat back his heroin addiction with the help of buprenorphine. He has been sober from heroin for nearly five years and has a very good job as a restaurant manager. At one of his visits last year, he became very emotional as he told me the story of one of his employees who died of a fentanyl overdose in the restaurant. The employee had been on his break, went into the bathroom and injected what he likely thought was untainted heroin. The employee died and my patient shared with me his grief over that loss. He felt guilty for not being able to save his employee's life as there was no naloxone on-site and he also felt survivor's remorse as he knew that could have easily been him had he not gotten the help he did. My patient responded to this grief by ensuring that his restaurant and all the others within their regional chain now have naloxone on the premises if they ever need to use it. It is stories like this that make the work I do worth it.

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Taking Control of Your Health: Self-Measured Blood Pressure Program in Yankton, South Dakota

Brittany Bamberg, MD; Christopher Behrend, MD; Jennifer Boleyn, MD; Kyler Hardie, MS IV; Ross Lanier, MD; Christopher Rumrill, MD; and Susan Fanta, MD

Abstract

Background: Identification and management of hypertension is one of the most common problems for primary care providers. Rural settings have increased rates of hypertension due to a variety of factors including access to care, socioeconomic factors, and restricted strategies to identify hypertension outside of the clinic setting. To address this challenge, a self-measured blood pressure (SMBP) program was employed at a rural clinic in South Dakota with a goal of increasing the number of patients with well-controlled blood pressure.

Methods: One-hundred seventy-two patients aged 18–85 years with a primary residence of South Dakota were enrolled during a nine-month period. Two sets of home blood pressure measurements were taken twice a day for seven consecutive days and recorded by the patient. Controlled blood pressure was defined as systolic blood pressure less than 140 mm Hg and diastolic blood pressure less than 90 mm Hg. The number of patients with controlled blood pressures were documented. Additionally, the number of patients with uncontrolled blood pressures requiring treatment plan or medication changes as a result of the program were recorded. Patient data was reviewed by the provider and utilized to make diagnosis and further recommendations.

Results: Eighty-eight out of the 172 patients were considered to have controlled blood pressure by the end of the study period without the need for interventions. Eighty-four patients required new medication or treatment plan changes throughout the study period in response to uncontrolled blood pressure readings obtained from the patients' blood pressure logs. Overall, patients reported appreciation for taking ownership in their health management through home blood pressure monitoring.

Conclusion: This work provides a framework to implement an SMBP program as a strategy to improve outpatient management of hypertension by empowering patients to take a greater, more active role in their health.

Introduction

Hypertension is a leading risk factor for cardiovascular disease, including, but not limited to, stroke and coronary artery disease. It continues to be an exceedingly common diagnosis amongst patients, especially in rural South Dakota. The rate of hypertension in rural settings is approximately 40% of patients compared to 29.4% in more urban populations.[1] Regular blood pressure monitoring by the entire health care team with a patient-centered approach is ideal when striving to achieve optimal control of high blood pressure. The Yankton Medical Clinic, P.C. recognized the importance of this approach which led to the development of a self-measured blood pressure (SMBP) program for members of our community. Furthermore, the diagnosis of hypertension should not be made alone on a single, elevated clinical blood pressure. Instead, the diagnosis of high blood pressure should be made in conjunction with out-of-office BP measurements to sufficiently recognize masked hypertension and white-coat hypertension.[2]

This project aimed to address the challenge of controlling blood pressure in patients with an elevated blood pressure measure in the clinic. In 2019, 31% of adults in South Dakota were informed of high blood pressure by their healthcare provider; however, only 55% of those patients were informed that their blood pressure was controlled.[3] The range for blood pressure control can vary depending on medical conditions. Generally, controlled blood pressure is defined as systolic blood pressure less than 140 mm Hg and diastolic blood pressure less than 90 mm Hg.[2]

Methods

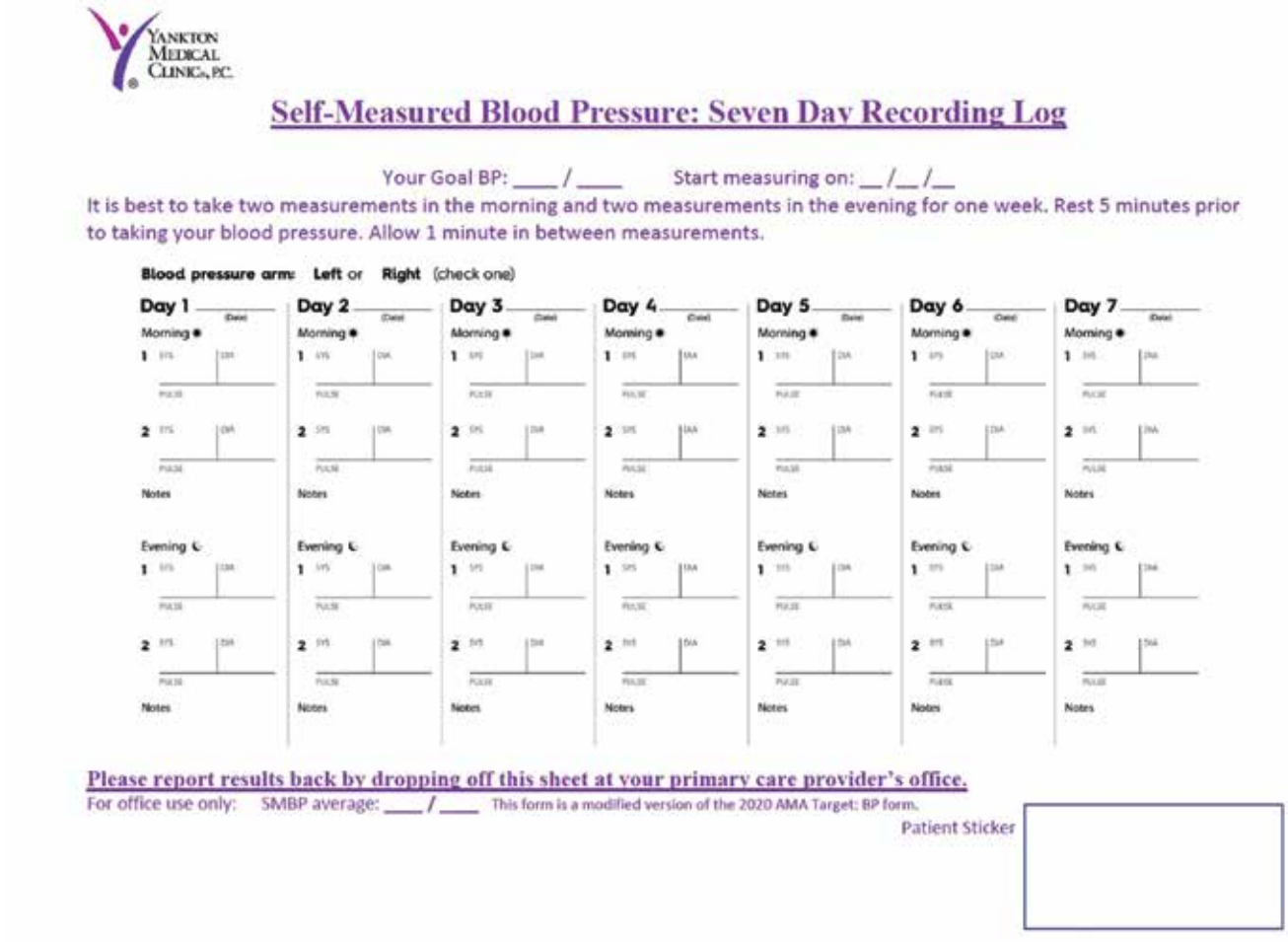
Inclusion criteria for participation in the SMBP program included primary residence in South Dakota or South Dakota tribal communities and individuals aged 18 to

85 years old. Patients were considered eligible if they had untreated office blood pressures between 120-129 mm Hg (systolic) or between 75-79 mm Hg (diastolic) on a consistent basis. Patients were screened for masked hypertension using the SMBP program. White coat hypertension was diagnosed if patients had elevated blood pressures isolated in clinic with regular blood pressure values at home after self-measured readings. Patients with a current diagnosis of uncontrolled hypertension (defined as a systolic blood pressure > 140 mm Hg and diastolic blood pressure > 90 mm Hg) were also eligible for SMBP. These patients began participating in the SMBP program two weeks after adjustments to their medication regimen with a target BP of <140 systolic and <90 diastolic.

Exclusion criteria included: patients receiving hospice; patients greater than 65 years old in Institutional Special Needs Plans or residing in long-term care with POS code 32, 33, 34, 54, or 56; individuals with documentation of end-stage renal disease (ESRD), on dialysis, or patients with a renal transplant. Individuals greater than 85 years old or pregnant patients were not the primary target population but were eligible as a part of a larger target population.

Patients were recruited in clinic by physicians if they saw benefit for the patient to participate in this program and met inclusion criteria. Once chosen for the program, the healthcare team counseled the patient about taking a proper blood pressure at home. Our team adopted the Target BP SMBP monitoring courtesy of the American Heart Association. Properly fitted upper arm cuffs were recommended based on suggestions from the U.S. Blood Pressure Validated Device Listing website. Electronic blood pressure cuffs were used for accurate home readings without the need for medical professional assistance. Blood pressure measurement instructions, via education from a nurse and from an infographic from the American Medical Association, were given to the patients. These instructions included recommendations for the patient to sit still while keeping legs uncrossed after a period of rest and to use the cuff on a bare arm supported at heart level. A recording log was also given to all patients (Figure A). Patients were instructed to take

Figure A. Sample of the self-measured blood pressure recording log given to patients.



and record two sets of home blood pressure measurements twice a day for a maximum of 4 blood pressure readings per day over the course of seven consecutive days, as outlined in the patients' recording logs. A minimum of 12 blood pressure measurements or three measurements per day was considered acceptable as the minimum threshold for this project, as recommended by the South Dakota Department of Health. If patients did not have access to a home blood pressure monitor, loaner devices were available. An average of all the patient's blood pressure measurements was calculated from the at-home values. The provider reviewed the average and utilized this value to make a diagnosis and further recommendations.

Providers began recruiting patients to participate in the SMBP program in September 2022. Recruitment took place on a rolling basis. The SMBP grant ended May 31, 2023, but Yankton Medical Clinic, P.C. will continue to encourage the use of SMBP methods after completion of the project period.

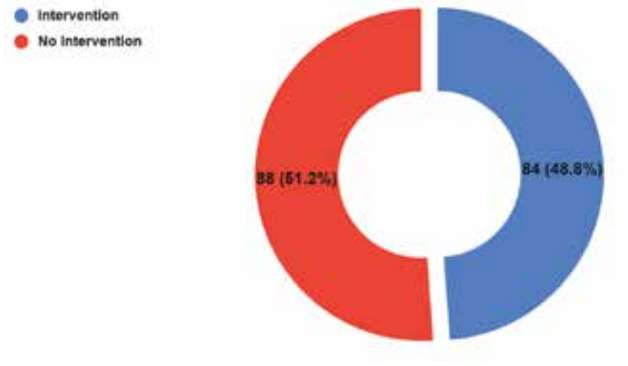
Results

A total of 172 patients were enrolled during the duration of the study. Of these patients, mean systolic and diastolic blood pressure was considered well-controlled in 88 patients (51.2%). This included patients with normal blood pressures in office and on self-measured report, patients currently well controlled on medication, as well as patients with white coat hypertension. Patients met criteria for white coat hypertension if in-office measurements were above threshold for hypertension whereas out-of-office self-measured mean blood pressures were within normal limits.[4]

For patients requiring intervention, mean systolic and diastolic blood pressure was considered poorly controlled in 84 patients (48.8%). Patients identified in this cohort included both patients on existing antihypertensives and those naive to medical therapy. These patients received intervention from providers that included recommendation of lifestyle interventions, initiation of antihypertensives, dosage adjustments, or addition of alternative agents.[5] Figure B demonstrates the total number of patients that completed the program and compares 48.8% patients that required intervention versus 51.2% of patients who did not require any intervention.

Demographic information was not collected for the patients in this study. This study was developed to encourage SMBP programs in South Dakota, specifically in rural areas. Data collected in this study was determined by the requirements set forth by the South Dakota Department of Health.

Figure B. Patients requiring intervention in self-measured blood pressure project. Graph illustrates the breakdown of total patients enrolled in this study (n=172) requiring interventions for uncontrolled blood pressure (n=88) and those not requiring interventions (n=84) based on the results of home blood pressure readings throughout the study period.



Further work could evaluate demographic information and its influence on the efficacy of the SMBP program.

Discussion

Challenges/Barriers

This project initially faced barriers in recruiting patients. One eligibility requirement was primary residence in South Dakota. A sizable portion of the patient population at Yankton Medical Clinic, P.C. have primary residence in another state, making these patients ineligible for participation. Another challenge was physician participation. Some physicians declined to monitor patients' blood pressures through the program due to associated increased coding and time requirements. However, these physicians still encouraged the use of regular at-home blood pressure monitoring when counseling patients on the importance of maintaining a healthy blood pressure.

This project trusted participants to accurately measure and record their blood pressure readings on a regimented schedule, which may be both difficult to achieve and less accurate than ambulatory blood pressure cuffs. However, this approach was more feasible than utilizing ambulatory blood pressure cuffs for a large sample size given limited resources in a rural setting.

Successes

The impact of the program is evident by how a sizeable cohort of patients with poorly controlled hypertension (84 patients) were identified and given therapy recommendations and treatment options to better control their blood pressure.

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Previous studies report controlled blood pressures in 55% of patients not participating in a SMBP program while 48.8% of participating patients in this SMPB program were classified in the controlled blood pressure range.[3]

Medication adjustments were made in a timelier manner with close patient monitoring and follow-up. In some cases, providers were able to titrate down antihypertensive therapies, reducing the risk of adverse effects and excess cost to patients. This especially reduces risk of polypharmacy in patients requiring medical management of multiple comorbid conditions. Patients reported satisfaction with the decreased medication dosages.

Patients reported appreciation for taking ownership in their health management through home blood pressure monitoring. These testimonies from patients were generally positive and were shared by providers at monthly meetings which were held to monitor the status of the SMBP program. Providers also felt the patients had a stronger investment in their blood pressure management when they were expected to report back to the provider with an assignment of filling out their log in a week's time.

Employment of the SMBP program inspired a community outreach project. The medical students involved in this project started a blood pressure monitoring booth at Yankton's local food banquet. Medical students attended the banquet once a month and offered blood pressure measurements. Medical students also raised awareness about the importance of blood pressure monitoring and control to the patrons attending the banquet. Attendees were made aware of the resources available in the community to seek medical follow-up if needed.

Acknowledgment – This work was supported by the South Dakota Department of Health: Heart Disease and Stroke Prevention Program in conjunction with the Centers for Disease Control and Prevention (CDC) DP18-1815. Strategy B.6 - Implement or improve upon a self-measured blood pressure (SMBP) monitoring program.

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Bridging the Gap from Rural Trauma to Rural Healthcare: Fire Department Education Sessions

Kaihlen Smith, MS IV; Gaven Bowman MS IV; Jason Wickersham, MD; and Susan Anderson MD†

Abstract

South Dakota's Emergency Medical Services (EMS) volunteer participation is declining, and projected to further decrease over the next decade. To minimize this deficit, South Dakota's Department of Health recommends that rural firefighters assist EMS in high-acuity calls to decrease the burden on EMS personnel in an effort to improve volunteer retention. Bridging the Gap from Rural Trauma to Rural Healthcare aimed to create educational training opportunities for firefighters when assisting EMS. A focus group including EMS personnel, firefighters, and the fire chief from communities surrounding and including Parkston, South Dakota, identified a list of skills where knowledge deficits existed; this list included backboard technique, tourniquets, field dressings, splints, Lund University Cardiopulmonary Assist System (LUCAS) device application, triage procedure, stair chair utilization, oxygen administration, familiarization with ambulance supplies, limb recovery in the field, EMS communication and report, extrication scenarios/problem-solving, cardiopulmonary resuscitation (CPR) re-familiarization, decontamination procedures, and a tour of Parkston's rural emergency department. These skills were divided into three nights of hands-on learning sessions. Pre- and post-session surveys were administered to measure the firefighters' confidence levels regarding each skill. Firefighters demonstrated a statistically significant change in confidence levels in nearly all skills that were taught, with LUCAS device application, decontamination location, and decontamination procedure demonstrating a mean increase in confidence levels of greater than 100%. Typically, firefighters are on location for many rural, high-acuity calls. If trained to assist EMS, firefighters may enhance the South Dakota Department of Health's goals to improve EMS volunteer retention over the next decade.

Introduction

Volunteer Emergency Medical Services (EMS) and firefighter personnel are a dire necessity in the medically underserved populations of rural America. Many rural healthcare facilities rely upon EMS and firefighter expertise during emergency medical scenarios in preparing patients for transport to a local emergency department. Continually improving these volunteer's medical training, knowledge of available resources, and procedural skills is a crucial aspect of fortifying the infrastructure of rural emergency medical response systems. As outlined in a study performed by Astrid Knott identifying issues faced by rural, American emergency medical systems, it was discovered that "medical direction in rural EMS was identified as a major issue for a majority of states."[1] Additionally, a recent Regional Service Designation assessment, sponsored by the South Dakota Department of Health (SDDOH), analyzing the state's own EMS discovered that its volunteer members were expected to decline in the upcoming 5-10 years.[2] Therefore, the SDDOH discussed the need for rural firefighters to assist EMS personnel in high-acuity calls in an effort to decrease burnout and loss of EMS volunteers.[2] Interdisciplinary awareness and teamwork are crucial to successful patient care; equipping firefighters with the appropriate emergency response skills will ensure that training "silos" are diminished, and patients continue to receive a high quality of care throughout the continuum of their healthcare journey.[3] Continual education of rural firefighters and EMS personnel is pivotal to the safety of rural communities. This project aims to enhance these services for the benefit of both patients and providers.

Methods

The content of this study's training sessions was determined by training deficits identified by a focus group that included EMS personnel, firefighters, and the fire chief from communities surrounding, and including, Parkston, South Dakota. These deficits were addressed during three independent training sessions. The first session contained stations including backboard technique, field dressings, splinting, tourniquet application, Lund University Cardiopulmonary Assist

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Table 1. Pre- and post-survey confidence scales. Scores were based on a Likert scale.

Mean value	Confidence level
1	Not confident
2	Slightly confident
3	Somewhat confident
4	Fairly confident
5	Completely confident

System (LUCAS) device application, triaging, stair chair use, oxygen administration, and familiarization with ambulance supplies. The second session included active training sessions involving extrication scenarios, patient report transfer, limb recovery, and cardiopulmonary resuscitation (CPR) re-familiarization. The final session included familiarization with the Avera St. Benedict Emergency facilities, the location of decontamination equipment within this facility, and a decontamination demonstration.

Preceding, and immediately following, each training session, identical pre- and post-surveys were administered to firefighters, EMS personnel, and fire chiefs. These paper surveys required less than 5 minutes to complete. Pre- and post-surveys evaluated training sessions based on a qualitative measure of participant's skill confidence levels. For data analysis, each confidence level was correlated numerically on Likert scale from 1 to 5 with positive and negative skew (Table 1), and these values were tabulated. Data was entered in excel and verified by a separate individual to minimize data entry errors and data loss. Mean pre- and post-survey confidence levels were calculated for each station. From raw data and calculated means, standard deviation (s), standard error (SE), and 95% confidence intervals (CI) were calculated within Microsoft Excel using Equations 1, 2, and 3, respectively. The percentage increase from pre- to post-survey confidence levels was also calculated (Equation 4).

Equation 1. Standard deviation of a sample of means, where s = standard deviation, x = each sample value, $\bar{x}$ = the sample mean, and n = the total number of samples.

$$s = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}$$

Equation 2. Standard error, where SE = standard error, s = standard deviation, and n = the total number of samples.

$$SE = \frac{s}{\sqrt{n}}$$

Equation 3. 95% confidence interval, where 95% CI = 95% confidence interval, $\bar{x}$ = the sample mean, = confidence level value (1.96), and SE = standard error.

$$95\%\ CI = \bar{x} + z(SE), \bar{x} - z(SE),$$

Pre- and post-survey means, in conjunction with respective 95% CI's, were outputted onto a 2D horizontal bar graph. Sample sizes were estimated to be nearly equal. A paired t-Test Two Sample for Means was performed via Excel DataAnalysis Toolpack, with $P < 0.05$ denoting a statistically significant change in pre- and post- survey data per training station. Asterisks denote sessions that demonstrated a statistically significant difference between pre- and post-survey means.

Results

The goal of this study was to determine if training sessions would provide a statistically significant difference in the confidence levels of firefighter and EMS personnel from the skills that were taught.

The results of the first training session, including all stations as outlined in Methods, demonstrated a statistically significant difference between pre-and post-survey confidence levels (Figure 1). No overlap amongst 95% CI error bars was observed between pre- and post-survey mean confidence levels. The percentage increase from pre- to post-survey confidence levels for all stations demonstrated a statistically

Equation 4. Percentage increase in mean confidence level, where CL = confidence level.

$$\%\ Increase\ in\ mean\ CL = \left(\frac{(Post\ survey\ mean\ CL - Pre\ survey\ mean\ CL)}{Pre\ survey\ mean\ CL}\right) * 100$$

Figure 1. Training session one pre- and post-survey mean confidence levels, by station. 95% CI error bars are tabulated. Asterisk denotes statistical significance.

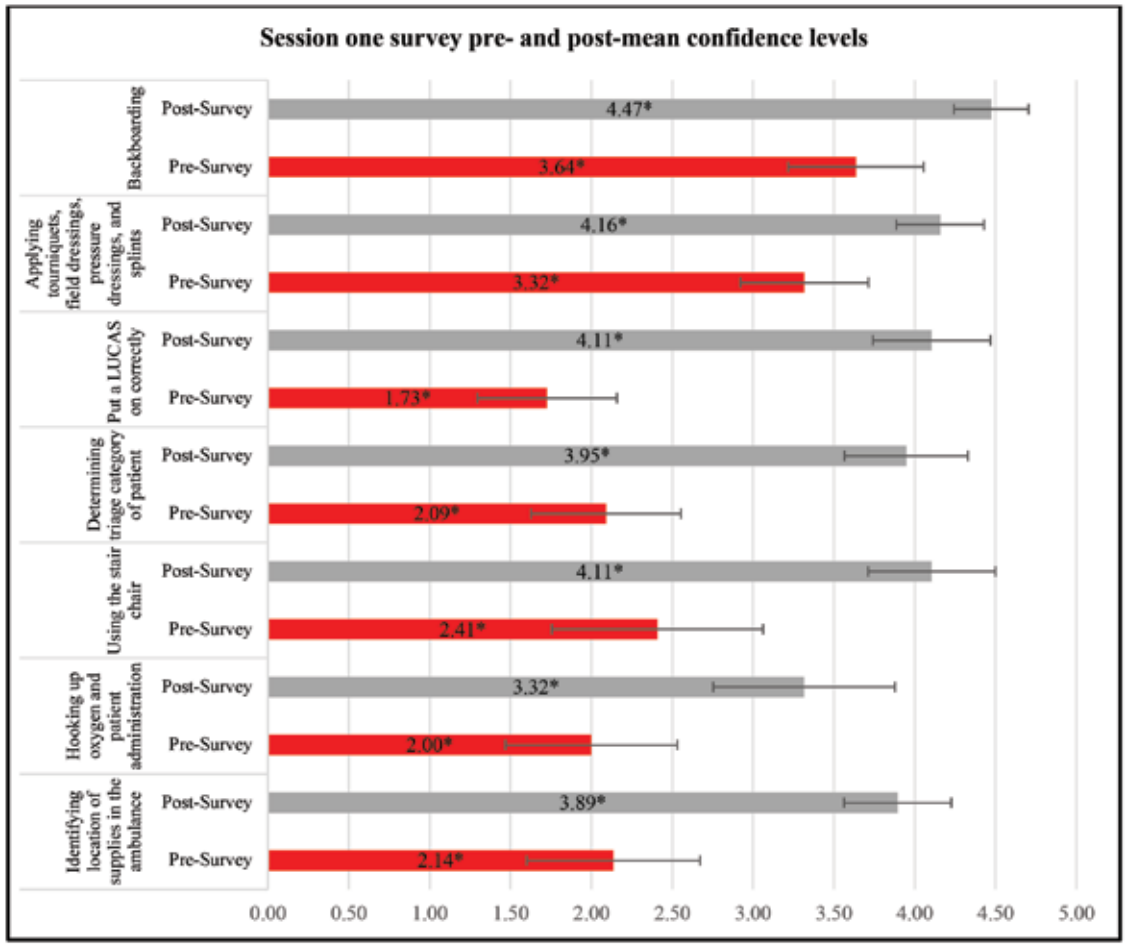

Table 2. Percentage increase in mean confidence levels from pre- to post-survey for training session one. Asterisk denotes statistical significance.

% Increase in mean confidence level	First training session stations
23%*	Backboard
25%*	Tourniquets, field dressings, splints
138%*	LUCAS device
89%*	Triage
70%*	Stair chair
66%*	Oxygen administration
82%*	Ambulance supplies

significant change, with the largest percentage increase of 138% occurring in the LUCAS device session (Table 2).

The results of the second training session, including the stations of patient report transfer and CPR refamiliarization, demonstrated a statistically significant difference between pre-and post-survey confidence levels, with no overlap between 95% CI error bars, and a statistically significant percentage increase in confidence levels (Figure 2, Table 3). However, second session training stations including extrication scenarios ($P = 0.16$) and field limb recovery ($P = 0.06$), failed to demonstrate a statistically significant change in pre- and post-survey mean confidence levels (Figure 2). The percentage increase of these two stations also failed to

Figure 2. Training session two pre- and post-survey mean confidence levels, by station. 95% CI error bars are tabulated. Asterisk denotes statistical significance.

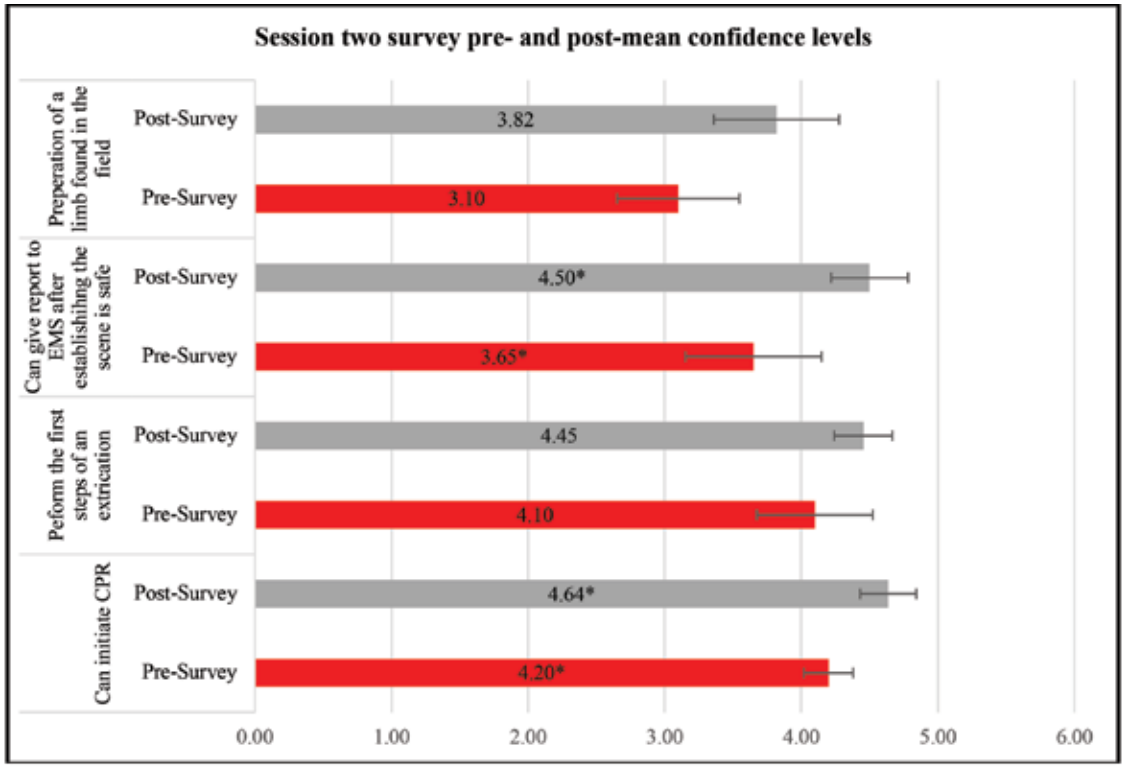

Table 3. Percentage increase in mean confidence levels from pre- to post-survey for training session two. Asterisk denotes statistical significance.

% Increase in mean confidence level	Second training session stations
23%	Limb recovery
23%*	EMS report
8.65%	Extrication
10%*	CPR

Figure 3. Training session three pre- and post-survey mean confidence levels, by station. 95% CI error bars are tabulated. Asterisk denotes statistical significance.

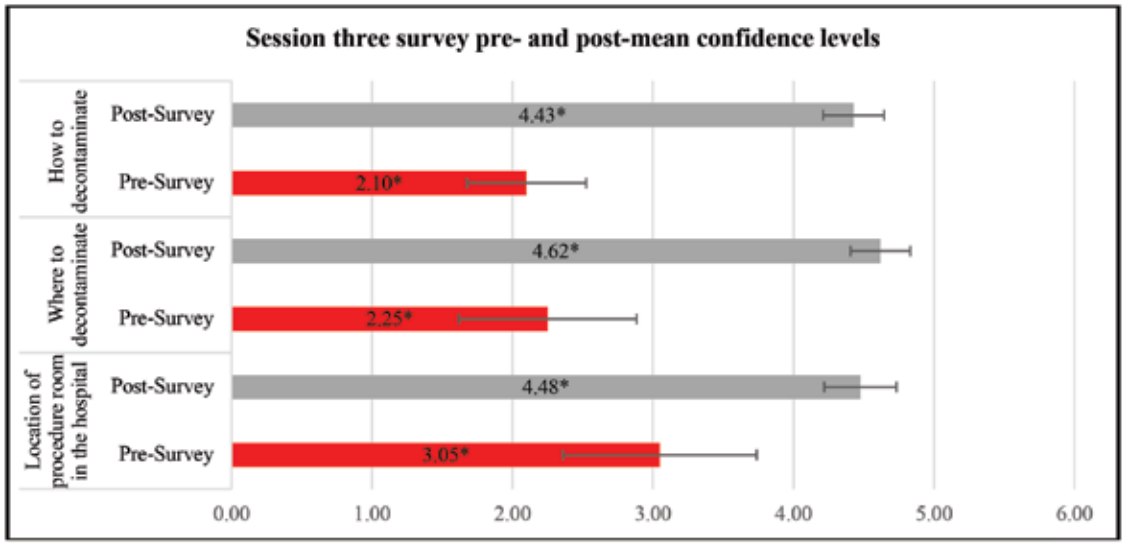

Table 4. Percentage increase in mean confidence levels from pre- to post-survey for training session three. Asterisk denotes statistical significance.

% Increase in mean confidence level	Third training session stations
111%*	Decontamination procedure
105%*	Decontamination location
47%*	Procedure room location in hospital

demonstrate a statistically significant change (Table 3).

The results of the final training session, including all stations as outlined in Methods, demonstrated a statistically significant difference between pre-and post-survey confidence levels as no overlap was observed between pre- and post-survey 95% CI error bars (Figure 3). Percentage increase from pre- to post-survey confidence levels also demonstrated a statistically significant change, with decontamination location and decontamination procedure demonstrating 105% and 111% increase in confidence levels, respectively (Table 4).

Discussion

Per the SDDOH, South Dakota's EMS volunteer crews are expected to decline in the upcoming decade, especially within rural communities.[2] Similar to this study's participant population around and within Parkston, South Dakota, many rural communities have limited ambulances, supplies, and firefighter/EMS volunteers. Results from the first and final training sessions demonstrate that additional training can produce a statistically significant change in the confidence levels of rural emergency responders, such as firefighters, before and after educational training (Figure1, Figure 3). However, failure of the second session's extrication and limb recovery stations to demonstrate a statistically significant change in EMS personnel confidence levels may suggest limitations in the necessity, or effectiveness, of teaching these skills (Figure 2). Failure to demonstrate a statistically significant change may be a result of confounding variables, including but not limited to trainees' age, prior experience, and years on the firefighter crew, that were not adjusted for in this analysis.

Recommendations for future expansion of this study may include assessment of long-term retention of training station skills via delayed post-survey disbursement and exploring the scope-of-practice boundaries between firefighters and

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EMS personnel. This project's training plan would likely be adaptable to various volunteer EMS crews and could be expanded to encompass various other skills, such as assessing the need for Basic Life Support versus Advanced Life Support training in rurally trained EMS providers; a concept recently explored in a study performed by Vierhout et al. that evaluated the importance of rural EMS training in STEMI patient outcomes.[4] This study, and future expansion of this study, may possess an opportunity to enhance the SDDOH's goal of improving EMS volunteer retention over the next decade by preparing rural firefighters to be of greater assistance in high-acuity emergency response scenarios.

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A Case Report: Rosuvastatin Induced Rhabdomyolysis in an 80-Year-Old Female

Muhammad Hasan, MD; and Mohammad Ahmed, MD

Abstract

Rosuvastatin, a commonly prescribed lipid-lowering medication for primary and secondary prevention of cardiovascular disease, is generally considered safe with associated mortality benefits. Despite its overall safety profile, the drug is not without side effects. Statin-induced myopathy, a known complication, can manifest in 10-25% of cases, while more uncommon complications such as rhabdomyolysis occur in less than 0.1% of treated patients. In this case report, we present an 80-year-old female presenting with rhabdomyolysis attributable to rosuvastatin.

Introduction

Atherosclerotic cardiovascular disease stands as a predominant cause of morbidity and mortality. Statins, widely prescribed for primary and secondary prevention of cardiovascular diseases, work by competitively binding to 3-hydroxy 3-methylglutaryl coenzyme A (HMG-CoA) reductase within the lipid metabolism pathway which limits cholesterol biosynthesis and hepatic concentration levels. Among the newer statins, rosuvastatin has gained prominence for its efficacy and potency. Despite being highly effective, statins are associated with a spectrum of side effects, ranging from mild myalgia and myopathy to severe rhabdomyolysis. The incidence of statin-induced myopathy ranges from 10-25%, while rhabdomyolysis occurs in less than 0.1% of patients.[1,2] In this case report, we present a rare occurrence of rhabdomyolysis in an 80-year-old female attributed to the use of rosuvastatin.

Case Presentation

An 80-year-old female with a medical history notable for hypertension and coronary artery disease presented to the Emergency Room, reporting weakness in her lower extremities persisting for the past 2 weeks. She described the tenderness as more pronounced in the right lower extremity, characterizing it as feeling 'like lead.' The patient denied sensory deficits, fevers, chills, back pain, or incontinence of bladder or bowel. Clinical examination revealed distal cool extremities, 3+ edema up to the thighs, palpable pulses, and intact sensory responses. Notably, she had a history of coronary artery disease with a prior successful percutaneous intervention involving stent placement in the right middle coronary artery. She was initially prescribed atorvastatin but was later switched to rosuvastatin 40 mg due to inadequate lipid control.

Upon admission, elevated creatinine (3.17) and a CK level of 2585 were observed, while C-reactive protein (CRP) remained within normal limits. Urinalysis indicated 3+ blood but normal red blood cell count. Imaging studies, including lower extremity duplex ultrasound, ankle brachial index and MRI of the lower back, were unremarkable. Liver enzymes, AST and ALT, were elevated at 114 and 110, respectively. Lower extremity weakness and pain were attributed to rosuvastatin-induced rhabdomyolysis, leading to the discontinuation of rosuvastatin. Intravenous fluids were initiated, and CK levels were monitored daily (refer to Table 1 for CK trends during the inpatient stay). The hospitalization was complicated by episodes of hypokalemia, which were managed with potassium replacement. Over the 8-day hospitalization period, CK, creatinine, and liver enzyme levels gradually improved. A two-week follow-up with her primary care physician post-discharge revealed that the patient was doing well, with no complaints of lower extremity pain or weakness. Rosuvastatin was permanently

Table 1. Creatinine kinase (CK) trend from admission to day 8 of hospitalization.

Day	1	2	3	4	5	6	7	8
Creatinine kinase (CK)	2585	1576	1596	1230	796	567	246	200

discontinued, and ezetimibe was initiated for hyperlipidemia management.

Discussion

Rhabdomyolysis is defined as creatinine kinase (CK) greater than 10 times the upper limit of normal without other causes of muscle injury.[2] A review of the literature has revealed varying percentages of risk associated with different statins. The overall risk of statin induced rhabdomyolysis was 2.0 cases / 10,000 person years of treatment with atorvastatin 0.6 cases, rosuvastatin 1.2 cases, lovastatin 0.3 cases and cerivastatin 8.4 cases per 10,000 person years of treatment. Cerivastatin was removed from the market because of its high risk.[1]

Several risk factors have been identified in literature which predispose a person to develop statin induced rhabdomyolysis. They include old age, female sex, low body mass, alcohol or drug abuse, polypharmacy and hypothyroidism.[3] Of these seven identified risk factors, our patient had three of them; old age, female sex and polypharmacy.

Statins can cause a spectrum of muscular injury ranging from myopathy to rhabdomyolysis. Muscular injury is characterized by the release of sarcoplasmic proteins including AST, ALT and CK.[4] Testing for these proteins in patients with muscular pain should be done as soon as possible to stop the offending agent and start the appropriate treatment. Treatment of rhabdomyolysis include supportive treatment with fluids and electrolyte replacements. Early rehydration can potentially prevent complications including AKI, hyperkalemia and cardiac arrhythmias. AKI is a potential life threatening complication of rhabdomyolysis associated with in hospital mortality rate of 8.8%.[5] Our patient had an AKI on admission with creatinine levels of 3.17.

Despite having slightly higher risk for rhabdomyolysis, rosuvastatin is commonly preferred over other statins due to its higher cholesterol lowering potency. Studies comparing rosuvastatin against other statins showed that rosuvastatin had higher LDL C lowering and atherosclerosis effect.[6]

Conclusion

Rosuvastatin is frequently prescribed for lipid level reduction. In summary, our case adds to the expanding body of case reports on the potential adverse effects associated with rosuvastatin. While uncommon, this case serves to alert physicians to the possibility of rhabdomyolysis and emphasizes the importance of assessing both creatinine kinases and liver enzymes, as rapidly as possible, in all patients on rosuvastatin with muscular pain.

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The State of Palliative Care in South Dakota

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Michele Snyders, MSW, CSW-PIP, APHSW-C; and Michelle Gierach, EdD, RN, CNE

Abstract

As numbers of patients living with chronic diseases are increasing, there is a growing demand for physicians who have knowledge to provide interventions that align with the goals of palliative care. The increasing number of patients living with chronic disease creates a challenge for the healthcare landscape of South Dakota. Even though South Dakota has a growing number of fellowship trained and board certified palliative and hospice physicians to help meet patient needs, there is a shortage of providers to meet the demand. This article provides an overview of the state of palliative care in South Dakota. A brief background of palliative care is provided along with information related to advanced training for physicians. An overview of legislation addressing palliative care for the 2024 session is provided. Through the collaboration of our healthcare teams, universities, and the South Dakota Association of Healthcare Organization, there is increasing exposure to palliative care principles, patient care, and a unified vision for palliative care in South Dakota is being created.

The State of Palliative Care in South Dakota

Increasing numbers of people in the United States are living longer, and many of them are living with chronic illness; South Dakota is no exception. The increase in chronic illness necessitates physicians who are trained to provide comprehensive management. Despite the smaller population of the state, the projected total cost of chronic illness in South Dakota from 2016-2030 is $113 billion.[1] It is estimated that nearly 23% of South Dakota residents will be living with three or more chronic illnesses by 2030.[1] Since healthcare costs are directly related to the number of chronic illnesses, South Dakota can anticipate even higher medical costs in the future.

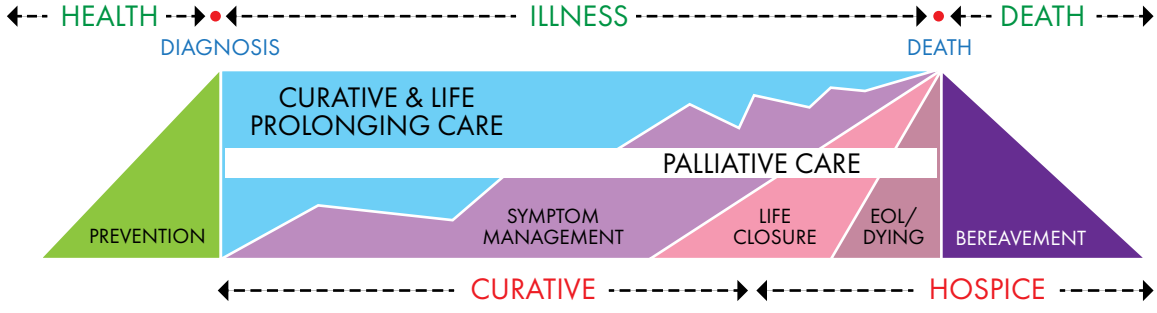
Improving access to palliative care in South Dakota may help curb these rising costs while also improving the lives of those living with chronic illnesses. Systematic reviews have shown that palliative care significantly reduces healthcare utilization and symptom burden[2] as well as having positive impact on quality of life and survival.[3]

What is Palliative Care

Palliative care is defined as specialty medical care for those suffering from chronic illness-associated symptoms and side effects of treating those illnesses.[4] Palliative care can be provided as soon as a chronic illness is diagnosed until a person qualifies for hospice (life expectancy of six months or less and curative treatments stop), see Figure 1.[5]

Hospice care was founded by Dame Cicley Saunders and introduced to America in 1963 at a Yale lecture.[6] This was

Figure 1. Palliative care can be provided as soon as a chronic illness is diagnosed until a person qualifies for hospice (life expectancy of six months or less and curative treatments stop).



the foundation of the hospice and palliative care movement in America. It continued with Elizabeth Kubler Ross, who wrote *On Death and Dying* which identified the stages of grief people experience with end of life.[6] In 1982, Medicare created and approved the hospice benefit.[6] In 2006, the American Board of Subspecialities recognized Hospice and Palliative Medicine as its own specialty.[6] Therefore, palliative medicine is a relatively new specialty and certification has evolved with growing education opportunities.

To become a Specialty Palliative Medicine physician, individuals must complete a hospice and palliative medicine fellowship after completing medical school and being certified in one of the following areas: anesthesiology, emergency medicine, family medicine, internal medicine, obstetrics and gynecology, pediatrics, physical medicine and rehabilitation, psychiatry and neurology, surgery, or radiology. During fellowship one undergoes 12 months of education, collaborating with interdisciplinary members while completing rotations across the lifespan: maternal-fetal loss, pediatrics, adult ages, and geriatrics.[7] They sit for a board examination and can become a Fellow of the American Academy of Hospice and Palliative Medicine after 7 years of experience in the field.[7] Important to note, the specialty can be delineated into pediatric or adult palliative and hospice medicine; both certified under the same board.

In addition, the Hospice Medical Director Certification Board (HMDCB) is a nonprofit organization that has a Hospice Medical Director certification. Physicians eligible to sit for the HMDCB examination must have 2 years of experience, hospice and palliative medicine certification, or have completed a hospice and palliative care fellowship. The skills utilized in hospice care are applied in the palliative domain; however, palliative care occurs earlier in the disease processes and has different goals of care identified. This requires a different set of skills, henceforth the need for specialist palliative medicine training.[8]

Palliative Care in South Dakota

The Center to Advance Palliative Care (CAPC) released a *State-by-State Report Card* in 2019 after analyzing the availability of palliative care for those living with a serious illness in the United States. This report informs interested parties, including policymakers, about how accessible palliative care services are within their state.[9] South Dakota was given a letter grade of 'A' as 88.9% of hospitals with 50 beds or more offer palliative care services.[10] However, as one considers the vast geographical distances persons in South Dakota must travel for healthcare services, access to palliative care in the rural and frontier areas is desolate. By completing an informal state scan, fellowship trained physicians are only located in Rapid City, Yankton, and Sioux Falls. This is supported by a 2019 analysis of palliative care in South Dakota which revealed disparities in palliative care availability and provision in rural South Dakota.[11] While a comprehensive statewide model is needed for palliative care in South Dakota, there is inadequate understanding and awareness of what palliative care encompasses and rural communities are lacking the resources to implement such a model.[11]

South Dakota has a growing provider group that is providing primary palliative care. This is palliative care given by a provider who is not specialty trained in palliative care. They have taken online courses and/or attended training to provide symptomatic care and support alongside having goals of care conversations. They are bridging the gap between specialty palliative care and primary care teams. Primary palliative care should be provided by all healthcare professionals including family medicine, internal medicine, specialists like oncology and cardiology, pharmacists, social workers, nurses, and chaplains.[4] Skills include basic symptom management, routine goals of care conversations, and advance care planning. Specialty palliative care referrals should be made for complex symptom management, complicated family dynamics that impact advance care planning or if there are significant psychosocial or spiritual issues that require the use of a specially trained interdisciplinary team.

In the last decade, a growing number of palliative and hospice board certified and/or fellowship trained physicians have come to practice in South Dakota, see Table 1. This is not an all-inclusive list of hospice and/or palliative care physicians and teams. These are the groups that have been active with South Dakota Association of Healthcare Organizations (SDAHO). If there are providers not listed here, they are encouraged to connect with SDAHO at https://sdaho.org/contact/.

Legislation

Many states are turning to their legislature to address palliative care policies for healthcare professionals and organizations, including licensure and programmatic quality oversight;[12] professional and public education; and reimbursement for palliative care, especially home-based palliative care. Recommendations from the CAPC[12] are that policies should address:

- **Access** to specialty palliative care, including workforce adequacy and preparation; program availability in all

relevant care settings; and reliable payment models.

- **Quality** of specialty palliative care, including program standards and quality measurement.
- **Training** of all clinicians in the essential skills (communication, pain and symptom management, family support) necessary to provide quality care to people with serious illness.

The National Academy for State Health Policy's (NASHP) strategy identifies that access to palliative care services is limited by professional and public education on palliative care, sufficient qualified healthcare professionals, and reimbursement for the interdisciplinary team.[13]

Between 2019 and 2022, 17 states have enacted legislation and /or allocated budgetary funds that support and expand initiatives around palliative care for older adults.[14] As of 2023, 21 states have passed legislation establishing education programs to promote palliative care among healthcare providers and the public[15] and thirty-one states added legislation[16] creating Palliative Care Advisory Councils that have made recommendations to the states' Department of Health to promote public and professional education on palliative care, recommend initiatives that improve access to

Table 1. Palliative and Hospice fellowship trained, board certified physicians in South Dakota.

	Fellowship trained	Board certified	Practicing
Franny Arneson, MD, FAAHPM	Dartmouth	X	Avera McKennan
Dinah Lie Ligasaputri, MD	University of California-San Francisco	X	Avera McKennan
Tyler Jares, MD	University of Iowa	X	Avera McKennan
*Andrea Baier, MD		X	Monument Health
Emily Duffy, MD	University of Wisconsin	X	Monument Health
Edgardo Fortuno, DO	University of Texas MD Anderson Cancer Center	X	Sanford
Emily Haggerty, MD	Yes	Pending	Sanford
*Teri Peterson-Henry, DO		X	Sanford
Ryan Lewis, MD	Yes	X	Sanford
Daniel Mark, MD	Cincinnati Childrens Hospital Medical Center	X	Sanford Pediatric Palliative Medicine
Paulo Nino, MD	Jackson Memorial Hospital	X	Sanford Pediatric Palliative Medicine
Amanda Sedlacek, DO	SummaHealth	X	Yankton Medical Clinic P.C.

*Completed boards prior to 2014 fellowship requirement.

Table 2. South Dakota legislation.

SD SCR11- Adopted 2018	SD SCR2 Adopted 2019	SD H1219 Failed 2020	SD S122 Pending from 2023
"Expresses support for access to patient-centered and family focused advance care planning"	"Provides for legislative task force to study, report, develop and consider recommendations as proposed legislation regarding sustainable improvements to the continuum of mental health services available in the state"	"Required certain healthcare professionals to recommend treatment alternatives to opioids"	"Addresses the potential abuse of opiate and opioid drugs"*

*This bill was sent to the 41st day, meaning the bill is dead unless enough legislators decide to revive it. The bill would have placed several restrictions on prescribers making it potentially difficult for palliative care patients to receive adequate pain control.

palliative care, and set standards and quality indicators for palliative care programs.

Palliative Care Law and Policy GPS tracks legislation on palliative care and improvements in the care of people with serious illnesses and is regularly updated. According to this source, prior to the 2024 legislative session, SD had 4 legislative initiatives that affect people with serious illness of which only 2 had been adopted, one is pending and one failed.[17] See Table 2.

During the 2024 legislative session a definition of palliative care was introduced through Senate Bill 147. This recommendation came from the 2023 Legislative Summer Study on Sustainable Models for Long Term Care. Senate Bill 147 passed unanimously in both the House and Senate and was signed into law on March 7, 2024. The bill also requires education on palliative care be made available on the Department of Health's website which is currently being drafted. In the future, additional legislative work will begin on funding for community based palliative care that provides reimbursement for the interdisciplinary palliative care team.

Conclusion

The need to address palliative care across the lifespan is a growing concern across the United States, and especially in rural South Dakota. As patient care becomes more complex and providers reflect on the patient's wishes and recovery, it is important to have pediatric through adult palliative care support available (please refer to Table 2). A growing number of physicians and other healthcare professionals are providing primary palliative care support (introduction of goals of care and symptom management) to patients in South Dakota which addresses this gap; however, growth is needed. Specialty Palliative Medicine, although a new subspecialty, is growing and available across South Dakota (please refer to Table 1) to provide medical management of complex symptoms and goals of care support. Through the collaboration of our healthcare teams, universities, and SDAHO, there is increasing exposure to palliative care principles, patient care, and a unified vision for palliative care in South Dakota is being created.

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Immature Smooth Muscle Infiltration in Sporadic Lymphangioleiomyomatosis: A Case Study

Conner Stearns, MS II; DesiRae Muirhead, MD; and Brandon Rosell, DO

Abstract

Lymphangioleiomyomatosis (LAM) is a rare cystic lung disease that causes progressive pulmonary damage. It typically affects young reproductive-age females with tuberous sclerosis complex (TSC). The clinical manifestations of LAM result from the progressive invasion of abnormal smooth muscle cells into lung parenchyma, lymphatics, or pulmonary vasculature. A 43-year-old female presented to the emergency department with a 4-week history of radiating chest pain and shortness of breath. The workup revealed multiple bilateral, small, parenchymal cysts and a left spontaneous pneumothorax. A wedge biopsy confirmed the diagnosis of lymphangioleiomyomatosis. Although LAM is often associated with TSC, it can also be sporadic. Treatment often relies on the degree of lung function and extent of lung damage.

Background

LAM is a progressive cystic lung disease resulting from the invasion of abnormal smooth muscle cells into the parenchyma, vasculature, and lymphatics of the lungs bilaterally. The invasion of these smooth muscle cells in LAM leads to the formation of diffuse cysts and progressively worsening respiratory symptoms. Symptoms commonly progress from shortness of breath on exertion to shortness of breath at rest, and eventually to more severe manifestations. In a registry of 243 patients, spontaneous pneumothorax was present in approximately 60% of patients and pleural effusion in nearly 25% of patients.[1] LAM can present sporadically (S-LAM) or in association with tuberous sclerosis complex (TSC-LAM), with both types almost exclusively affecting premenopausal women. Additional symptoms of LAM include renal and pelvic angiomyolipoma, which is present in 30% of S-LAM cases and nearly 90% of TSC-LAM cases.[2] In one study of LAM patients, a prevalence of 3.4-7.8 per million women and an incidence of 0.23-0.31/million women/year were calculated using patient data from 7 countries.[3] This case study will review a typical presentation of this disease with multiple hydropneumothoraces and the diagnostic process that led to this rare diagnosis.

Case Report

A 43-year-old female presents to the emergency department with a 4-week history of chest pain radiating to the shoulder blades bilaterally and shortness of breath without coughing or nausea. The patient's medical history is unremarkable for pulmonary disease, and her obstetric history includes a prior cesarean section. The patient reports 5.0 standard drinks per week socially and denies any history of smoking or tobacco use. She has no known medication allergies. The patient is married with three children and is employed. She has no relevant surgical history and denies any family history of pulmonary disease. The patient's physical exam revealed diminished lung sounds on the left as compared to the right but was otherwise unremarkable.

Laboratory testing was significant for an elevated protime of 14.9 seconds, elevated INR of 1.2, and an elevated d-dimer of 0.93 ug/ml. A complete blood count and comprehensive metabolic panel returned values within reference ranges. Screening for antinuclear antibodies (ANA) was positive, and an ANA titer returned a value of 1:160 with a speckled immunofluorescence pattern. Further autoimmune testing was positive for anti-dsDNA antibodies at 36 iu/ml. In order to rule out pulmonary embolism and evaluate for aortic dissection, a CT of the chest was ordered. The CT returned normal findings regarding the aorta with no evidence of thromboembolic disease. The imaging did reveal a large left hydropneumothorax, a small left pleural effusion, patchy left lung atelectasis, and multiple thin-walled bilateral pulmonary parenchymal cysts. There was also a 5 cm hypodense right lobe liver lesion consistent with a hemangioma. CT findings were suggestive of either TSC or LAM. Following imaging, the patient had a chest tube placed at the bedside that drained 5ml of serous fluid and a large amount of air. The patient

was discharged after three days following chest tube removal with instructions to follow up with pulmonary medicine for pulmonary testing and rheumatology concerning her ANA titer and anti-dsDNA antibody results.

The patient presented to the emergency department less than two weeks later with a similar episode of chest pain. Chest X-ray on admission revealed another left hydropneumothorax. The patient also had positive confirmatory anti-dsDNA IgG antibody testing by *Crithidia luciliae* indirect immunofluorescence assay. Despite this finding and her previous ANA titer results, she did not demonstrate any other clinical features of systemic lupus erythematosus and, as such, is not currently being treated for this condition. The patient again underwent chest tube placement and drainage. A video-assisted thoracoscopic pleurodesis was performed for tertiary prevention of further hydropneumothoraces, and a wedge biopsy was performed on the left cystic lung lesion. The hematoxylin and eosin-stained histologic sections demonstrated varying-sized small pulmonary cysts with associated bland, round to spindled cells with eosinophilic cytoplasm (Figures 1 and 2). Immunohistochemical stains revealed the spindled cells to be positive for both HMB45 and SMA, confirming a diagnosis of LAM (Figure 3). Bacterial and fungal cultures of the serous fluid were negative. Follow-up chest CT confirmed stable diffuse parenchymal cysts in the lungs bilaterally, and a CT of the abdomen and pelvis revealed bilateral benign-appearing

Figure 1. Normal lung parenchyma (left) with thin alveolar walls (arrow) and blood vessels (asterisk) compared to dilated cystic alveoli (diamonds) with eosinophilic, plump spindle cells expanding the septa (circles) (X100 magnification, H&E).

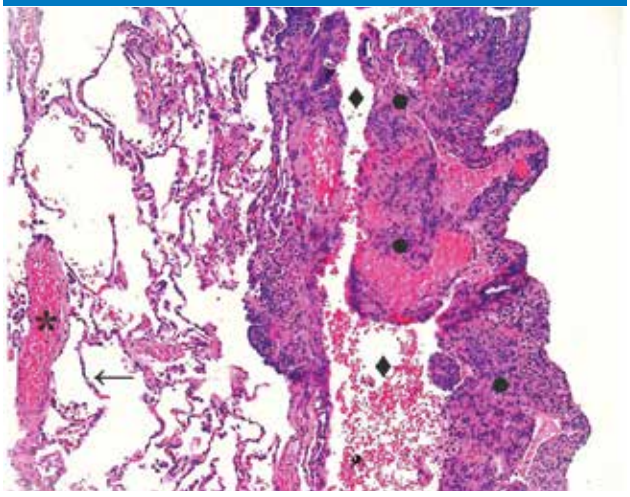


Figure 2. High power magnification of spindle LAM cells expanding alveolar walls and involving a blood vessel (center). The nuclei are ovoid to fusiform with eosinophilic and occasionally vacuolated cytoplasm. No cellular atypia or mitotic activity is appreciated (X400 magnification, H&E).

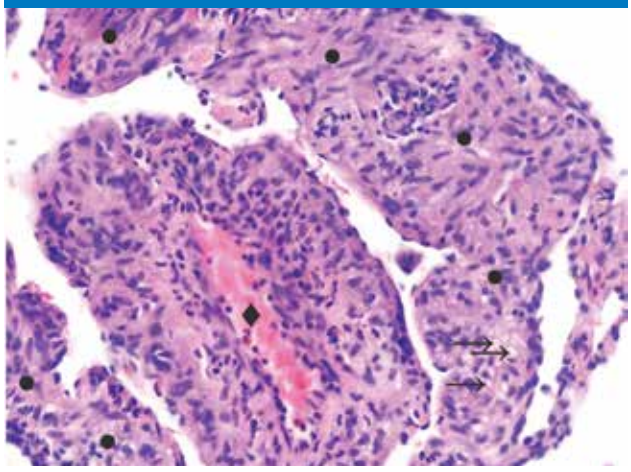
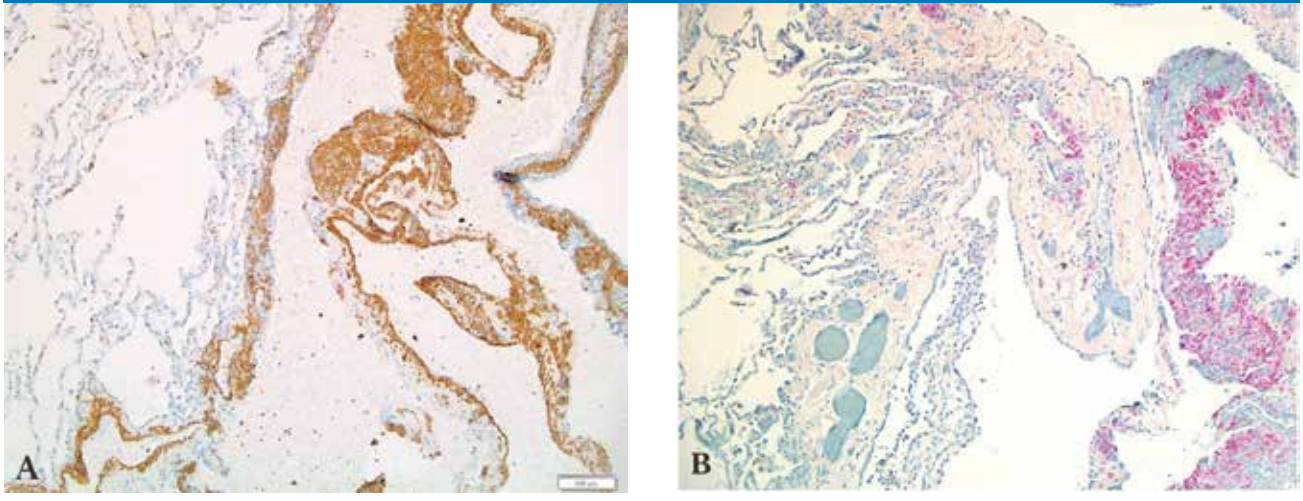


Figure 3. Thickened, cystic alveoli with lymphangioleiomyomatosis cells highlighted by immunohistochemical stains for Smooth Muscle Actin (SMA, Figure 3A) and Human Melanoma Black (HMB-45, Figure 3B) in brown and red, respectively (X100 magnification).



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ovarian cysts, 17 x 12 mm in the left ovary and 29 x 24 mm in the right ovary, with no renal masses identified.

Following discharge, the patient was referred to the Mayo Clinic for specialized management of LAM. Pulmonary function testing was performed, and the patient demonstrated adequate lung function without the use of bronchodilators. The patient is now being followed by the Mayo Clinic pulmonology service for management of this condition and will undergo repeat chest imaging and complete yearly pulmonary function testing to monitor progression.

Discussion

The etiology of sporadic LAM is still being investigated; however, some mutations have been linked to sporadic cases, such as *TSC2*, which is present in roughly 70% of patients and is associated with more severe disease states.[4] *TSC1* and *TSC2* mutations are associated with inappropriate activation of mammalian target of rapamycin (mTOR) pathway signaling, leading to inappropriate cell proliferation. Sirolimus has become the most common initial treatment for both types of LAM due to its anti-proliferative action as an mTOR inhibitor.[5,6] S-LAM can also be subject to hormonal exacerbation in high estrogen states. This results in faster respiratory decline in premenopausal patients, pregnant patients, and patients taking birth control medications containing estrogen.[7,8]

LAM associated with TSC is thought to have a similar etiology with variation in presentation and associated symptoms. TSC is inherited in an autosomal dominant fashion, with two-thirds of patients possessing de novo pathogenic mutations in either the *TSC1* or *TSC2* genes, which can predispose these individuals to LAM.[9] TSC-LAM is associated with a higher level of multisystem involvement, while S-LAM has more frequent pulmonary manifestations than TSC-LAM. In a review of over 300 patients with LAM, those with TSC-LAM had much more frequent occurrence of hepatic (33% vs 2%) and renal (93% vs 32%) angiomyolipoma than patients with S-LAM.[10] Multifocal micronodular pneumocyte hyperplasia is also a specific manifestation in TSC-LAM that is not present in S-LAM.[11]

The primary differentiating factor for these two conditions is the more extensive number of clinical manifestations associated with TSC as compared to LAM. TSC has several major and minor diagnostic criteria that can be appreciated upon initial presentation that can indicate the need for further testing, such as ungual fibroma, intraoral fibromas, Shagreen patches, hypomelanotic macules, and confetti skin lesions.[12] CT findings indicative of TSC include renal cysts, systemic hamartomas, angiomyolipoma, and CNS findings such as subependymal nodules and subependymal giant cell astrocytoma.[12] TSC is also associated with a previous medical history of seizures, cognitive impairment, and autism spectrum disorder.[12] In this case, none of these manifestations were appreciated and the patient's medical history did not include any of these conditions. If more TSC criteria were met, a non-lesional biopsy could be pursued to confirm a diagnosis of TSC-LAM through genetic testing. Neither a three-generation family history nor genetic testing was performed in this case by Sanford or the Mayo Clinic given the patient's lack of significant medical history and exam findings suggestive of TSC.

The management of symptomatic LAM with Sirolimus can be supported by monitoring the status of the lungs with periodic CT scans and supplementary treatments, including bronchodilators in responsive patients.[13] For patients whose symptoms continue to worsen despite mTOR inhibitor treatment, lung transplantation remains an option, as well as pleurodesis following an instance of pneumothorax. However, it must be considered whether undergoing pleurodesis may influence a patient's eligibility for future lung transplantation.[14] An emerging lab value of note in diagnosing LAM is vascular endothelial growth factor-D (VEGF-D). An elevated VEGF-D value shows high specificity for LAM, albeit reduced sensitivity, and could serve as a potential biomarker.[15] This test returned values within reference ranges in this case. It is also important to work with patients to accommodate birth control needs without exacerbating their respiratory symptoms by avoiding medications containing estrogens.

Conclusion

This case represents a pathologically typical presentation of S-LAM, with low multisystem involvement and recurrent hydropneumothoraces. Communication between clinicians and consulting specialists, along with accurate documentation of interventions, is crucial to monitoring the progression of LAM. The progressive and chronic nature of LAM requires proper consideration of patient well-being and patient involvement in the medical decision-making process is essential. Due to the high variability in both symptoms and severity seen in LAM, frequent imaging and pulmonary function testing is vital to monitor the progression of the disease and properly pursue treatment options once a diagnosis has been made.

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Carpal Tunnel, Trigger Finger, and Spinal Stenosis: The Rest of the Story

Joseph Rath MD; Victoria Durkin, MD; and Robert E. Van Demark, Jr., MD, FAAOS, FAOA, FACS

Abstract

Amyloidosis is a deadly systemic disease in which misfolded proteins accumulate in human tissue eventually leading to morbid dysfunction in multiple organ systems. The prognosis of untreated amyloidosis is poor. Orthopedic manifestations of amyloidosis include carpal tunnel syndrome (CTS), trigger digit, distal biceps tendon rupture, rotator cuff disease, and lumbar spinal stenosis. These orthopedic conditions are early red flags for systemic amyloidosis. CTS is often the earliest manifestation and can precede the disease by over four years. With the advent of medications that can slow the progression of amyloidosis, particularly in the early stages of the disease, it is imperative to diagnose amyloidosis early on. Both primary care physicians and orthopedic surgeons can recognize the various orthopedic conditions associated with amyloidosis and play a vital role in early disease detection. Awareness of the musculoskeletal presentation of systemic amyloidosis can lead to earlier detection and treatment that can delay the progression of the disease.

Introduction

There has been a new interest in screening for amyloidosis using early-onset orthopedic manifestations. The two most common types of amyloidosis, Amyloid derived from Light Chain (designated AL) and Amyloid derived from Transthyretin (designated ATTR), can cause cardiac amyloidosis, which was thought to be untreatable.[1,2,3] New therapies can change the disease course and outcome if initiated early.[2,3] The most common orthopedic manifestation of amyloidosis, CTS, has been found to precede cardiac symptoms and the formal diagnosis of systemic amyloidosis by four to ten years.[2,3] The focus of this review is to highlight CTS and other orthopedic conditions associated with systemic amyloidosis. Early detection and treatment of amyloidosis will help to reduce disease morbidity and mortality.[2,3]

Systemic Amyloidosis

Systemic amyloidosis is a rare disorder caused by protein misfolding and extracellular amyloid deposition leading to organ dysfunction. Amyloid deposits are formed from proteins that are misfolded and subsequently aggregate. These deposits are insoluble, hydrophobic, and non-functional proteinaceous fibers.[1,2] The formation of amyloid fibers can be caused by a prolonged elevated concentration of the proteins that misfold, an accumulation of proteins due to an acquired, hereditary mutation, or an innate predilection to misfold.[1] When concentrations of misfolded proteins increase, the body's ability to remove the amyloid proteins becomes overwhelmed causing amyloidogenesis.[1,2]

Amyloid protein in tissues leads to dysfunction and eventual end-organ failure commonly in the kidneys, heart, nervous system, gastrointestinal tract, and liver. Muscles, tendons, ligaments, and other soft tissues may also be involved and may present as an orthopedic problem years before other organ damage is detected.[2-4] There are over 30 proteins known to misfold and deposit, locally or systemically, but this review will focus on two of the most common types of systemic amyloidosis: light chain and transthyretin.[1-5]

Transthyretin amyloidosis (ATTR) is one of the two most common systemic amyloidosis. Transthyretin (abbreviated TTR) is a retinol and thyroxine transporter, and these protein deposits can arise as a wild type (designated ATTRwt) or a hereditary mutation of transthyretin (designated ATTRm) that results in the destabilization of the protein.[2,3,5] The true prevalence of amyloid caused by wild-type transthyretin (ATTRwt) is unknown and thought to be underdiagnosed. However, studies have found ATTRwt deposits in 25% of people over the age of 80 years with 8-16% having clinical

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manifestations.[2,5] ATTRm amyloidosis is from a hereditary mutation in the transthyretin protein that will often affect the peripheral nervous system and cardiovascular system.[5] The prevalence of ATTRm is unclear.[3]

Light chain (AL) amyloidosis is the other of the two most common forms of amyloidosis. AL amyloidosis is the deposition of misfolded monoclonal immunoglobulin lambda or kappa light chains.[1,2] A clonal plasma cell disorder causes AL amyloidosis. Multiple myeloma, a plasma cell dyscrasia, overlaps with AL amyloidosis in approximately 20% of cases.[3] Though life-threatening, AL amyloidosis is rare, affecting 50 per 1 million people in the United States with an estimated yearly incidence between 2,200 and 4,000 and a prevalence of 12,000.[1–3,5]

Clinical Presentation of Amyloidosis

The precursor proteins primarily dictate the clinical manifestations of amyloidosis although there is considerable overlap between the types of amyloidosis.[2] Clinical symptoms are wide-ranging and can affect almost any organ or system. Regarding AL and ATTR amyloidosis, cardiac involvement dictates the clinical course and outcome.[2] Presenting symptoms are usually insidious and related to heart failure, at which point outcomes are poor due to extensive cardiac involvement.[1,2,5]

Approximately two-thirds of patients with ATTRwt amyloidosis will present with heart failure. Cardiac conduction abnormalities are also common in this population.[2] The orthopedic conditions are often clues to underlying amyloidosis, preceding cardiac symptoms by years. Viewing the orthopedic conditions in combination with other patient factors can be used to aid in the early diagnosis of amyloidosis.[2,4]

Orthopedic Manifestations of Amyloidosis

Carpal tunnel syndrome (CTS) is the most common upper extremity compression neuropathy. The most common presentation of CTS is idiopathic with amyloidosis recognized as one of the minor causes.[1,6] Amyloid deposits have been found in the transverse carpal ligament (TCL), flexor retinaculum, flexor tendon sheath, synovial tissue, vessel walls, and the median nerve endoneurium. However, it remains unclear if CTS is caused by the deposition and subsequent mass effect of amyloid in connective tissue, deposition in the median nerve, or both.[3,5] CTS will often present bilaterally in cases of amyloidosis.[5] It is unclear why this is the case, but it is speculated that this is due to the systemic nature of amyloidosis and fairly equal deposition of amyloid in the same structures bilaterally.

The prevalence of CTS in the general population is 0.2-4% but 15-60% of patients with systemic amyloidosis will have CTS.[3,5,7,8] One study has shown that in 16% of patients with amyloidosis, CTS will be the presenting symptom and that it is the most common non-cardiac presenting symptom.[3,5] The second most common presenting symptom is heart failure.[5] ATTR deposits were found in 25% of patients 80 years and older, with clinical manifestations in up to 16%.[5] One study showed that 10 out of 98 patients undergoing carpal tunnel release were amyloid positive and subsequent workup revealed cardiomyopathy. Three of those patients began pharmacotherapy.[8] Bilateral carpal tunnel syndrome is the most recognized early diagnosis preceding an amyloid diagnosis by 4-10 years in 30-50% of patients and diagnosis of systemic amyloidosis by 6.9 years.[2,3,5,6] From the time of diagnosis of amyloid cardiomyopathy, patients with ATTR amyloidosis have a median survival of 4 years and those with AL amyloidosis have a 6-month median survival.[8] Using CTS as a red flag symptom in conjunction with other patient factors and screening tools it is possible to screen for amyloidosis in high-risk patients.[6,8]

Other common orthopedic conditions seen with amyloidosis include trigger digit (TD), spontaneous distal biceps tendon rupture, and lumbar spinal stenosis. These conditions not characterized as well as CTS and amyloidosis but are considered red-flag diseases in the elderly population and often precede the diagnosis of amyloidosis by 5-10 years.[3–5]

Trigger digit, or stenosing flexor tenosynovitis, is a thickening of the A1 pulley creating a size mismatch between the pulley and the flexor tendon and is starting to be recognized as another early sign of amyloidosis. Symptoms of trigger digit include pain at the base of the finger, clicking, and locking of the digit.[3,5] Amyloid deposits are present in the A1 pulley and the flexor tendon sheath synovium.[3,5] When associated with amyloidosis, patients frequently have a history of or concomitant CTS, multiple trigger digits, and are affected bilaterally.[3,4]

CTS and TD can often occur in the same patients and a recent study demonstrated that 6/10 patients with either AL or ATTR and CTS had a history of TD.[3] A recent retrospective cohort study by Sood et al. found that in patients undergoing trigger digit release (TDR), 52 out of 26,757 were diagnosed with amyloidosis at a median of 4.7 years after surgery. In patients undergoing CTR, amyloidosis was diagnosed in 396 out of 91,384 at a median of 5.1 years after surgery. Of the

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patients undergoing both CTR and TDR, 50 out of 8,647 were diagnosed with amyloidosis at a median of 3.1 years after surgery. In the control group of 113,452 patients, 50 were diagnosed with amyloidosis at a median of 5 years after the index date.[4] The relationship between CTS and trigger digit as an early red flag requires more work to determine how common TD is in amyloidosis. However, it is recommended to consider screening for amyloidosis in elderly patients with bilateral TD affecting multiple digits who have a history of CTR.[3,4]

Spontaneous rupture of the distal biceps tendon, especially in elderly patients, is a common diagnosis associated with amyloidosis and can be an early sign of undiagnosed amyloidosis.[2-5,7,8] Amyloid deposits in soft tissue weaken the tendon leading to spontaneous (atraumatic) rupture or a rupture secondary to minor trauma.[5] A study by Geller et al. found that in 111 patients over the age of 50 with heart failure secondary to amyloidosis the incidence of distal biceps tendon rupture was 33.3% compared to 2.5% in patients with heart failure not due to amyloidosis.[9] In a group of patients with ATTR amyloidosis, distal biceps tendon rupture preceded the diagnosis of heart failure by 5 years.[5]

Some less common and less investigated orthopedic manifestations associated with amyloidosis are pain and weakness in the shoulder girdle and rotator cuff disease including tendon rupture. Patients may have the "shoulder pad sign" which is hypertrophy of the shoulder musculature secondary to amyloid deposition. Using Computerized Tomography (CT) imaging studies, amyloid cysts can be found in bone and thickened shoulder synovium.[3,5,7,10]

Diagnosis and Testing

Surgeons first noted amyloid, a tough whitish-gray substance, over 60 years ago in patients undergoing a carpal tunnel release.[3,6] With the growing recognition that CTS and other orthopedic conditions may be early warning signs of amyloidosis there has been growing interest in screening high-risk patients.[3,5] Early diagnosis has now become even more crucial with the advent of new therapies for treating systemic amyloidosis which are most effective in the early stages of the disease.[4-6]

Donnelly et al. and Sood et al. have developed algorithms or nomograms for screening of amyloidosis.[3,6] These tools use patient characteristics and history to determine the future risk of amyloidosis and the need for biopsy during an orthopedic procedure such as CTR.[3,6] Common risk factors in both tools are: Age of men over 50 and women over 60, male sex, bilateral CTS (current or previous diagnosis), spinal stenosis, distal biceps tendon rupture, atrial fibrillation or flutter, pacemaker placement, congestive heart failure, or a family history of ATTR amyloidosis.[6,8]

Sood et al. conducted a large retrospective cohort study to characterize the risk of being diagnosed with amyloid after trigger digit release (TDR) and/or carpal tunnel release (CTR).[6] They found patients with TDR and/or CTR are at increased risk of being diagnosed with amyloidosis. The nomogram by Sood et al. includes the following risk factors and points given if present:

Demographics:

Age: Points variable, higher age awarded more points. Range 0-100.

Male Sex: 28 points

African American / Black Race: 42 points

Potential Risk Factors

Rheumatoid Arthritis: 22 points

MGUS/Multiple Myeloma: 11 points

Potential Signs of undiagnosed amyloidosis;

Spinal Stenosis: 14 points

Atrial Fibrillation: 8 points

Bilateral Carpal Tunnel Syndrome: 16 points

A patient is given points based on their age and a set number of points for each demographic, risk factor, and potential sign of undiagnosed amyloidosis. The points are totaled and compared to a scale that gives the risk percent of being diagnosed with amyloidosis at 10 years.[6] Based on their experience, Sood et al. suggest using advanced age, bilateral CTS, and Black/African American race as the strongest predictors for amyloidosis.[6] The creators of this nomogram suggest a low threshold to biopsy given the low risk associated with intraoperative biopsy and the opportunity to decrease morbidity and mortality of amyloidosis. The threshold Sood et al. recommend is to biopsy anyone with a risk score of 70 or greater and strongly recommend biopsy in anyone with a score of 100 or more.[6] Please view reference number 6, "Diagnosing systemic amyloidosis presenting as carpal tunnel syndrome: a risk nomogram to guide biopsy at time of carpal tunnel release" by Sood et al. for the complete nomogram.

Donnelly, et al.[3] described a two-tiered screening algorithm based on the following risk factors:

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Tier I

Male > age 50

Female> age 60

Bilateral carpal tunnel symptoms or previous surgery

Tier II

Spinal Stenosis

Biceps Tendon Rupture

Arterial Fibrillation or Flutter (active or previously)

Pacemaker

Congestive Heart Failure

Family history of ATTR amyloidosis

Tier I factors are males age 50 or greater, females age 60 or greater, and bilateral CTS. Tier II factors include spinal stenosis, biceps tendon rupture, atrial fibrillation or flutter, pacemaker, congestive heart failure, and a family history of ATTR amyloidosis. Two risk factors from Tier I or a combination of one factor from Tier I and one from Tier II are indications for a tissue biopsy during a procedure. Presence of multiple risk factors should raise concern for undiagnosed amyloidosis and prompt further investigation with an intraoperative tenosynovium or fascial biopsy.

The screening tools for amyloidosis are effective in clinical practice. Gannon and Ward reported their experience using the tiered screening algorithm shown in above for patients undergoing carpal tunnel release.[11] Of the 62 patients who had a tenosynovial biopsy taken during CTR, 14 were amyloid-positive, 10 men and 4 women. All patients had bilateral CTS. One patient was diagnosed with asymptomatic cardiac amyloidosis and began treatment.[11]

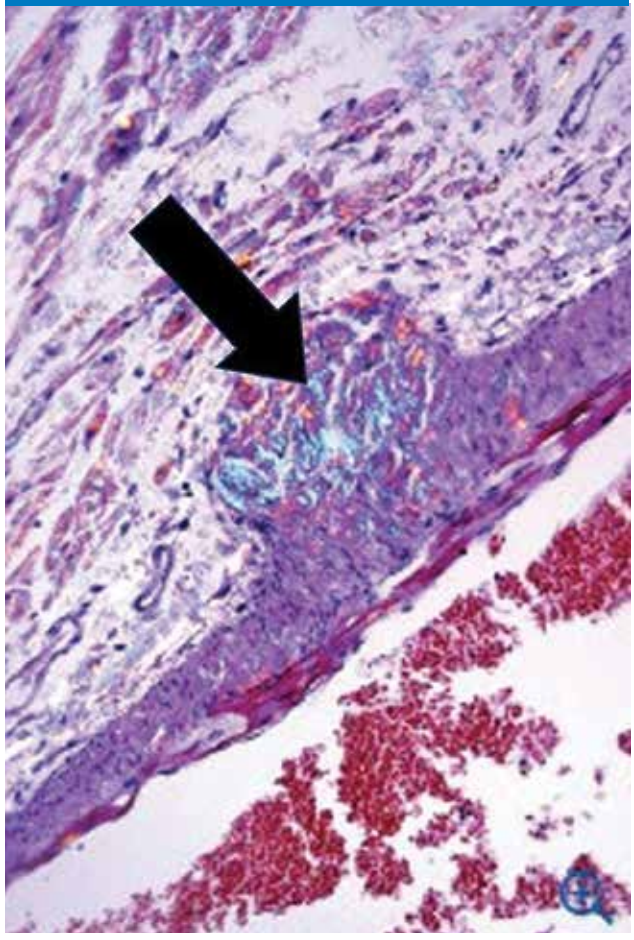
Historically, amyloidosis was diagnosed by a biopsy taken from an affected target organ system (kidney, heart) or other less invasive tissue (bone marrow, abdominal fat). Diagnosis can be made through surgery and biopsy of the suspected tissue. If amyloidosis is suspected, a biopsy of either the fascia or tendon synovium can be done during carpal tunnel surgery. The fascia usually appears grossly normal. Biopsies are low cost, have minimal risk, and are cost-effective for diagnosing amyloidosis.[5,6] Biopsies should be placed in formalin and sent for permanent histology.[5] A hematoxylin and eosin stain and a Congo Red stain should be performed as a screen for amyloidosis. A Congo Red stain is positive when it shows apple green birefringence and a sample should undergo mass spectrometry or immunohistochemistry to determine the type of amyloidosis (Figure 1).[1,3]

Patients positive for AL amyloidosis should be referred to hematology and those positive for ATTR amyloidosis should be referred to specialists in cardiology and neurology who are familiar with treating amyloidosis.[5] Similarly, in other orthopedic procedures where amyloidosis may be suspected tissue biopsy of tenosynovium may help lead to early diagnosis of amyloidosis.[4]

Amyloidosis Treatment

Recent advancements in the diagnosis and treatment of the more common types of amyloidosis have sparked efforts to diagnose the disease as early as possible. This is partly due to the poor prognosis of those with late-stage disease. Futhermore, these novel therapies act to slow or stop active disease progression by decreasing the amount of circulating amyloid but cannot destroy amyloid that has already been deposited into tissues.[3] Two medications for ATTR act in the liver, the main production site for the ATTR precursor protein, TTR.[3,5] These two medications, patisiran and

Figure 1. Congo red stain showing apple-green birefringence (black arrow). This is a positive screening test for amyloid deposits in tissue.



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inotersen, act by inhibiting the synthesis of TTR in the liver, therefor decreasing the production and formation of misfolded proteins. Two other medications, tafamidis and diflunisal, act by stabilizing TTR in its tetrameric form, preventing its' breakdown and misfolding.[5] Medications for AL amyloidosis use anti-plasma cell chemotherapy regimens.[3]

Conclusion

Orthopedists and primary care physicians can play a role in the early detection of systemic amyloidosis. Bilateral carpal tunnel syndrome, multiple trigger digits, and spontaneous distal bicep tendon rupture in men over 50 and women over 60 with a select constellation of other symptoms should be considered suspicious for undiagnosed amyloidosis. When these orthopedic risk factors are present, a biopsy of the tenosynovium or fascia can help screen for systemic amyloidosis. Screening has become essential with the advent of new therapies that are effective in the early stages of disease. The ability to intervene at an early stage of this underdiagnosed, insidious, and deadly disease is critical to reducing patients' morbidity and mortality.

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Member News

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The Issue Is...

Physicians Face Another Round of Medicare Payment Cuts

The Centers for Medicare & Medicaid Services (CMS) released the final rule for the 2025 Medicare Physician Payment Schedule. While American Medical Association staff and SDSMA staff continue to review the rule, key issues include the following:

- The 2025 Medicare conversion factor will decrease for the fifth straight year by approximately 2.83% from $33.2875 to $32.3465. Similarly, the anesthesia conversion factor will be reduced from $20.7739 to $20.3178.
- This cut is largely the result of the expiration of a 2.93% temporary update to the conversion factor at the end of 2024 and a 0 percent baseline update for 2025 under the Medicare Access and CHIP Reauthorization Act.
- These cuts coincide with ongoing growth in the cost to practice medicine as CMS projects the increase in the Medicare Economic Index (MEI) for 2025 will be 3.5 percent.

Physician practices cannot continue to absorb increasing costs while their payment rates dwindle. Both the Medicare Payment Advisory Commission and the Medicare Trustees have issued warnings about access to care problems for America's seniors and persons with disabilities if the gap between what Medicare pays physicians and what it costs to provide high-quality care continue to grow. The AMA and SDSMA support the bipartisan HR 10073, Medicare Patient Access and Practice Stabilization Act of 2024, which would stop the cut, increase physician payment by one-half of the MEI, and result in a 12-month payment update of 4.73%. This bill comes on the heels of 233 bipartisan members of Congress (140 Ds, 93 Rs) cosigning a Dear Colleague letter to House leadership that requested the latest round of cuts be replaced with a payment update that reflects inflationary pressures on physician practices.

SDSMA members are encouraged to ask Rep. Dusty Johnson to cosponsor HR 10073 by sending an Action Alert at physiciangrassrootsnetwork.org.

Volunteers Needed! Doctor of the Day Program

Consider signing up to volunteers as a Doctor of the Day! The SDSMA is looking for volunteers for the association's Doctor of the Day Program at the State Capitol during the 2025 legislative session.

This volunteer opportunity involves one day at the State Capitol in Pierre by providing basic medical assistance to elected representatives and staff as needed. South Dakota's 2025 legislative session opens January 14, 2025. **Sign up to volunteer at sdsma.org.**

Doctors of the Day have the unique opportunity to interact with legislators and get a first-hand look at the legislative process and how it affects the practice of medicine. Your presence at the Capitol shows legislators not only your expertise, but also your concern for the health of South Dakotans.

It is critical that volunteer physicians are serving each day of session. Every year we receive requests from PAs and NPs who wish to participate in the program.

Questions? Contact Justin Ohleen at 605.336.1965 or johleen@sdsma.org.

Help Support the Creation of a NEW Scholarship for Second-Year Medical Students!

As we head into the end of the year and the holiday season approaches, we all pause to give thanks for our many blessings. The South Dakota State Medical Association (SDSMA) Foundation is thankful for you and your service to the medical profession, your dedication to the people of South Dakota, and your commitment and support of medical education.

With your help, the SDSMA Foundation has provided numerous scholarships to help South Dakota medical students. This would not have been possible without generous donations from physicians like you. We now have scholarships for first-, third-, and fourth-year medical students.

We are reaching out to physicians to ask you to help support the creation of a scholarship for second-year medical students at USD SSOM. With your support, we'll be able to give to more medical students and provide a scholarship for all four years of medical school.

While we understand you have many options for making charitable donations, we ask that you consider donating to the SDSMA Foundation. An investment in medical education will have a lasting impact on the medical student recipient as well as the many patients they go on to serve during their career in medicine. All donations to the SDSMA Foundation are tax-deductible and you will receive a receipt for preparation of your taxes.

Please donate online at sdsma.org/DonateSDSMA. The SDSMA Foundation offers a feature for recurring donations as well. This allows you to set up your donations to happen automatically and make it easier for you to manage your support. Let's continue supporting our medical students!

Jennifer Tinguely

Jennifer J. Tinguely, MD, MPH
Chairperson, SDSMA Foundation

SDSMA President Visits Medical Districts

SDSMA President Jen Tinguely, MD, MPH, began her visits with District Medical Societies in September. So far, she has met with the following districts: Brookings/Madison, Yankton, Huron and Mitchell. Dr. Tinguely and physicians attending these networking events have discussed issues facing physician practices, the challenges faced in health care in South Dakota and nationwide, and the ways physicians can work together toward common goals. Dr. Tinguely is also giving updates on the SDSMA's plans for the 2025 state legislative session and how physicians can get involved.

Upcoming Meetings

- Rosebud: January 14 – 6:00 p.m., Frank Day's
- Mobridge: January 15 – 11:30 a.m., Mobridge Regional Hospital
- Pierre: January 15 – 6:00 p.m., RedRossa Italian Grille

Please consider attending your district's meeting. The SDSMA wants to hear your concerns about challenges that affect care for patients and gather ideas on how to work together to represent physicians both at the state and federal levels.

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