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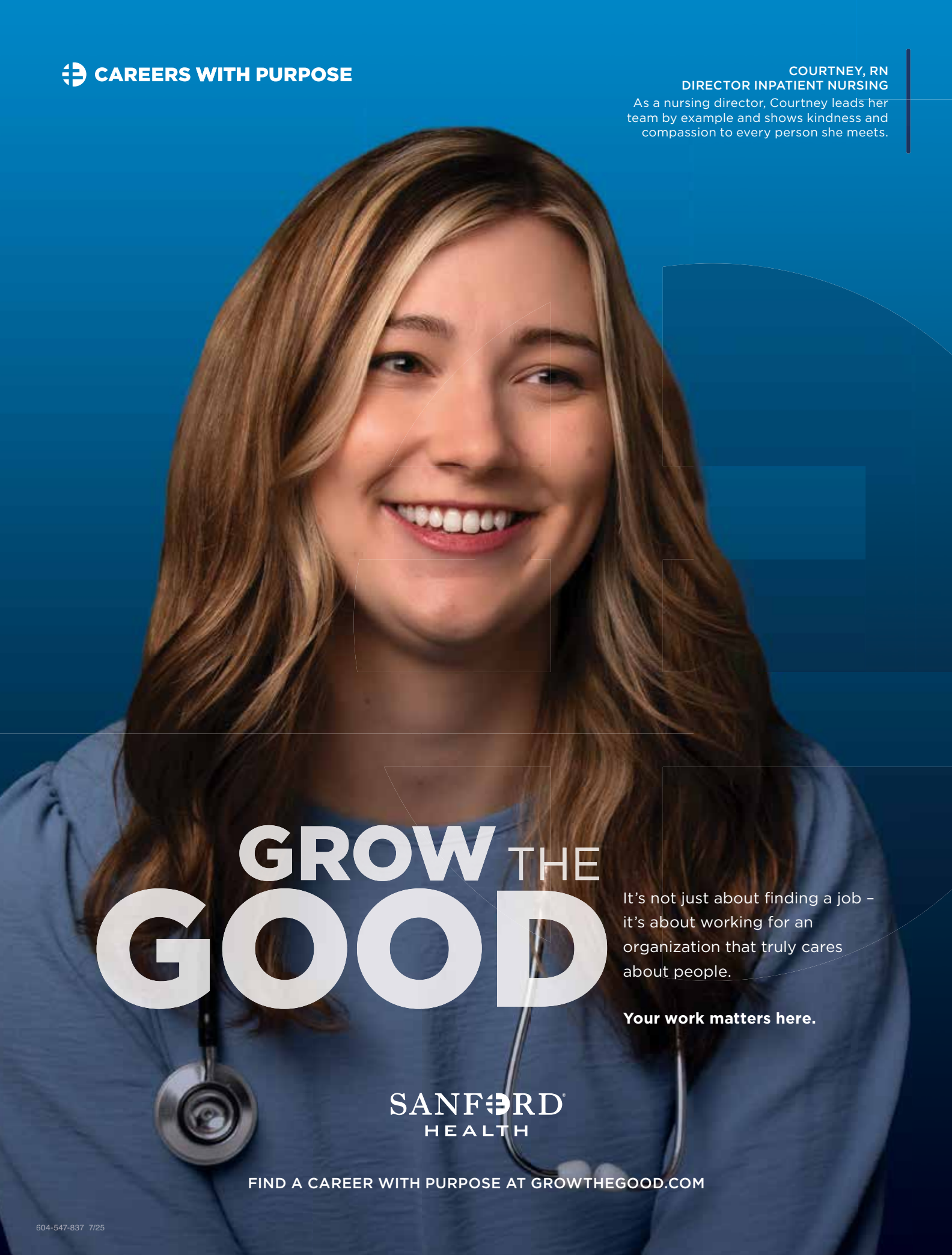
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Photo Credit: Ramona Bloodgood, aurora borealis in Alexandria, South Dakota, looking north, shot in 2024.

Background Photo Credit: Theresa Campbell, MD, aurora borealis in Mitchell, South Dakota, in 2024.

South Dakota medicine

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Office of Publication
2600 W. 49th Street, Suite 100
Sioux Falls, SD 57105
605.336.1965
Fax 605.274.3274
www.sdsma.org

Editor
Keith Hansen, MD

SDSMA President
Keith Hansen, MD

Chief Executive Officer
Tammy Hatting

Staff Editor
Elizabeth Reiss, MS
–ereiss@sdsma.org, 605.336.1965

Advertising Representative
Elizabeth Reiss, MS
–ereiss@sdsma.org, 605.336.1965

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WOMEN LIVE LONGER-

WHAT THAT MEANS FOR INCOME PLANNING

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BRITTANY HEARD, CFP®, CKA®, CFT™, CDFA®, Lead Advisor

It's a well-known fact: On Average, women tend to live longer than men by about six years.[1] But what does that mean when it comes to retirement planning and income? From a financial perspective, longevity means that women often need either more money saved for retirement or need to spend less throughout their retirement years. That's already a tough equation. And it gets tougher when you consider that, according to the Bureau of Labor Statistics and U.S. Census Bureau, in 2023 women earned just 84% of what men earned in full-time positions.[2] While that might sound a little bleak, there's good news: Investing wisely can help level the playing field.

Why Asset Allocation Matters So Much

When we help clients invest, one of the most important decisions we make is around asset allocation or how much to invest in growth-oriented (more volatile) assets like stocks vs. more preservation-focused (more stable) assets like bonds.

Think of it like this:

- The growth side of your portfolio is designed to help your money grow over time.
- The preservation side is there to act as a safety net you can rely on if the market takes a downturn.

A common question I get is: How does Foster Group decide how much money should be invested in the growth and preservation sides of your portfolio? The answer is part emotion, how comfortable you are with market risk, but mostly math.

A Retirement Example: Creating an Income Stream

Let's say you're retired and want to withdraw $50,000 a year from your investment portfolio, which totals $1,000,000.

To protect yourself from market volatility, we recommend setting aside at least eight years' worth of withdrawals on the preservation (bond) side. That's $50,000 × 8 = $400,000 in preservation (bonds). The remaining $600,000 stays in growth (stocks) for long-term growth.

This creates a 60/40 portfolio, 60% growth (stocks), 40% preservation (bonds). The idea is that your bond allocation covers your short-term income needs, while your stock allocation continues to grow and support the later years of retirement. Depending on your comfort with risk, you might lean more toward preservation, so that market swings don't leave you feeling uneasy.

What About If You're Still Working?

Let's rewind. Suppose you're 15+ years away from retirement. That means you're not drawing on your portfolio yet, and you won't need to for at least another decade and a half. In this scenario, mathematically speaking, you don't need a preservation component yet. You could consider investing 100% in growth (stocks) to take advantage of long-term growth potential. Now, 100% invested in stocks might feel too aggressive. And that's okay. The right balance might be 90/10 or 80/20. The key takeaway for women? Because women are likely to need their money to last longer, they may need to consider investing more aggressively than they naturally feel comfortable.

Final Thoughts: Plan for Longevity, Not Just Retirement

Retirement income planning isn't just about how much you save; it's about how you invest and how long that investment needs to support you. For women, longevity makes this even more important. That's why it's essential to work with a financial advisor who understands your unique situation and can help you build a portfolio that supports your lifestyle, both now and 30+ years into the future. At Foster Group, truly caring for our clients means taking the time to learn what's in their hearts and helping them pursue their goals. Want to know if your portfolio is built to last? Let's talk about it.

[1] MedRxIV, Changes in Life Expectancy Between 2019 and 2021: United States and 19 Peer Countries, April 2022

[2] U.S. Bureau of Labor Statistics "Highlights of Women's Earnings in 2023"

Medical Education, The Final Frontier

Jason Kennitz, EdD

Confession time, and if you have been reading along for a while, this will not come as a surprise: I am a bit of a geek. There is plenty of online debate about the difference between geeks and nerds, but I will leave that to another rabbit hole. Specifically, I am a Trekkie. Not the *"dress as Captain Pike and walk around Target"* variety, but the kind who's watched just about everything and, from time to time, ventures deep into fan theory territory.

Part of my love for *Star Trek* comes from nostalgia, growing up in Watertown, I went to all the movies with my uncle, but I have also always been captivated by the medicine in the series. Whether it was Bones' gruff brilliance, Dr. Crusher's compassion, or M'Benga's quiet skill, I loved imagining the future of healing.

That is why I eagerly accepted the challenge of speaking with the leadership of Archer Review, one of our academic partners who helps students prepare for their exams. While we discussed how we currently use their products, the most stimulating conversations revolved around the future of medical education.

So, without further ado, and in less than eight hundred words, I present to you: "Medical Education: The Final Frontier."

The Half-Life of Medical Knowledge

Recently, Harvard Medical School shared an eye-opening fact: the half-life of medical knowledge has shrunk to just 73 days. In other words, the total volume of medical information now doubles every couple of months. That is faster than warp speed, and it poses a huge challenge for educators and learners alike.

The obvious question: how do we teach (and learn) everything when the galaxy of knowledge is expanding so quickly? The honest answer: we cannot. But we *can* adapt through flexible, personalized learning — or what is technically called precision education (PE). Think of PE as the tricorder of teaching: it uses data to identify exactly what each learner needs to know to achieve competence across all required skills.

This approach will mean changes for learners, faculty, and institutions. It will also require us all to become adaptive learners, skill physicians already use daily in practice and one that translates beautifully into medical education. As we make the jump to PE, look for opportunities to take the strategies you already use and upgrade them for maximum effectiveness.

AI in the Learning Environment

Artificial intelligence is no longer science fiction, it is already part of our mission. Clinically, AI assists with colonoscopies, generating draft notes from ambient listening during patient visits, and even supporting diagnostics. In undergraduate medical education (UME), it is finding a foothold as well.

At USD SSOM, our medical education learning specialists are working with students to train AI tools that can supplement their study techniques. The prime directive here is clear: AI should *enhance* learning, not replace it. Helping students understand that distinction will be critical.

While there's genuine excitement about AI's potential, there's also hesitation and concern. As with any innovative technology, we need thoughtful integration, close oversight, and the ability to change courses when necessary. AI will not be a one-size-fits-all solution, but when used wisely, it can be a powerful ally.

Evolving the Role of the Educator

The last, and perhaps most mission-critical change, involves us as educators. Medical education has already shifted from lecturers to facilitators, and now it is evolving again: from facilitators to coaches and clinical role models.

In the past, we often identified problems for learners and offered fixes. In the new model, our role is to help students identify their own learning gaps and guide them toward solutions, even when those solutions challenge their current assumptions. This requires a different type of interaction, one that fosters curiosity, reflection, and independent thinking.

Equally important, we must model the professional behaviors

we want to see in future physicians: clear communication, personal well-being, and the ability to think broadly across disciplines instead of staying confined to a single niche. This is a tall order, but our internal data suggests many of our faculty are already exemplifying these qualities.

Why This Matters

I may not have a crystal ball, and I'm an educator, not a physician, but I believe that if we embrace these challenges, we can live up to one of the greatest principles ever voiced *"We work to better ourselves and the rest of humanity."*

The final frontier of medical education is not a far-off dream; it is unfolding right now. The pace of knowledge expansion, the integration of AI, and the evolution of our roles as educators all demand that we adapt. If we do, we will not just keep up with change, we will help shape it. While the mission ahead may feel daunting, I can think of no better crew than the one we have here at USD SSOM to boldly go forward together.

About the Authors:

Jason J. Kemnitz, EdD, Associate Dean, Academic Development and Faculty Affairs; Assistant Professor, Department of Family Medicine, University of South Dakota Sanford School of Medicine, Sioux Falls, South Dakota.

Children's Nebraska: Fighting Cancer Together

When a child is diagnosed with cancer, every moment matters. Children's Nebraska Hematology/Oncology walks alongside families with expert care, innovative treatments and a team that never gives up hope.

September is Childhood Cancer Awareness Month, a time to honor children and families facing this difficult journey and to recognize the life-changing impact of early, specialized care. At Children's Nebraska, we are proud to be a place where families find more than treatment. They find support, compassion and a team that never stops fighting for brighter tomorrows.

Why Providers Trust Children's Nebraska

When a child is facing cancer or a blood disorder, providers need a partner they can trust. Children's Nebraska offers the only pediatric-focused program in Nebraska dedicated entirely to hematology and oncology. Our pediatric specialists are nationally recognized, research-driven and deeply experienced in treating everything from the most common to the rarest forms of childhood cancer. Our team brings together oncologists, hematologists, nurses and support staff who understand what kids and families need most.

As a member of the Children's Oncology Group, we provide access to advanced clinical trials and the newest therapies. Our Pediatric Infusion Center offers outpatient treatment in a welcoming, kid-friendly space, making visits easier on families. We offer specialized therapies, including chemotherapy, blood transfusions and hydration treatment, all guided by the needs of each individual child.

Comprehensive Care Clinics

From social workers and child life specialists to psychologists and educators, we surround families with a team that supports the whole child physically, emotionally and academically. We provide families with the teams and resources to thrive today and years to come.

Neurofibromatosis Clinic

Children's offers the only comprehensive Neurofibromatosis (NF) Clinic in the region. NF is a genetic disorder that affects the nervous system and can lead to tumors. Because the condition can impact many parts of the body, our clinic includes a multidisciplinary team of skilled pediatric providers across many specialties.

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This clinic cares for children with hemophilia, Von Willebrand disease, clotting factor deficiencies and other platelet disorders. Families meet with multiple specialists in one visit, reducing the need for additional appointments and providing complete, coordinated care.

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We provide specialized follow-up care for childhood cancer and bone marrow transplant survivors. Whether it's understanding how your child's cancer treatment affects their future medical care or providing ongoing school support, the Children's multidisciplinary team at the Survivorship Clinic is here to support your child and your family in the years ahead.

To make a referral, call 855.850.KIDS (5437). To learn more about our specialists and programs, visit ChildrensNebraska.org/Cancer or scan the QR code.

Children's NEBRASKA

Burnout: Is Augmented Intelligence the Answer?

Keith Hansen, MD
President, South Dakota State Medical Association

Physicians lead medicine during this time of increasing complexity and scientific advances in diagnosis and treatment. While there have been large increases in our understanding of diagnosis and treatment, there are also significant demands placed on the practicing physician including long hours, increased stress, decreased appreciation and emotional exhaustion. Physician burnout remains a significant issue with adverse consequences for patient care, physician quality of life and physician retention in the workforce. Methods to improve well-being include ongoing monitoring of physician well-being with validated assessment tools, removing administrative burdens, making practical changes to free up time, increasing sense of connection, promoting leadership development and improving appreciation and recognition of the physicians in the trenches.

The SDSMA has worked to address and improve well-being for physicians, including trainees, through the South Dakota Physician Well-Being Program and the Health Leadership Institute. The Well-Being Program offers multiple resources and confidential support to assist physicians in improving their quality of practice and life. SDSMA also offers leadership development through the Health Leadership Institute. The HLI explores self awareness, interpersonal communication, teamwork and collaboration, systems awareness, wellness centered leadership, and influencing organizational change and culture. Graduates give glowing recommendations and note the program's importance in their personal development. The next cohort begins October 17, 2025. To learn more about CME offered and available scholarships, please contact Justin Ohleen at johleen@sdsma.org.

AI – artificial or augmented intelligence – offers improvement in the quality of medical practice by reducing "busy" time and allowing the physician more time to practice medicine. While AI holds the promise of transforming medicine and reducing some administrative burdens, there are concerns about its use including informed consent, safety, liability, transparency, regulatory review, bias and privacy. While most articles have investigated these factors in terms of patients, it is possible that health systems, payers and others could use AI to manage physician practices and turn physicians into "Quantified workers".1 AI has already been used as a mechanical manager for some financial professionals and warehouse workers where they monitor computer keystrokes, obtain interval screenshots without consent and track workers with sensors. Under these AI-mechanical managers, workers often rate their work experience as worse than prior to this development. How could AI become a mechanical manager in the practice of medicine and potentially worsen burnout?

One example is the ambient AI scribe which is designed to evaluate and interpret the patient-physician meeting as well as generate a history and physical or progress note, hence relieving the physician of the administrative burden of generating the document and possibly improving accuracy within the note. However, this is also a new opportunity for health systems, payors, and others to monitor the patient-physician relationship by analyzing the speech pattern, content and sentiment. This monitoring could allow the health system to develop AI-generated physician performance scores based on time spent with each patient, amount of shared decision making and adherence to protocols.

Another area that AI could assist physicians is in answering patient messages in the electronic health record (EHR). AI could improve efficiency in answering patient questions by triage; first by automatic answers to more simple, routine questions and escalating the more serious concerns to a member of the health care team for immediate evaluation. While this use of AI will be helpful, it could also be used to track response times, frequency of follow up and alignment with the ideal message that the system supports which ultimately could reduce individualized responses. In these previous paragraphs I have hoped to demonstrate the potential for AI to improve physician wellness but also some of the potential risks of AI, which could increase the risk of burnout.

As I mentioned in this column last month, the SDSMA is forming a special Committee on AI to develop a white paper which can be used to develop policy and put guardrails on this relatively new technology to reduce the risk of worsening burnout in the practice of medicine, including promoting a Clinician Bill of Rights for AI. Cohen et al.1 developed potential areas to be addressed in a Clinician Bill of Rights including a right of information, participation, privacy and quality assurance. Clinicians have the right to know when AI is being used in their patient's care and physicians ought to be involved in decisions about what AI tools to use in patient care. Importantly, physicians need to know when AI analysis of clinician care will be analyzed and with whom it will be shared. Health systems must also commit to quality assurance measures on an ongoing basis to evaluate AI tools to deliver safe, evidence-based medical care. AI offers tremendous opportunities to improve the healthcare of our patients and physician wellbeing, but it is important that we as physicians are involved in the early implementation, use and continued quality assurance of AI tools.

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Severe Linear Retinal Burn from a Handheld Laser Pointer in a Pediatric Patient: A Case Report

Kevin Shan, MS IV; and Elizabeth A. Atchison, MD, FASRS

Abstract

Introduction: This paper presents a unique case of handheld laser-induced retinal injury associated with maculopathy and linear scotoma in a pediatric patient.

Results: A 12-year-old boy with no significant medical or ocular history presented with a scotoma in his right eye after using a handheld green laser pointer, labeled as 5 mW, 532 nm. Visual acuity was 20/20 in both eyes. Fundus examination revealed focal retinal damage at the macula with a linear burn extending from the 10 o'clock to 4 o'clock position, consistent with laser-induced phototoxicity. Fundus autofluorescence (FAF) demonstrated focal hyperfluorescence along the linear path, indicative of outer retinal and retinal pigment epithelium (RPE) disruption. With observation, symptoms improved, although the scotoma remained at most recent outside follow-up three years after injury.

Conclusion: High-power handheld laser pointers are widely available and capable of causing significant retinal damage, particularly in children. This case demonstrates a previously unreported pattern of retinal injury, highlights the importance of multimodal imaging in diagnosis, and underscores the need for further investigation into treatment options. Additionally, increased public awareness and stricter safety regulations are essential to reducing the incidence and impact of these preventable injuries.

Introduction

Lasers have become increasingly ubiquitous in modern life, finding applications in fields such as medicine, military, education, and recreation.[1,2] While low-power laser pointers are generally considered safe, higher-power laser pointers are easily accessible through online retailers in the United States, sometimes with limited regulation or testing.[2-4] These devices emit concentrated radiant power over small areas, resulting in highly focused light energy that can lead to significant retinal damage.[3,5]

Pediatric patients represent a particularly vulnerable population for laser-induced injuries due to their natural curiosity, risk-taking or unusual behaviors, and lack of awareness regarding potential hazards.[5-7] The accessibility of these devices, combined with their frequent use as toys or educational tools, further exacerbates the risk of ocular damage in this age group.[4,5,8]

Although laser-induced retinal injuries are not uncommon, their clinical manifestations vary widely.[3,4] Here, we present a unique case of handheld laser-induced maculopathy (HLIM) in a 12-year-old boy, characterized by a linear scotoma from retinal damage caused by a laser pointer labeled as 5 mW. Data on this pattern of injury in pediatric patients remain poorly characterized. This case highlights the need for stricter safety regulations, improved treatment strategies, and further investigation into the risks posed by high-power laser pointers, particularly for vulnerable populations such as children.

Case Report

A 12-year-old boy with no significant past medical or ocular history presented to ophthalmology clinic with vision loss in his right eye for two days. He reported using a handheld green laser pointer (5 mW, 532 nm) purchased from a large online retailer two days prior. He described directing the laser beam at his right eye for a few seconds after which he noticed an immediate change in vision without associated discomfort.

On examination, his visual acuity (VA) was 20/20 in both eyes. Intraocular pressures (IOP) were 21 and 22 mmHg. Pupils were equal, round, and reactive to light bilaterally, with all extraocular movements intact. Anterior segment examination was unremarkable with no evidence of

conjunctival injection, corneal abnormality, or anterior chamber inflammation. The patient reported a field deficit in his right eye near the center of his vision. Funduscopic examination of the right eye revealed a linear streak concerning for retinal burn extending from the 10 o'clock to 4 o'clock position in the macula, consistent with the patient's reported field deficit. There was no evidence of vitreous hemorrhage or macular edema. The left eye was unremarkable on examination.

Funduscopic imaging of the right eye confirmed the linear pattern of macular injury found on examination (Figure 1). Fundus autofluorescence (FAF) demonstrated focal hyperfluorescence along the linear burn, indicative of outer retinal and retinal pigment epithelium (RPE) disruption (Figure 2). The findings were overall consistent with laser-induced retinal injury in the patient's right eye causing a linear scotoma.

Given the patient's clinical presentation and imaging findings, a diagnosis of HLIM was made. The patient and his parent were counseled regarding the potential risks of laser pointer use and were advised on protective measures to prevent future injury. They were also counseled on symptoms of potential choroidal neovascular membrane, which has not developed.

At the last follow-up with his outside provider three years after initial presentation, the patient's VA remained stable at 20/20 in both eyes, and no progression of the lesion was noted. Funduscopic examination showed a persistent hyperpigmented streak without associated hemorrhage or

Figure 1. Color fundus photograph of the right eye shows the full fundus (A) and higher magnification (B) of the linear retinal burn, extending from the 10 to 4 o'clock position in the macula (arrow). This pattern of injury was caused by a handheld laser pointer labeled as 5 mW, 532 nm, resulting in a scotoma in the distribution of damage.

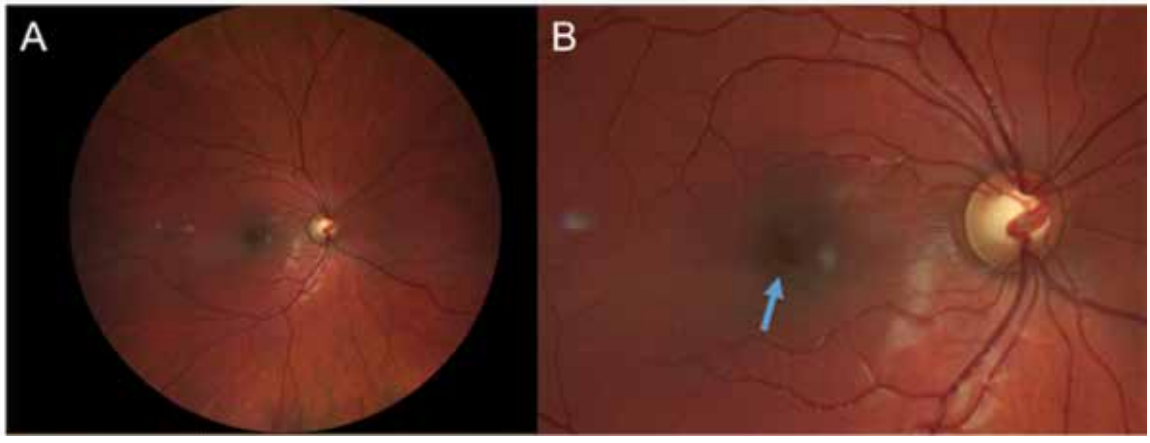
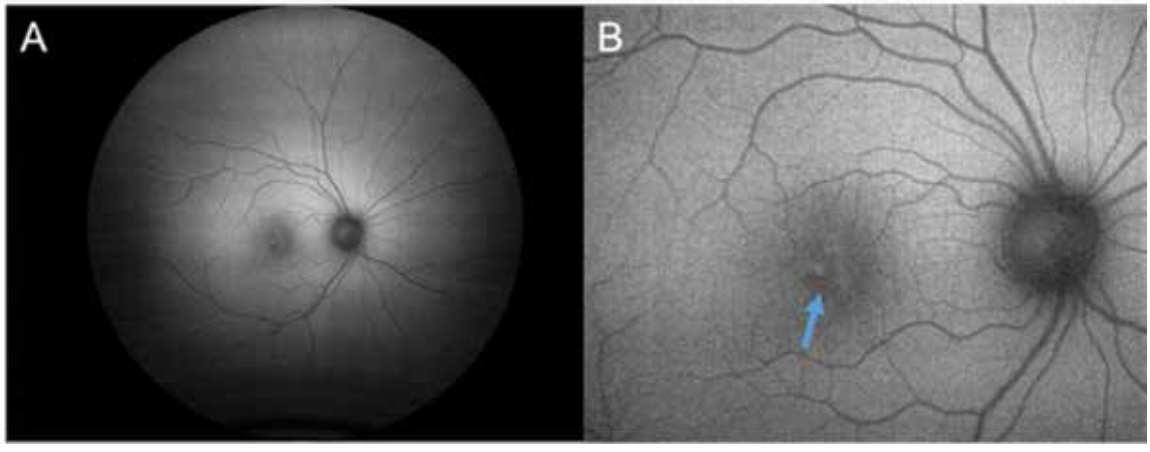


Figure 2. Fundus autofluorescence (FAF) of the right eye (A) and higher magnification (B) showing focal hyperfluorescence along the linear macular burn (arrow), indicating outer retinal and retinal pigment epithelium (RPE) disruption. This finding correlates with the patient's reported scotoma.



edema. The patient continued to notice the visual field defect, although he was less bothered by it.

Discussion

HLIM is a sight-threatening condition with diverse clinical presentations, including retinal disruption, foveal hemorrhage, macular edema, macular hole, epiretinal membrane, and/or iris damage, depending on laser insult or specifications.[3,4,9] Damage often localizes to the macula, where phototoxicity results in focal structural damage. Characteristic findings include retinal burn on fundus imaging and hyperfluorescence on FAF, indicating outer retinal and/or RPE disruption.[4,8,10] However, the linear burn observed in this case proves unusual and highlights the variability in HLIM.[4]

Natural aversion responses, such as the blink reflex, help protect against retinal phototoxicity. However, the severity of laser-induced injury depends on multiple factors, including power, wavelength, exposure, and beam localization. Devices under 1 mW generally require exposure beyond the 0.25-second blink reflex to cause damage.[2,4] In contrast, higher-power lasers can induce retinal injury with shorter exposures, potentially bypassing protective mechanisms.

Despite their widespread use, regulation and awareness of more powerful laser pointers remain inadequate.[1,2,4,5,8] Unlike some European countries that limit outputs to 1 mW, the US permits laser pointers with outputs up to 5 mW.[2,11] Perhaps more concerning, however, is the lack of oversight for laser pointers in the US, which are sometimes mislabeled and emit power levels far exceeding their stated specifications. For instance, Dhrami-Gavazi et al. discovered that a laser pointer labeled as "< 5 mW" emitted between 102.5 and 105 mW. Two more devices were mislabeled as 1 mW but were found to be powered at 45 mW.[12] Such excessive power output underscores the need for stricter regulations, especially given their easy accessibility through online retailers.[13]

Children and adolescents represent a population at heightened risk due to their natural curiosity, risk-taking behaviors, and lack of awareness regarding potential hazards.[4,6] Additionally, laser pointers are frequently used as toys or educational tools, further increasing the risk of injury. In our case, a 12-year-old boy sustained a macular burn from a 5-mW handheld green laser pointer. Given Dhrami-Gavazi et al.'s experience, it is possible that the true power output exceeded the labeled specifications, contributing to the severity of his injury.

The diverse clinical presentations of HLIM pose challenges in diagnosis and management. To our knowledge, the burn pattern and hyperfluorescence observed in this case represent a unique presentation of HLIM, particularly in the pediatric population. Retinal imaging, including FAF, played a key role in identifying outer retinal and RPE disruption, consistent with the patient's reported scotoma. The variability of HLIM highlights the importance of multimodal imaging in facilitating early diagnosis and management.

Although no established consensus exists for the treatment of HLIM, some reports suggest improvement with corticosteroids. For example, Chen et al. reported improved anatomic and functional outcomes following a short course of oral prenisolone.[9] In an adult case, Cankurtaran and Gediz described early improvement in macular edema and serous macular detachment with sub-Tenon injection of triamcinolone acetonide.[14] Proposed mechanisms suggest that steroids help preserve the blood-retinal barrier through anti-inflammatory and antioxidant effects, thus minimizing retinal damage.[9,14]

For full-thickness macular holes, surgical management with pars plana vitrectomy, inner limiting membrane peel, and gas or silicone oil tamponade has demonstrated favorable outcomes. A retrospective series by Alsulaiman et al. reported successful anatomic closure in 11 of 14 eyes undergoing this surgery, with most showing improvements in VA.[15] However, some HLIM cases showed no improvement with steroids or surgery, while others experienced spontaneous resolution without treatment.[9,12,15,16] Further research is needed to clarify the role of these interventions in HLIM management.

In our case, we recommended a conservative approach due to lack of inflammation or choroidal neovascular membrane. At outside follow-up appointments, the patient's VA remained stable, and there was no progression of the lesion. These findings support the importance of individualized management strategies for HLIM, as the clinical course and response to treatment can vary significantly.

Raising public awareness about the risks of handheld laser pointers and enforcing regulations are essential to limiting these preventable injuries. Although the Food and Drug Administration regulates medical, research, and industrial lasers, handheld laser pointers often lack oversight and may emit power levels far exceeding their stated specifications.[12] Legislative initiatives such as the United Kingdom's Laser Misuse (Vehicles) Act 2018 provide a potential model for similar policies in the US.[6] Collaborations among public

health officials, ophthalmologists, and policymakers could help reduce the incidence and impact of laser-induced retinal injuries.

Our report presents an unusual and challenging case of HLIM, which proves to be a preventable cause of sight-threatening injury, especially in the pediatric population. It highlights the diversity of HLIM presentations, importance of multimodal imaging, and risks posed by laser pointers in the US. While no treatment guidelines exist, corticosteroids and surgical intervention may offer benefit in select cases, though spontaneous recovery can also occur. Further studies investigating this unique burn pattern and its clinical implications are needed to refine diagnostic and therapeutic approaches. Ultimately, increased public awareness and stricter regulations may be key in reducing the incidence and impact of these preventable injuries.

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Please note: Due to limited space, we are unable to list all references. You may contact South Dakota Medicine at ereiss@sdsma.org for a complete listing.

About the Authors:

Kevin Shan, MS IV, Ophthalmology Limited, Sioux Falls, South Dakota; University of Rochester School of Medicine and Dentistry, Rochester, New York.

Elizabeth A. Atchison, MD, FASRS, Department of Surgery, University of South Dakota Sanford School of Medicine; Ophthalmology Limited, Sioux Falls, South Dakota.

Menstrual Hygiene Screening Needs Assessment in South Dakota

Mariah M. Shafer, MS IV; and DenYelle Kenyon, PhD

Abstract

Introduction: Menstrual hygiene management (MHM) is essential to women's reproductive health; literature demonstrates there are mental, social, and economic consequences to inadequate MHM in rural and developing countries. Emerging studies show that US women who are impoverished, experiencing homelessness, or incarcerated also face poor MHM. To understand the implications of poor MHM in South Dakota, a largely rural state, a thorough gynecologic health history is essential; this needs assessment explores the scope of MHM questions asked by SD providers.

Methods: This study used survey methodology to determine the quality and depth of gynecologic health histories commonly taken regarding hygiene. The electronic survey was sent to local primary care providers and nursing staff via email. The survey records the provider's awareness of their patients' menstrual hygiene, and the frequency of specific questions asked. The results of this needs-assessment led to the development of a waiting room screening tool that would allow providers efficient access to their patients' MHM information.

Results: Providers' (N = 70) awareness of MHM in South Dakota varied. The maximum score (57) denotes a respondent who selected "very aware" and "always" for each question. The average score was 22.11; scores ranged from 9 to 47. Twenty-four percent said they were not at all aware of their patients' access to MHM products. Seventy-four percent report never asking their patients if they have access to adequate water and sanitation resources. Fifteen percent report never asking their patients which type of hygiene product they use.

Discussion: This needs assessment demonstrates providers may lack vital information with the potential to inform patient care. While poor MHM is considered in less developed nations, it persists unidentified in populations in South Dakota.

Background

Menstrual hygiene management (MHM) has emerged as an essential aspect of women's reproductive health.[1] The World Health Organization and UNICEF define menstrual hygiene management as: *"Women and adolescent girls using a clean menstrual management material to absorb blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose the used menstrual management materials."* [2] By this definition, any woman lacking access to menstrual products, soap, and water within proper wash facilities is at risk for poor MHM.[3]

Literature focuses on menstrual hygiene in rural and developing nations and demonstrates mental, social, and economic consequences of inadequate MHM.[4] Current studies demonstrate the physical sequelae associated with poor MHM such as lower reproductive tract infections and maternal mortality in less developed countries. One study conducted in India demonstrated associations between poor MHM (infrequent washings, reusing materials, changing reusable materials outside toilet facilities) with vaginal Candidiasis and Bacterial Vaginosis.[5] A study performed in Kenya demonstrated an association between the provision of reusable pads and cups with reduced rates of school attrition and sexually transmitted infection. This study demonstrated improvement in both social and economic outcomes for women and their communities by humanitarian initiatives including donation of MHM products and reproductive education. [4] While this attention has led to improved outcomes, the medical community assumes that poor MHM only occurs in underdeveloped countries. However, recent

literature demonstrates the existence of inadequate MHM in affluent countries such as the United States. Studies show that women who are impoverished, experiencing homelessness or incarceration share similar experiences to women in underdeveloped nations.[6] Inadequate MHM is a global issue that affects all women experiencing poverty. One recent study that observed menstrual hygiene needs among women with substance use disorders demonstrated that poor MHM is *not* associated with age or heaviness of menses but *is* associated with food insecurity.[6] 81% reported menstrual poverty (needing menstrual products but not being able to afford them), and over half (53%) missed school or work due to menstrual hygiene issues. MHM inadequacies are prominent in women who are impoverished, experiencing homelessness or incarceration.[1,6] In South Dakota, a largely rural, frontier region, it is likely that many women face these obstacles. As literature has only recently emerged, we hypothesized that providers in South Dakota may be lacking vital information regarding their patients' menstrual hygiene. This study explores the questions that providers are asking their patients as well as their awareness level of their patients' MHM practices.

Methods

A 12-question qualtrics survey was developed based on the WHO definition of adequate MHM. Upon obtaining University of South Dakota IRB exemption, the survey was disseminated via email to South Dakota primary care medicine physicians, nursing, and advanced practice providers involved in gynecologic health histories. Informed consent was obtained at the beginning of the questionnaire. The survey aimed to determine the quality and depth of questions providers ask during gynecologic histories. Questions also aimed to determine providers' awareness level of their patients' MHM practices including the type of product used, the number used daily, access to running water, and a safe environment for changing. Questions were developed from the WHO definition of MHM and assessed providers' awareness/frequency of asking questions about patients' access to clean menstrual management materials, ability to change the product in privacy as often as necessary for the duration of the menstruation period, access to soap and water for washing the body as required and access to facilities to dispose of the used menstrual management materials. Likert scales were used to assess both question types. For frequency of specific questions asked about MHM, response options included "never, sometimes, half the time, and always." For questions regarding provider awareness of patients' MHM practices, response options included "not at all, a little aware, somewhat aware, aware, and very aware." An open-response question asked providers to describe any clinical outcomes they may have observed in patients with inadequate MHM practices.

Due to lack of national standards for reporting the quality of menstrual hygiene practices, analysis is largely descriptive of the quality of the gynecologic health histories obtained by primary care providers in South Dakota. To demonstrate responses quantitatively, a "Menstrual History Wellness Score," a theoretical scoring system was developed to compare MHM history quality across respondents. Awareness questions were awarded 1 to 5 points based on the Likert scale; 1 point was awarded for the lowest-level response "not at all aware," with an increase in points awarded for each up to 5 points for the highest-level response "very aware." Similarly, frequency of specifically asked MHM questions was awarded 1 to 6 points: 1 point for the lowest-level response "never" up to 6 points for the highest-level "always." A theoretical perfect score for the survey (57) would denote a respondent who selected "very aware" and "always" for each question. Internal validity was confirmed using Cronbach's alpha test (0.884). Python was used to perform exploratory factor analysis (EFA), revealing a two-factor structure for the 10-item survey. The first factor, "Clinical Practice Integration," captures the frequency with which healthcare providers incorporate menstrual hygiene management (MHM), according to the WHO definition, into routine gynecologic histories. The second factor, "Provider Awareness," encompasses provider knowledge of barriers patients face regarding adequate MHM, including cost and resource availability as well as their patients' general hygiene practices. Strong factor loading (>0.4) was calculated for each question supporting the survey's construct validity.

Results

The survey was distributed in June 2023 to 517 SD providers. Responses completed by bots, without consent, or completely unfinished were excluded. The true response rate was 17%; of 88 responses, 70 met inclusion criteria: respondent is a provider directly involved in gynecologic health histories with a complete survey. To receive IRB exemption, demographic information was not recorded. MHM wellness scores across respondents ranged from 9 to 47 with an average of 22.11 and a median score of 20.5 (Figure 1).

24% of respondents said they were ***not at all aware*** of their ***patients' access to MHM products*** (Figure 2). Regarding quality of MHM histories, 15% of respondents reported ***never*** asking what type of menstrual product their patients

Figure 1. Distribution of menstrual history wellness scores.

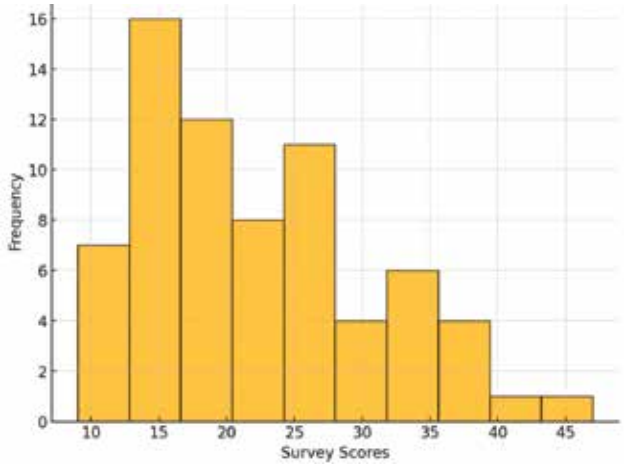
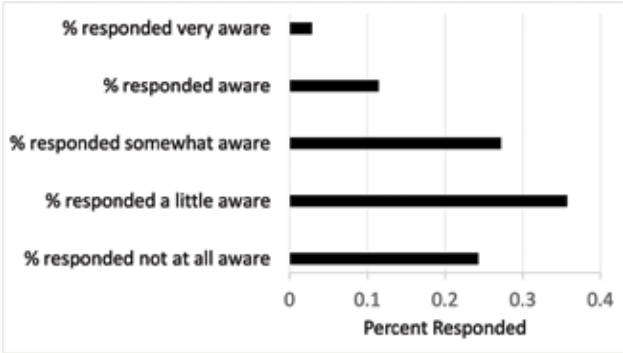


Figure 2. Provider awareness of patient access to MHM products (tampons, pads, etc.).



use. 74% of respondents reported ***never*** asking if their patients have access to water and sanitation resources required for safe MHM. In the open-ended question, respondents reported clinical outcomes including dermatitis, low esteem, and mental health concerns in patients with known poor MHM. One provider shared that they see a "higher socio-economic patient population, so it [MHM] just doesn't come to mind'... "although it should."

Discussion

Based on self-reported levels of confidence and provider awareness, this needs-assessment demonstrates that providers may lack vital information with the potential to inform patient care. The MHM History Wellness Scores demonstrated that based on the WHO definition of adequate MHM, on average, providers do not frequently ask about MHM and are largely unaware of their patients' practices. For instance, 15% report never asking their patients which type of product they use; without knowing product type, providers are unable to counsel on proper use. Improper use of MHM products can lead to reproductive tract infections.[3,5] Further, the assessment demonstrates that providers often do not consider patients' access to basic needs such as running water (74% report never asking) and safe, secure areas to perform MHM (77% report never asking). While many patients in SD have consistent access to these, it cannot be assumed, considering that last year 2.2 million Americans lived within the water access gap (lacking basic access to tap, toilet, and shower, reliable hot and cold water, and a system for removing wastewater).[7] Considering that proper MHM is more associated with food security than age or heaviness of menses, taking a thorough history is essential.[6] While poor MHM is often considered in lesser developed nations, it likely persists unidentified in populations like South Dakota. As inadequacies in MHM within developed nations are just emerging in literature, we hypothesize that providers are relatively unaware of the importance of asking patients about their MHM. One respondent expressed that they did not consider questions regarding MHM because they see "higher socioeconomic populations (although [they] should)."

One limitation of this study is the relatively small response rate (17%). Unfortunately, responses are likely skewed and not representative of all SD providers. However, those who did respond are likely those who already consider MHM more frequently than their peers. Thus, the arguably low history-taking wellness scores may be inflated. Further, the survey did not stratify responses by each provider's region or specialty. Further assessments would be insightful to understand whether these questions are considered in areas where poor MHM may be more prevalent such as more rural, frontier regions.

The results of this needs assessment led to the development of a waiting room screening tool (Figure 3) to allow providers efficient access to patient MHM information. Questions were developed based on the WHO definition of adequate menstrual hygiene to cover topics such as access to MHM products (pads, tampons, etc.), access to clean water and soap for washing, and quality of reusable product experience (e.g., cups, discs). The tool also provides space for women to pose questions they may have about their menstrual health. The use of the questionnaire format allows patients both privacy and time to reflect on important aspects of their reproductive health. Obtaining information in the waiting room avoids taking time away from the patient encounter

Figure 3. Waiting room screening tool.

MENSTRUAL HYGIENE MANAGEMENT

NAME: _____ DATE OF BIRTH: DAY / MONTH / YEAR

MENSTRUAL PRODUCT OF CHOICE (*CHECK ALL THAT APPLY*) ○ Pad ○ Tampon ○ Other _____ *If other, please list.* ○ Cup ○ Period Underwear

INSTRUCTIONS:

Your menstrual period is a vital part of your health! Please take a moment to answer these important questions regarding your health.

QUESTIONS:	RATING SCALE: Never Sometimes Often Always
Do you feel that you can adequately access the products you need (tampons, pads, etc.) to manage each menstrual period each month?	○ ○ ○ ○
How often do you have access to privacy where you manage your menstrual hygiene?	○ ○ ○ ○
How often do you have access to clean water and soap where you change your menstrual product of choice?	○ ○ ○ ○
On your heaviest flow day, how many times per day do you change your menstrual product of choice?	_____
Where are you able to change your menstrual product of choice? (*bathroom, bedroom, common area, etc.*)	_____
REUSABLE PRODUCTS	
If the product is reusable, ***how often*** are you able to wash it?	_____
If the product is reusable, ***where*** are you able to wash it?	_____
If the product is reusable, ***how*** do you wash/sanitize the it?	_____
QUESTIONS?	
Do you have any questions regarding your menstrual health?	_____

and gives providers an insightful tool to understand their patients' current menstrual wellness as well as a resource to consult should future questions arise. The next step beyond this needs-assessment would be the implementation of the screening tool to observe efficacy.

Ultimately, this needs-assessment demonstrates that providers may be lacking vital information to inform their patients' care as well as lacking awareness of their patients' needs. As a result, providers are unable to counsel or refer patients to resources to meet these essential needs. Menstrual hygiene is a critical part of a woman's overall health, and when engaging their patients in conversations that consider their MHM, providers can care for them more comprehensively.

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About the Authors:

Mariah M. Shafer, MS IV, University of South Dakota Sanford School of Medicine.

DenYelle Kenyon, PhD, Associate Dean, Community Health and Engagement; Director, MPH Program, University of South Dakota Sanford School of Medicine; School of Health Sciences.

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2025 Scholars' Research Symposium Abstracts

Candace N. Zeigler, MD, FACP; Benjamin Aaker, MD, FACEP; Sherri D. Koch, MD, FAAFP; Paul A. Thompson, PhD, PSTAT; and Valeriy Kozmenko, MD, CHSE-A

The Scholarship Pathways Program (SPP) continues to foster an inspiring environment for academic exploration at the University of South Dakota Sanford School of Medicine (USD-SSOM), and the 2025 Scholars' Research Symposium stands as a testament to the dedication, passion, and potential of this years' cohort. Each year, this event offers a unique opportunity for scholars to present their research, engage with peers, and contribute to the broader academic community. This years' symposium is no exception showcasing the exceptional work of scholars who are not only deepening their fields of study but also seeking solutions to some of society's most pressing challenges.

Since its inception in 2007, the Scholarship Pathways Program invites student curiosity and collaboration, accepting approximately 15-20 students in each class. SPP provides hands-on, self-directed project experience with the help of a mentor to give guidance and expertise. Students design and propose a project oriented towards a medically related topic in research, education, service or social science. The project is completed over the course of the students' four years of medical school and presented as a poster, an abstract (which we publish here today), and as a manuscript. In addition, participants are encouraged to present their work in one or more regional or national medical conferences. SPP participants have had good success in the publication of their manuscripts in peer-reviewed journals. SPP administrative staff provide a vital and important support for the SPP participants and mentors.

Paul Alan Thompson, PhD, PSTAT, one of the SPP Administrative Staff, who will be retiring at the end of this school year, deserves special mention. Dr. Thompson brought a unique perspective to research methodologies with his Masters and PhD in Psychometrics and Applied Statistics from the University of North Carolina at Chapel Hill. As exemplified throughout Dr. Thompson's career, scholarship is a dynamic, ever-evolving journey. He has authored over 200 peer-reviewed publications, given over 65 presentations; he has participated in over 20 major clinical trials, provided support for numerous Residents and Fellows, provided research support for more than 25 projects, participated in 35 Grant submission activities, and worked on multiple NIH and Journal Review Panels. Dr. Thompson has been with the SPP since the program's inception. His contributions to the program are particularly evident in the way he has nurtured and guided emerging scholars. Through his mentorship and leadership, he has emphasized the importance of rigorous academic inquiry and also the application of that inquiry to pressing issues in the health care arena. As a statistician, he has been uniquely qualified to give valuable advice on project development and statistical analysis. With his unwavering commitment to excellence, coupled with his extensive experience with scientific writing, publications and presentations, he was able to offer insightful critiques of posters, abstracts and manuscripts for SPP students. We are grateful for Dr. Thompson's incredible contributions to SPP and appreciate his experience, wise counsel, and his cheerful, helping attitude. We wish him well in his retirement.

As in previous years, several SPP students with outstanding projects were invited to give an oral presentation of their projects. Tifffany Bender, MS4 (mentor: Jon Ryckman, MD) examined the relationship between bony fractures and child abuse which highlighted the correlation between injury patterns of physically abused pediatric patients in the rural population. Andee James, MS4 (mentor: Pasquale Manzerra, PhD) examined medical student satisfaction with nutrition education provided by a senior medical student in conjunction with a registered dietitian. Bailee Lichter, MS4 (mentor: Benjamin Aaker, MD) explored weather related events, particularly thunder events, and their association with chest pain and myocardial infarction.

Thanks to the support of SSOM administration, the dedication, curiosity, and collaboration of SSOM students, mentors, and our staff the Scholarship Pathways Program continues to thrive. It is through the legacy of leaders like Dr. Paul Thompson that the impact of this work will extend far beyond the academic realm, driving change in communities large and small. We extend our congratulations to the 2025 Scholars and look forward to the exciting discoveries and conversations that will emerge from these students as they graduate, move on to their residencies, and eventually to their careers in medicine.

The Relationship Between Bony Fractures and Child Abuse in Rural Pediatric Population

Tiffany Bender, MD, MPH | Mentor: Jon Ryckman, MD

Introduction: Determining if injuries are the result of abuse in the pediatric population continues to be an arduous task for medical providers. In pediatric patients who are not yet mobile or verbal, diagnosing abuse can be even more difficult as histories must be taken from someone other than the patient, who may potentially be the abuser. Rates of child abuse also vary widely by demographics, including location. Rural areas have higher risk factors for child physical abuse, including higher rates of childhood poverty. This study aimed to identify injury trends and demographic populations of physical child abuse related to fractures in a rural Midwest pediatric population and compare them to national statistics.

Methods: This study utilized a retrospective chart review of Sanford Health Enterprise patients <12 months of age with ICD-10 fracture diagnoses between 2017 and 2021. An initial chart review was performed to identify mechanism of injury, demographics, and other medical information. A second chart review was performed, by a child abuse pediatrician, for inter-rater reliability, as well as context for perpetrator information, location of abuse, and child abuse specialist findings. This child abuse pediatrician then categorized each patient's case as "Consistent with Abuse", "Concern for Abuse/Indeterminant", or "Accidental/Medical". Wilcoxon rank-sum and Fisher's exact tests were conducted to identify statistically significant differences among patients in each category.

Results: 107 patients were included in the study. Patients with injuries consistent with abuse were younger than those with injuries deemed indeterminate or concerning for abuse, as well as those with accidental or medical injuries ($p = 0.008$). Injuries such as skull, facial, and rib fractures, injuries to the chest, and bruising were more strongly associated with abuse, while upper and lower extremity injuries were not. Over half of the cases consistent with abuse involved patients with undocumented or inconsistent explanations for their injuries. Compared to femur fractures being the most common bone fracture secondary to child abuse in national studies, rib fractures and chest injuries were more common in this rural Midwest pediatric sample. Additionally, the presence of other fractures identified through skeletal surveys further increased the likelihood of abuse.

Conclusions: This study highlights the correlation between injury patterns of physically abused pediatric patients in the rural population. Younger patients with bone fractures were more likely to be abused compared to those with accidental injuries. Inconsistent or undocumented mechanisms of injury were also more common in abuse cases. These findings suggest younger patients with bone fractures or an unknown mechanism should be extensively evaluated for child abuse. Skeletal surveys remain paramount to investigating abuse, with many additional bone fractures secondary to abuse being identified with this method. These findings underscore the importance of thorough documentation, examination, and use of skeletal surveys in patients less than twelve months old with bone fractures.

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3D Printing in Medicine: An Educational Seminar

Anthony Drazick, MD | Mentor: Lisa MacFadden, PhD

Introduction: Three-dimensional (3D) printing is a transformative technology with significant implications for the future of medicine, enabling innovations in patient-specific treatments (i.e. anatomic models and patient education), surgical planning (i.e. preoperative visualization), and medical education (i.e. 3D anatomic structures). Despite its growing impact, 3D printing remains an underexplored topic in traditional medical education, leaving many medical students and physicians unfamiliar with its potential applications. The purpose of this 30-minute seminar was to introduce the fundamentals of 3D printing, emphasize its relevance to modern medicine and provide a foundation for understanding its diverse applications in clinical practice and research. By bridging this knowledge gap, the session aimed to inspire future healthcare professionals to integrate 3D printing into their practice.

Methods: A 30-minute, virtual seminar was offered to medical students at the Sanford School of Medicine, Engineering students and Physicians. Participants were asked to view a You-Tube video prepared by the author and complete a pre- and post-session survey, consisting of six multiple-choice questions designed to assess knowledge of, and interest in 3D printing and its applications in medicine. Additional survey questions captured demographic information, including the participant's profession and prior experience with 3D printing. Pre- and post-survey responses were analyzed using paired Student's t-tests to evaluate the impact of the session on participants' understanding and interest. A p-value of <0.05 was considered statistically significant, indicating meaningful improvements in knowledge or interest after the session.

Results: 20 participants completed both the pre- and post-surveys. Participants included medical students, engineering students, and other (Physician, HR, undergraduate student, and business manager). Of these, only 30% had prior experience with 3D printing. Analysis of the survey responses demonstrated a statistically significant improvement in participants' knowledge and understanding of 3D printing applications in medicine, with average scores increasing in 5 out of 6 questions ($p < 0.05$). Additionally, participants reported increased interest in integrating 3D printing into their clinical research or education.

Conclusion: This 30-minute, virtual You-Tube educational seminar effectively introduced participants to the fundamentals of 3D printing and its applications in medicine, addressing a significant knowledge gap among medical students and physicians. The statistically significant improvement in survey scores demonstrates the session's success in enhancing understanding and generating interest in this transformative technology. By equipping future healthcare professionals with foundational knowledge of 3D printing, such sessions can foster innovation and integration of this technology into clinical practice and medical education.

Leadership Course in Team-Based Communication Skills for Medical Students

Claire Foerster, MD | Mentor: Valeriy Kozmenko, MD

Introduction: Healthcare has shifted toward team-based patient care to address the increasing complexities of patient care as studies have demonstrated that a team-based approach results in better outcomes and safer patient care. Medical students are future leaders of healthcare teams yet current medical school curricula does not include a leadership or team-based teaching component. The goal of this project was to design a pilot program to teach the fundamentals of leadership and communication skills as relevant to medical students.

Methods: To assess the aptitude and educational need of the target audience, a medical school-wide student survey was distributed to all the medical students. Course curriculum was subsequently developed to include an online didactic component and an in-person simulation component. The didactic activity taught fundamentals of communication, active listening, giving and receiving feedback. Participant knowledge was assessed upon completion of the didactic course (pre-activity) and after completion of the simulation component (post-activity) using a 10-question quiz. Participants were divided into groups, given specific scenarios and roles that explored these themes. Students were primarily in their pre-clinical years however, each group had one student who was completing clinical clerkships. Participants rotated through the three scenarios and had an opportunity to complete each role within their group. At the end of the session, feedback was given and participants completed a final survey and post-quiz. A paired t-test was used to analyze the participants' answers on each of these questions.

Results: The survey was deployed to all 280 medical students and 78 responses were obtained which demonstrated an interest in a leadership development course. Initial interest exceeded capacity. A total of 14 students completed the pilot course in its entirety, including the post-activity survey. Participant knowledge before and after the course was analyzed using a t-test which evaluated knowledge of the 4-part communication model, active listening skills, and fundaments of giving and receiving feedback. Each question in the 10-question survey was analyzed using a t-test with each question having its own p-value. There were no statistically significant differences between the results of the pre-activity quiz and the post-activity quiz.

Conclusion: Student interest in this course exceeded the expectations of the author, which strengthens the assertion that medical students would benefit from formal communication and leadership training as future leaders of the healthcare team. There was no statistically significant difference between the results of the pre-activity quiz and the post-activity quiz. This was likely due to several factors including small sample size, and the fact that the pre-activity quiz took place after completion of the didactic course. In the future, the pre-activity quiz should take place prior to the didactic course to better assess competencies. Verbal feedback of the course during the debrief session was largely positive. The next phase of this pilot course should focus on expanding the number of medical student participants and creating a diversity of simulation scenarios.

Effects of the Calcineurin Mediated Immunosuppressant Cyclosporine on Binge Alcohol Drinking and Stress Responsivity in Mice

Brock G. Goeden, MD | Mentor: Patrick J. Ronan, PhD

Introduction: Binge-drinking behavior is a prevalent and costly burden that many face. To expand potential treatments for alcohol use disorder and improve treatment efficacy, calcineurin (CN) inhibiting cyclosporine A (CsA) is investigated as a potential treatment for this disorder based on a neuroinflammation-driven approach to addictive behaviors and stress maladaptation. CsA has previously been shown to reduce binge-drinking behaviors, and this study aims to provide a connection between binge-drinking reduction and stress response to the expression of the neuroinflammasome.

Methods: CamKIIa and CRF neuronal CN knockout mice were characterized for knockout of CN expression through immunohistochemistry and RNA scope imaging of selected brain regions. Others from this cohort were then subjected to 6-week binge-drinking behavioral experiments in the format of "Drinking-in-the-Dark" (DID). Experimental mice were tracked for ethanol intake overtime and following injection of either vehicle only intraperitoneal injection or CsA and vehicle injection for any changes. These transgenic mice were separately subjected to 1-hour restraint stress experiments with exposure to either CsA or vehicle only. These cohorts were sacrificed with their brain tissue harvested and microdissected for rtPCR characterization of inflammatory gene products. Expression of CD45, COX-2, CYC, Iba-1, IL-1b, IL-6, TNF-a, ACTB, CCL2, and CCR2 was quantified. The expression for CsA exposed mice was then compared to vehicle-only mice through the log2 fold change analysis for final comparison.

Results: Immunohistochemistry with RNA scope imaging for calcineurin expression revealed widespread CN knockout in the experimental lineage. CN knockout revealed no effect on ethanol consumption in DID models for both CamkIIa and CRF neuronal CN knockout compared to wild type. CsA did still induce a large reduction in ethanol intake for both lines of CN knockout mice compared to baseline. In the restraint stress study, rtPCR log2 fold analysis revealed that CsA reduced a wide-range of stress-induced neuroinflammatory markers. Specifically, the authors observed a generalized reduction in inflammatory gene expression with IL-1b seeing a nearly 6-fold decrease in both the central nucleus of the amygdala as well as the paraventricular nucleus.

Conclusions: The findings of normal baseline drinking behaviors and improved parameters following treatment with CsA in wild type and neuronal CN knockout lineages indicate that CN at the level of neurons is not responsible for CsA-induced reduction in binge-drinking behavior. These findings, in conjunction with the reduction of neuroinflammatory gene product expression, implicate glial cells as possibly responsible for these changes. Further investigation into glia cell specific CN knockout is warranted under similar conditions. Ultimately, these findings improve the characterization of the mechanism of CsA-induced reduction in binge drinking behaviors and aid in discovering new treatments for alcohol use disorder.

Utilizing Registered Dietitians to Improve Nutrition Education for Medical Students

Andee (Weisbeck) James, MD, MPH | Mentor: Pasquale Manzerra, PhD

Background: The relationship between diet, disease prevention, and treatment is well understood and yet, physicians often fall short in addressing this. It is important for physicians to counsel their patients about good nutrition and dietary changes related to treatment and prevention of many diseases such as cancer, diabetes, and obesity. Physician endorsement of the importance of nutrition for overall health benefit will increase the likelihood that their patients make the necessary changes in their diet and lifestyle to help reduce the health risks associated with many chronic diseases. However, medical students are not provided with the necessary tools to practice high quality, effective nutrition counseling. This project aims to utilize the expertise of registered dietitians and senior medical students to increase the nutrition knowledge and clinical skills of pre-clerkship students.

Methods: Pre-clerkship medical students (n=216) were given the opportunity to attend a series of lectures given by registered dietitians supplemented by an upper-level medical student who shared their clinical experiences working with patients requiring dietary education. The series covered topics including: general nutrition and how diet and nutrition affects cardiovascular, GI, renal, and endocrine diseases. The students were given a 10 question pre- and post-test survey assessing their knowledge of nutrition related to the body system being discussed, their perception of the role of the physician in nutrition education, and their perception of nutrition as a part of improving health and preventing disease.

Results: Students particularly appreciated the sessions presented by registered dietitians and a medical student in their clinical phase. Based on the pre-survey results, only 26.9% of students strongly agreed or agreed they felt confident in their ability to counsel and educate patients on diet and nutrition vs 79.10% on the post-survey. In addition, 64.7% of students strongly agreed or agreed that they understood the role of the dietitian prior to the session compared to 92.5% following the session.

Conclusions: Nutrition education provided by a senior medical student in conjunction with a registered dietitian represents an opportunity to provide medical students entering clerkships, an interdisciplinary experience that increases their confidence to discuss diet with patients and broadens their understanding of the dietitian's role in patient care.

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Lightning Associated with More Visits to the Emergency Department for Chest Pain

Bailee Lichter, MD | Mentor: Benjamin Aaker, MD

Introduction: Chest pain is a common reason for visits to the emergency department. This project explored weather related events, particularly thunder events, and their association with chest pain and myocardial infarction. Changing weather patterns have previously been linked to cardiovascular complaints in the emergency department. Additionally, researchers have been able to link chronic noise pollution, like traffic noise, to a significant increase in cardiovascular disease. However, little is known about the relationship between a single loud noise, such as thunder after a lightning strike, and myocardial infarction.

Methods: Location and time of lightning events in a 100-mile radius of Avera McKennan Hospital in Sioux Falls, SD from June 1, 2021 through July 31, 2021 was obtained from Global measurement instruments company Vaisala. Data for thunder was not available. The McKennan Emergency Department electronic medical record was queried for chief complaints of chest pain and dermatologic complaints (control group) during the same timeframe using ICD codes. Patients presenting to the ED for chest pain were further evaluated to determine if they were diagnosed with a myocardial infarction. Date of patient presentation to the ED was then cross-referenced to the Vaisala lightning data to determine if lightning, and therefore thunder, occurred on the date of presentation. The number of chest pain complaints on days with lightning was compared to number of dermatologic complaints to determine statistical significance using a chi-squared test.

Results: From June 1, 2021, to July 31, 2021, 188 of 309 patients presented to Avera McKennan Emergency Department with a chest pain complaint on a day with lightning. A total of 5 patients were diagnosed with myocardial infarction. Of the patients diagnosed with a myocardial infarction, 4 of the 5 patients presented on a day with recorded lightning. Lightning was recorded on 39 of the 61 days of our timeframe. To evaluate differing lead times for lightning events, p-values for various times post-lightning strike were analyzed. A p-value ≤ 0.5 was considered significant. This study showed a p-value of 0.034 at 0.5 hours after lightning strike. At 2.5, 3, 4, 4.5, 5, and 5.5 hours after a lightning strike occurred the p-values were 0.047, 0.033, 0.029, 0.018, 0.019, and 0.039 respectively.

Conclusions: This study showed a significant increase in patients presenting to the emergency department with chest pain complaints 0.5 hours after lightning strike and between 2.5-5.5 hours after lightning strike. Limitations to this study include distance from lightning strike and intensity of lightning strike not being considered. Additionally, there was a small sample size for the group of patients diagnosed with an MI (n=5). These are areas that could be looked at further to better understand the relationship between a single loud event and chest pain. There was a trend toward significant association between lightning strikes and myocardial infarction, but due to the small sample size, no statistically significant correlation was found.

Transitional Understanding of Kindness in Medical Students

Madigan Moore, MD | Mentor: Jerome Freeman, MD

Introduction: Humanistic qualities have been noted to be of importance in the patient-physician relationship. The patient-physician relationship can influence health outcomes. Research has shown that focusing on these qualities in the medical school curriculum can foster these qualities. In the current study, researchers chose to focus on the humanistic quality of kindness. This is a qualitative study assessing how students understand kindness in medicine both before and after their immersion in the clinical environment.

Methods: The subjects for this study were students of the class of 2025 at the University of South Dakota Sanford School of Medicine. Phase I took place during, towards the end of, or shortly after didactic training (Pillar I and Pillar II). Ten students completed a 3-question demographic survey, a 30-minute individual interview about their experiences of kindness in medicine, and 9-students participated in a one-hour focus group discussion. Phase II consisted of 9-individual student interviews and an 8-student focus group once students had completed at least a year of clinical experience (Pillar II and Pillar III).

Results: A total of 10-students volunteered for phase I of the study; 9-students moved on to complete phase II of the study. The data collected for this study consisted of audio-recorded interviews, which were transcribed. The transcripts were then analyzed for qualitative themes by two separate researchers using conventional content analysis. The main themes derived from the data were definition of kindness, clinical environments, how providers practiced kindness, and ethics. Subthemes were derived from these main themes to further compare the data between Phase I and Phase II.

Conclusion: This was a qualitative study assessing students' understanding of kindness in medicine. The themes of definition of kindness, clinical environments, how providers practiced kindness, and ethics were derived from the qualitative data. Important findings include the loss of kindness in negative clinical environments, the emphasis students placed on kindness being a decision in the clinical environment, the importance of context to kindness, and exposure to clinical environments aiding students' preparedness to face ethical challenges. Future work could investigate integration of humanistic values such as kindness into the medical school curriculum.

Developing Program Infrastructure for Effective Intercultural Patient Care Education at the University of South Dakota Sanford School of Medicine

Andrew Nerland, MD | Mentor: DenYelle Kenyon, PhD

Introduction: Patient health outcomes are significantly influenced by social and cultural factors. Preparing future physicians to understand these factors during their medical education provides an opportunity to improve patient health outcomes. Diverse patient care education is required by the Liaison Committee on Medical Education, but there is not a universally recommended method on how to achieve this. Surveying the recipient stakeholders, the medical students, provides a unique lens through which to evaluate the intercultural patient care education at the University of South Dakota Sanford School of Medicine (USD-SSOM) as well as a framework for improving its future implementations.

Methods: A 29-question mixed methods survey was created to explore topics relevant to intercultural patient care education at USD-SSOM including endorsement, satisfaction, and self-reported outcomes, among other variables. The survey was sent to all students at the USD-SSOM via email from the period of 8/11/2022-9/9/2022. A Likert scale format was utilized for the majority of questions ranging from strongly disagree (1), disagree (2), neutral (3), agree (4), to strongly agree (5). Correlational analysis and t-test analysis were used to analyze the data.

Results: 92 of the 109 initial respondents from a student body of approximately 280 were determined eligible based on the completion of at least one full question block. Respondent demographic data generally resembled that of the student body with a slight majority female and large majority white. Responses revealed a strong general endorsement of intercultural patient care education contrasted with a varied satisfaction level for the education received which trended towards neutral overall. Female and non-white respondents had lower levels of satisfaction when compared to their counterpart groups. Self-reported outcomes trended positive by year in medical school. Respondents identified an adequate level of understanding regarding intercultural patient care topics relating to rural health disparities in South Dakota. Students identified topics of interest including the role of Indian Health Service within Native American healthcare and resources for underserved patients in South Dakota (SD). Respondents identified the ideal intercultural patient care education format as a required, in-person course, offered longitudinally, and in a clinical or community setting with methods which emphasize clinical or community involvement.

Conclusions: Survey data supported that USD-SSOM students strongly endorse the concept of intercultural patient care education. Student satisfaction for currently implemented programming varies significantly, especially with female and non-white respondents. This result highlights the complexity of providing effective, intercultural patient care education to all recipients. Self-reports revealed that senior students endorse the most positive outcomes when compared to underclassmen. It is difficult to determine if this finding results from accumulated intercultural patient care education or other accumulated experience. The survey provided evidence that USD-SSOM is addressing rural health disparities in its curriculum. Areas for improvement include addressing health care needs of other underserved populations in SD such as Native Americans. Preferred educational format did diverge somewhat from commonly utilized approaches in intercultural patient care with students expressing preference for a longitudinal format in a clinical or community setting. The needs identified in this survey could be addressed through several strategies including further incorporation of multicultural patient settings during the core clinical phase and the implementation of a concurrent public health curriculum.

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This project is supported by the Office of Population Affairs of the U.S. Department of Health and Human Services (HHS) as part of a financial assistance award totaling $2,874,493 with 36 percent funded by OPA. This project is also supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under Grant Number B0447446 for Maternal and Child Services. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of, nor an endorsement by the Maternal and Child Health Bureau Health Resources and Services Administration or HRSA, or the Office of Population Affairs.

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Food Security During Pregnancy and Adverse Birth Outcomes

Narysse Nicolet, MD | Mentor: Christine Hockett, PhD

Introduction: In the United States, offspring outcomes of preterm birth and low birth weight contribute to numerous infant health complications and healthcare costs. Food insecurity during the prenatal period may negatively impact maternal and child health, though limited research exists investigating this unique independent relationship. Especially amidst the COVID-19 pandemic, which elevated rates of food insecurity, it is necessary to understand food insecurity as a unique stressor with a potential relationship to adverse pregnancy outcomes. Using a large diverse prospective cohort of pregnant people in South Dakota, this study investigated the independent relationship between FI and infant outcomes, early gestational age and low birth weight.

Methods: Data from 1,478 pregnant people were obtained from the Environmental Influences on Child Health Outcomes in the Northern Plains PASS-ECHO study in South Dakota from 2020-2023. Maternal and infant outcomes were obtained through a hierarchy of medical record abstraction and self-reported data. Self-reported food insecurity was measured using a modified United States Department of Agriculture food security questionnaire. Descriptive statistics and logistic regression were conducted using SAS software to identify significant relationships between food insecurity and adverse offspring outcomes.

Results: In the sample, 20.7% (n=306) of pregnant people experienced food insecurity. Unadjusted data in the univariate model showed a statistically significant relationship between earlier gestational age and maternal food insecurity, with food insecure infants born on average around 3 days before food secure infants (p=0.0009), which made the average food insecure infant preterm, less than 37 weeks gestational age. Similarly, there was a statistically significant relationship between low infant birth weight and maternal food insecurity, with food insecure infants weighing 3.3% less than their food-secure counterparts on average (p=0.0203). However, in the multiple linear regression, adjusted for covariates accounting for socioeconomic status, these associations did not remain significant. Elevated pre-pregnancy BMI continued to have a statistically significant association with low birth weight and preterm birth even after adjusting for covariates.

Conclusion: Study findings showed there was no statistically significant association between food insecurity and low birth weight or earlier gestational age in adjusted models despite a statistically significant association existing in unadjusted models. However, elevated pre-pregnancy BMI was independently associated with low birth weight and earlier gestational age and should be investigated further regarding maternal food insecurity during pregnancy. Understanding food insecurity as a social determinant of health has critical consequences for both maternal and child health. Future research should investigate interventions to decrease food insecurity during pregnancy.

Minimizing Grief and Loss Through Advanced Care Planning

Hannah Paauw, MD | Mentor: Victoria Walker, MD

Introduction: Advanced care planning (ACP) is a process that enables patients to specify their preferences for healthcare should they become unable to communicate their wishes. With the global population aged 60 and older comprising 11% of the total population—projected to rise to 22% by 2050—the need for ACP is increasingly urgent. This issue is even more pronounced in rural areas, like South Dakota, where older and sicker populations are disproportionately represented. Despite the numerous benefits of ACP, only 28% of adults in South Dakota have an advanced directive, and alarmingly, between 65% and 76% of physicians are unaware of their patients' existing advanced directives.

Methods: Healthcare professionals who work with vulnerable adult populations were recruited through partnerships with long term care organizations and personnel to participate in an educational program. The program consisted of four separate one-hour long virtual sessions over the lunch hour once monthly and were designed to enhance understanding and use of ACP tools. The program consisted of four discussion-based sessions, focused on the personal grief experienced during the COVID-19 pandemic and how it intersected with the practice of ACP. Half of each session involved didactics, and half was discussion-based facilitated by a physician with extensive long term care experience. Continued medical education credits were provided. Session topics included: 1. Moving forward after the Covid-19 pandemic, 2. Appropriate use of the Medical Order for Scope of Treatment (MOST) form 3. Shared decision making, and 4. Communicating when emotions are intense. Evaluation methods included pre- and post-program knowledge surveys and the Professional Quality of Life Scale (ProQOL), which assesses compassion, satisfaction, burnout, and secondary trauma stress.

Results: The program had variable attendance, with participants from diverse professional roles and settings including nursing, EMS workers, chaplains, administrators, social workers, hospice, community health workers, educators, and physicians. The first session had 58 participants, the second had 42, the third had decreased attendance at 23, and the fourth session had 53 total participants. Post-session evaluations revealed a small, statistically insignificant improvement across all ProQOL subcategories. Notable improvements were observed in participants' confidence and competence in using ACP tools appropriately.

Conclusions: The educational sessions successfully increased health care professionals' comfort in using ACP tools and enhanced their professional well-being. The sessions fostered valuable discussions among participants from various settings including long term care facilities, assisted living facilities, emergency services, and administration. Much of the discussion helped to address difficult topics related to end-of-life care. Despite positive outcomes, the study was limited by participants not completing all four sessions. Future research should explore the application of implementation science to better integrate ACP tools and training into clinical settings, enhancing both patient care and provider support.

Ultrasonographic Accuracy in Rural vs Urban Counties

Riley T. Paulsen, MD, PhD | Mentor: Amy M. Eichfeld, MD

Introduction: Rural women experience substantial, multifactorial health disparities including lower socioeconomic status, insurance access, and geographic barriers. South Dakota has the second largest proportion of maternity care deserts (56.1%) and births to parents residing in these areas (23.2%) in the United States. These factors delay prenatal care initiation and increase infant mortality. Reliable prenatal ultrasonography for rural Americans is critical for birth planning and referral to higher care facilities. The objective of this study was to determine whether ultrasonography performed in rural counties, in the second trimester, is as accurate for newborn weight prediction and detection rate for congenital abnormalities compared to ultrasonography performed in urban counties.

Methods: Retrospective, longitudinal chart review study approved by the Sanford Health Institutional Review Board correlating the second trimester prenatal screening examination with postnatal outcomes. Accuracy of newborn weight prediction for term pregnancies and congenital anomalies was compared between rural and urban clinics for mother-newborn dyads across the Sanford Health blueprint. Patients were classified as rural if they received their second trimester ultrasound at a facility in a county with a population of less than 50,000. Groups were compared via two sample *t*-test, Analysis of Variance, and linear regression to identify relationships and potential confounders as appropriate using Graphpad Prism software version 10 with p-values < 0.05 considered significant.

Results: A total of 278 mother-newborn dyads (n = 70 rural and n = 208 urban) were included in the study. Non-singleton infants, pregnant individuals less than 18 years old, and patients whose second trimester ultrasound was unobtainable were excluded. Fetal weight percentile was not determined to be predictive of birth weight percentile in rural (R-squared = 0.165) or urban (R-squared = 0.1103) communities, nor were the differences between the linear regression models statistically significant (p = 0.7478). Detection rate of birth abnormalities for neuro, craniofacial, cardiac, gastrointestinal, renal/genitourinary, and limbs was recorded. The overall percentage of anomalies identified at the second trimester ultrasound was 50.0% for rural and 31.7% for urban, which was not determined to be statistically significant (p = 0.6416).

Conclusion: This study showed no statistically significant differences between ultrasonography performed in rural vs urban counties, in the second trimester, regarding the accuracy for newborn weight prediction or detection rate of congenital anomalies within our single health system. To the author's knowledge, this is the first study to investigate disparities in ultrasonography accuracy across U.S. rural and urban communities. Enhanced understanding of how potential sources of error, including patient volume, specialized expertise of the ultrasonographer, and equipment, is needed to improve prenatal assessment reliability for informed decision-making and ultimately maternofetal outcomes in rural communities. Future work should seek to expand the sample sizes to further stratify the population groups and control for ultrasound equipment, ultrasonographer, and who read the scans.

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Walk With Ease Benefiting South Dakota

Bailey Pickering, MD | Mentors: Jennifer Kerkvliet, MA, LPC, NCC; DenYelle Kenyon, PhD

Background: Walk With Ease (WWE) is an evidence-based arthritis self-management program developed by the Arthritis Foundation. Although the target audience is individuals with arthritis, any adult interested in increasing their physical activity can benefit. WWE provides community-level access to physical activity in rural South Dakota through internet access or trained local leaders. Before WWE started in South Dakota in 2018, South Dakota did not have an online, state-specific physical activity program. WWE is a free program that aims to help sedentary adults increase their physical activity and improve their overall health.

Methods: This project evaluated the self-reported benefits to participants that accessed the online portal for WWE using multiple metrics collected during the year 2022. 234 participants filled out the pre-survey, 145 people were lost to follow up and not included in analysis, 89 participants completed the pre- and post-survey and were included in the analysis. Of the 89 participants, 15 were male, 70 were female, and 4 participants preferred not to answer that question. The average age of the participants included in analysis was 50 years old, (the minimum age was 23 and maximum age was 77). Of note, the pre- and post-surveys asked about participants' self-reported "overall health," "daily minutes walked," and how the participants felt they "managed their chronic health condition(s)." The post-survey also included questions about the ease of use of the online portal to access additional resources. These metrics were measured before participants began the program and after completion of the program to see if this free program provided benefits.

Outcome: From pre-survey to post-survey, 26% of participants reported their "overall health" improved, 67% stayed the same, and 7% reported a decrease. "Minutes walked" was another metric analyzed, 30% of participants increased their daily minutes walked by anywhere from 1 minute to 30+ minutes, 57% stayed the same, and 13% decreased. Participants reported "management of their chronic health condition(s)" were 44% improved, 34% stayed the same, and 22% decreased. As for "Ease of online portal usage", 44% of participants reported the online portal was "very easy to use," 46% reported it was "easy to use," and 10% reported it was "neutral."

Conclusion: Overall, the majority of participants in the WWE program improved or stayed the same for their self-reported "overall health," "daily minutes walked," and "management of their chronic health condition(s)." Limitations of this study include the small sample size (of 234 initial participants, only 91 participants completed the pre- post-surveys and were included in the study. This study did show that an evidence-based, arthritis self-management program like WWE has potential to help participants improve their exercise metrics with the implementation of an online portal for participants to access additional resources at any time.

Improving Interactions During Medical Interpretation: An Educational Module for Medical Students

Alyssa Reinschmidt, MD | Mentor: DenYelle Kenyon, PhD

Introduction: The population with limited English proficiency (LEP) has been growing in the United States, and South Dakota is no exception. As the state and nation diversify, healthcare systems must evolve to serve patients from various cultures and backgrounds. Language differences impact the ability to obtain high-quality healthcare for patients with LEP. As a result, future physicians should be trained to utilize interpretation services successfully and appropriately, beginning in medical school. This project offered an educational module to first-year medical students at the University of South Dakota Sanford School of Medicine (SSOM), preparing them to serve patients who do not speak English as their first language.

Methods: An educational module was developed through a literature review process and discussions with professionals in medical interpretation, patient care, and diversity and inclusion. The module, which included didactics, live role-play, and an open discussion, was presented to the class of 2027 at the SSOM in April 2024. The students were asked to take a pre-module and a post-module survey, which evaluated how prepared they felt to work with language services in the clinical setting. A paired t-test examined the differences in the students' perception of their educational environment, attitudes, preparedness, and knowledge regarding working with patients with LEP before and after the presentation of the module.

Results: 68 medical students participated in the session. Results were analyzed using paired t-tests. The results suggest that students a) felt the module better prepared them to work with patients with LEP, $t(60) = -10.195$, $p < 0.001$, b) improved on the knowledge-based portion of the survey, $t(62) = -7.132$, $p < 0.001$, and c) showed improvement in attitudes toward caring for patients with LEP $t(61) = -4.413$, $p < 0.001$ after completing the module. In addition, the results suggested that completion of the module improved the students' perception of the educational environment at SSOM, $t(60) = -12.31$, $p < 0.001$. The results were partially incomplete because some participants did not answer all survey questions.

Conclusions: This educational module aimed to train medical students to effectively use interpretation services and better the healthcare patients with LEP will receive in the future. The results indicated that implementing the module improved students' attitudes, knowledge, preparedness, and perception of the educational environment at the SSOM when working with patients with LEP. The current results will be used to enhance the following sessions with the goal of expanding to include a hands-on session in the future.

Influence of Disability Education, Panel Discussion on Comfort and Knowledge of Healthcare Providers in South Dakota

Keely Walker, MD | Mentor: Eric Kurtz, PhD

Introduction: It is estimated that 27.2% of adults in the United States and 23.8% of people in South Dakota have a disability of some kind. Though individuals with disabilities are now recognized as an underserved population in healthcare, many disparities persist, infringing on the health of these individuals. A commonly cited barrier to receiving high quality care is provider misconceptions, and fallacies of life with disability. A minority of US medical schools have a specific disability curriculum. The University of South Dakota Sanford School of Medicine (USD-SSOM) does not currently have specific training on disability beyond the medical and biological concepts. The objective of this study was to assess the efficacy of a two-session course designed to provide didactic information about caring for individuals with intellectual and developmental disabilities (IDDs) and a hands-on panel discussion with patients with IDD and their caregivers..

Methods: Participants were recruited from USD-SSOM to participate in a study including a two-session course to discuss guidelines for caring for patients with disabilities and providing exposure to the disability experience using a panel discussion. Participants were asked to complete a survey before and after each meeting. The survey contained open-ended questions and a series of 13 statements using a Likert scale for rating from "strongly disagree" to "strongly agree." The ratings of the statements were converted to numerical values for analysis. The data were analyzed using a paired samples t-test to assess if there was a significant change in responses. A p-value of <0.05 was considered to be significant. The data from the first and second meetings were analyzed separately.

Outcomes: Study participants (N=35) were primarily white medical students between the ages of 23 and 29, and a majority of responders endorsed fewer than five hours of formal training on caring for individuals with IDD. For both meetings participants had statistically significant changes in their responses to 11 of 13 survey statements. The first meeting, containing didactic education focused on caring for patients with IDD, showed the most difference in response to statements regarding capability of adapting communication and approach during a visit with a patient with IDD, with mean difference of 1.000. The second meeting, a 90-minute panel discussion led by the researchers with individuals with IDD and a caregiver, showed a mean difference of 1.667 in response to the statement about "feeling capable of providing the same level of care to a patient regardless of disability status."

Conclusions: Persons with intellectual and developmental disabilities face a multitude of health disparities that can be addressed, in part, by further training of medical professionals. This study demonstrated that medical students are interested in this topic. It further demonstrated that it is feasible to provide low cost, low resource programs that lead to the advancement of knowledge and competencies needed to improve care for persons with disabilities.

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SDSMA Meets with Department of Social Services Leadership

SDSMA's Tammy Hatting and Justin Ohleen met with the South Dakota Department of Social Services Cabinet Secretary Matt Althoff and members of his leadership team on August 11 to discuss the association's priorities for supporting physicians and ensuring access to medical services for the Medicaid population. Topics discussed during the meeting included the administrative burden of prior authorization, enrollment process, claims processing and the need for modernization. SDSMA and DSS shared ideas on collaboration and how we can improve clinical messaging to healthcare professionals. Physicians play a crucial role in addressing social determinants of health and improving health care outcomes. We look forward to partnering with our state agencies to improve access to medical services.

SDSMA Advocates for Key Priorities with Congressional Delegation

SDSMA representatives met with members of South Dakota's congressional delegation in Sioux Falls last month. We met with representative Dusty Johnson on August 12 and Senator John Thune on August 19 to talk about key issues impacting patients and physicians. Topics included Medicare physician payment reform, prior authorization delays, and deep concerns with the ongoing attacks on evidence-based medicine. We also expressed the importance of the U.S. Preventive Services Task Force and how those recommendations help clinicians make informed decisions every day as a trusted source to prevent disease and prolong life.

We thanked Senator Thune and Representative Johnson for supporting rural medicine, for working with us over the past couple of years on legislation to avert some of the physician payment cuts that had been scheduled to take effect and supporting the removal of burdensome administrative requirements for prior authorizations.

Lastly, we asked them to support the patients of South Dakota by fighting back against efforts to undermine the science of medicine. The SDSMA supports evidence-based health initiatives and asked for a follow-up meeting to discuss the U.S. Health and Human Services commitment to create a patient-centric healthcare ecosystem.

We will be meeting with members of Senator Mike Rounds's staff in the coming weeks.

SDSMA Director of Policy & Advocacy Justin Ohleen; President Keith Hansen, MD; CEO Tammy Hatting; Senator John Thune; Alternate Delegate to the AMA Mary Carpenter, MD; Delegate to the AMA Robert Summerer, DO

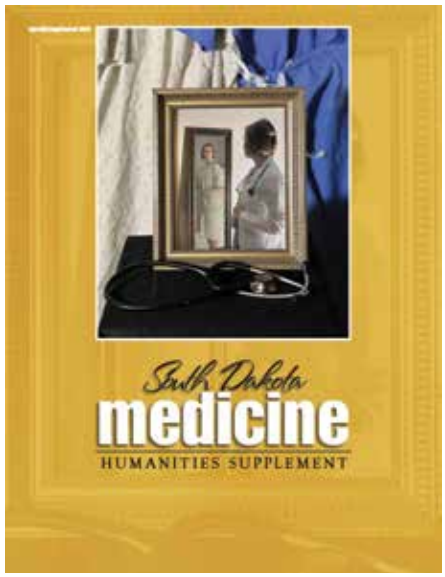
Follow us on Social Media!

Stay up to date with the latest from the South Dakota State Medical Association. We are on Facebook, Twitter, and Instagram! Follow and connect with us.

Member News

Call for Submissions! 2025 Humanities Supplement

South Dakota Medicine is now reviewing submissions for the 2025 Humanities Supplement of *South Dakota Medicine* that will be published this fall. Following the success of the inaugural issue in November 2024, the publication will once again primarily feature students' creative work. We welcome a wide array of creative endeavors within the humanities.



The editorial staff will consider submissions such as:

- Visual art
- Photography
- Poetry
- Essays
- Memoir
- Historical reflection
- Short fiction

South Dakota medicine

For written submissions, please ensure your submission does not exceed 1,500 words.

Deadline: September 30, 2025.

Submission: Please submit your work to Elizabeth Reiss ereiss@sdsma.org

Be Sure to Renew Your Membership For 2026: Don't Miss Out on Benefits!

Thank you for your membership in the SDSMA. Association renewal is annual and runs on the calendar year from January-December. In the coming weeks, members will begin receiving renewal notices via email.

We look forward to another great year of providing physicians with valuable benefits! SDSMA membership gives you access to networking and leadership opportunities with your local colleagues in your District Medical Society, a monthly subscription to South Dakota Medicine, your name and practice information in the physician directory, and advocacy on behalf of patients and the medical profession.

- **Advocacy.** Participate in opportunities to have your voice heard. The SDSMA advocates at the state and federal levels on key health care issues impacting patients and physicians.
- **Professional growth.** Grow leadership skills through the SDSMA Health Leadership Institute, committee involvement, collaborative efforts, and events.
- **Education.** Access education programs on current topics and publication opportunities in the peer-reviewed medical journal, *South Dakota Medicine*.
- **Well-Being.** Navigate the stressors of today's ever-changing healthcare landscape and prioritize wellness with the South Dakota Physician Well-Being Program.

Copic Tips: Recalls and Warnings: Risk Management Considerations

When healthcare-related products are recalled or receive serious warnings, it is crucial for medical practices to follow a comprehensive process to avoid liability and ensure patient care. There are a variety of general guidelines for healthcare professionals to be aware of including legal considerations, patient notification responsibilities, and financial implications. To learn how to navigate these situations and protect your patients and practice effectively, go to copic.com/resource/recalls-and-warnings.

SDSMA Health Leadership Institute: Now Enrolling for Fall 2025 Cohort

The SDSMA Center for Physician Resources Health Leadership Institute helps physicians balance life and work, sharpen their skills in practice management, and train for future leadership positions.

Watch a video at sdsma.org to hear participants describe their experiences from the HLI. The next cohort begins October 17, 2025!

Sign up today! Learn more at sdsma.org. **Full and partial tuition scholarships** may be available for those eligible. **Contact:** Justin Ohleen — johleen@sdsma.org

SDSMA CENTER FOR PHYSICIAN RESOURCES
Health Leadership Institute

Make sure the voice of South Dakota physicians is heard at the national level.

At a time when health care is front and center in the national debate, members of the **South Dakota State Medical Association** (SDSMA) should have a powerful say in how health policy is shaped. The **American Medical Association** offers you that platform.

An AMA membership means a stronger voice for SDSMA to influence national health care policy that puts patients and physicians first.

Thank you for your AMA membership. If you aren't already a member, contact the SDSMA to learn how to join.

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- Get world-class clinical content including materials on prediabetes and the opioid epidemic
- Maximize lifelong learning with affordable, reputable CME, plus access to the latest in health care news and research in The JAMA Network®
- Optimize your practice with strategies to improve satisfaction and tools to help you stay up to date and informed on payment and reimbursement
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The medical team representing the Board's regulated professions

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- **Establishes regulations by proposing legislation and adopting administrative rules**
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Board News is a monthly feature sponsored by the South Dakota Board of Medical and Osteopathic Examiners. For more information, contact the Board at SDBMOE@state.sd.us or write to SDBMOE, 101 N. Main Avenue, Suite 301, Sioux Falls, SD 57104.

Help Shape the Future of Medicine in South Dakota

The South Dakota State Medical Association Foundation, the philanthropic arm of the South Dakota State Medical Association, is a tax-exempt 501(C)(3) non-profit corporation, was established to assist and support medical research, medical teaching and medical education at the Sanford School of Medicine.

On average, medical students graduate with $130,000 in debt. Contributions to the South Dakota State Medical Association Foundation provide financial assistance to students at the Sanford School of Medicine and are all designated for scholarships, grants and low-interest loans for students.

Any amount can be donated at any time throughout the year. If you have questions or want more information, please call 605.336.1965.

Send Your Contributions Today To:
South Dakota State Medical Association Foundation
2600 W 49th St Ste 100, Sioux Falls, SD 57105
Or contribute online at www.sdsma.org

SOUTH DAKOTA
State Medical Association Foundation
Shaping the Future of Medicine in South Dakota

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