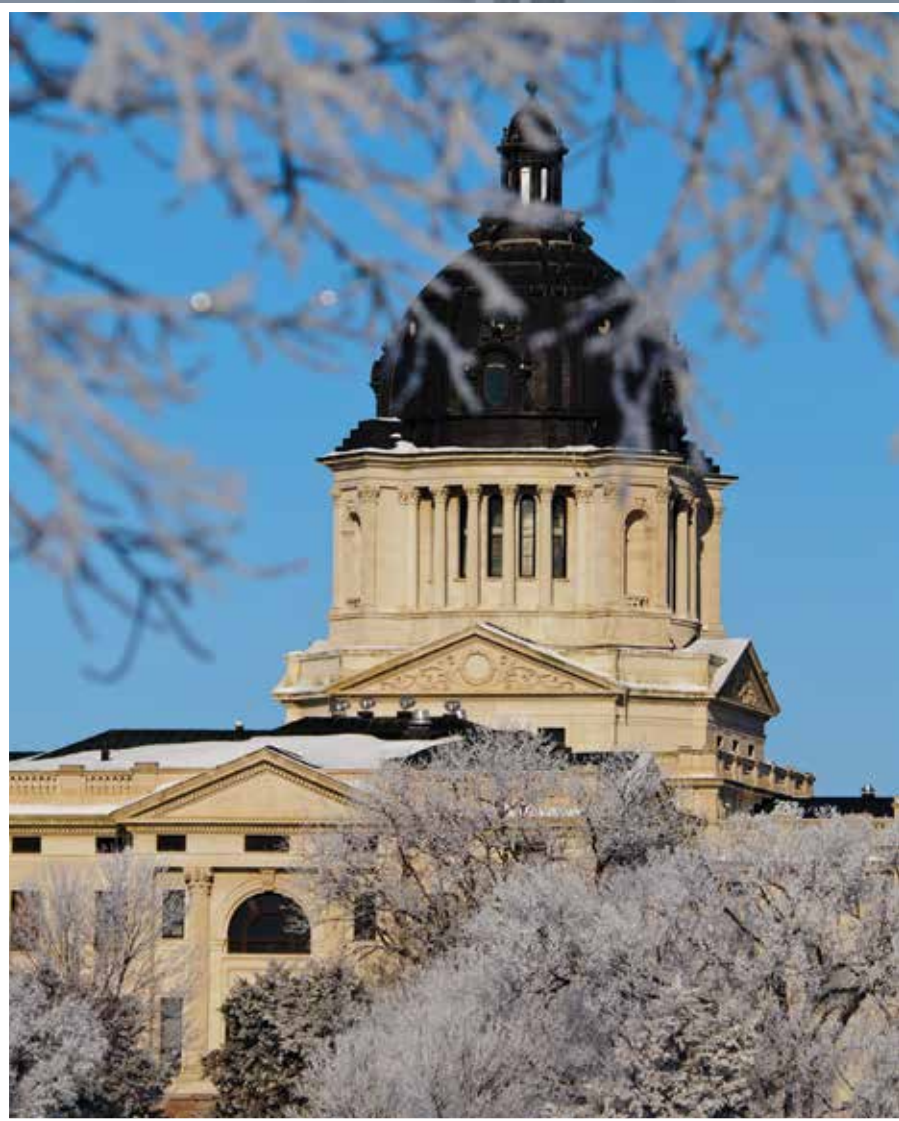


January 2024

Volume 77

Number 1



# *South Dakota* **medicine**

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# South Dakota medicine

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State Medical Association

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# PSYCHOLOGY AND WEALTH

BRITTANY HEARD, CFP®, CKA®, CFT-I™, CDFAs®, Lead Advisor

The different ways people react to and treat wealth and finances is fascinating. Although not everyone can be put in a box, there are five main personality types when it comes to psychology and wealth: Neuroticism/Emotional Stability, Conscientiousness, Agreeableness, Extraversion, and Openness. A person can be any one of these or a mix of them. The article called "Personality and Wealth" by Mark Fenton-O' Creevy and Adrian Furnham describes how these different types of personalities impact how you may think and act about finances.

## Neuroticism/Emotional Stability

According to Fenton-O' Creevy and Furnham, "Neuroticism concerns having habitual levels of emotional volatility and anxiety versus emotional stability and calmness." Someone with higher levels of neuroticism may tend to be more conservative with investing, save less, and have fewer liquid assets (such as cash). They can be more prone to experiencing financial stress because they are not always capable of planning for the future, choosing which financial products are best for them, and having trouble making ends meet. This type of person may have lower lifetime earnings and may need greater support in managing anxiety around investing and navigating market volatility.

## Conscientiousness

Conscientiousness is a person's preference for following the rules, hard work, careful planning and organization. Individuals with this trait focus on the diligent completion of tasks, avoiding the feeling of being disorganized, unstructured, and unreliable. This type of person works hard and has career success. He or she often has higher lifetime earnings and educational success and works hard to effectively manage their finances. High conscientiousness correlates to high net worth, as well as participation in retirement plans and saving. This person does not experience financial distress.

## Agreeableness

Agreeableness is, "...the extent to which a person is warm, agreeable, cooperative, trusting, and motivated to help others and act in their interests, versus cold, disagreeable, distrusting, aggressive, and disregarding of other's interests," according to Fenton-O' Creevy and Furnham. Someone who is very agreeable may have lower wages, lower savings, and higher debt. This person may not have a high net worth or participate in retirement plans. It is possible that this type of person is so busy worrying about pleasing others that they don't often take care of themselves. This type of person also may be more vulnerable to financial scams and predatory financial products.

## Extraversion

According to Fenton-O' Creevy and Furnham, "Extraversion concerns sociability and assertiveness versus social reservation and timidity) and is also associated with impulsiveness." Someone high in extraversion often has career success, a modest relationship with

income, and some impulsive habits. This person may have lower savings and higher debt. This type of person often has higher wealth accumulation but will regularly purchase overpriced assets. This person has a greater illusion of control than the other personalities and may have lower savings and investments but higher value of physical items because of impulsiveness and purchasing items. This type of person may need additional support to make regular savings.

## Openness

"Openness concerns active imagination, preference for variety, intellectual curiosity, and willingness to challenge authority versus closed-mindedness, dogmatism, and conservative attitudes. It is the personality factor most strongly associated with intellect and intelligence," write to Fenton-O' Creevy and Furnham. Someone with high openness may take greater care in choosing financial products. This person may have less planning for the future and lower ability to make ends meet. This person has a lower correlation with retirement savings.

Overall, conscientiousness is the strongest predictor of wealth, regarding property wealth, savings/investing, and physical items. Conscientiousness is more highly correlated with wealth than either gender or education. While we may think that conscientiousness is something we are simply born with or born without, we can increase our conscientiousness with behavioral changes. We can practice conscientious behaviors by organizing our homes and offices, starting assignments early, and scheduling out our day. Also, one of the reasons for hiring a Financial Advisor is that they can play this "conscientious" role in your life, particularly if it is not the personality type with which you are most aligned.

Perhaps you are trying to reach a goal but don't feel like you are accomplishing it the way you want, and you feel you are not conscientious enough. As you work with your financial advisor and are trying to achieve a goal, envision the desired future and the obstacles needed to overcome, to reach that desired future. Try imagining what it will feel like to have the goal completed. What will you be doing? Whom will you be with? Where will you be? How will you be feeling? Write out your goal. Having written savings goals can help you be more conscientious and able to follow-through. At Foster Group, we want to guide you as you work to achieve your goals.

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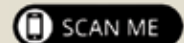
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# Lung Cancer in South Dakota: Statistics, Early Detection, and A New Interactive Dashboard

Patricia Da Rosa, DDS, MSc; Laura Gudgeon, MS; Sarah Quail; and Jill Ireland, MPA

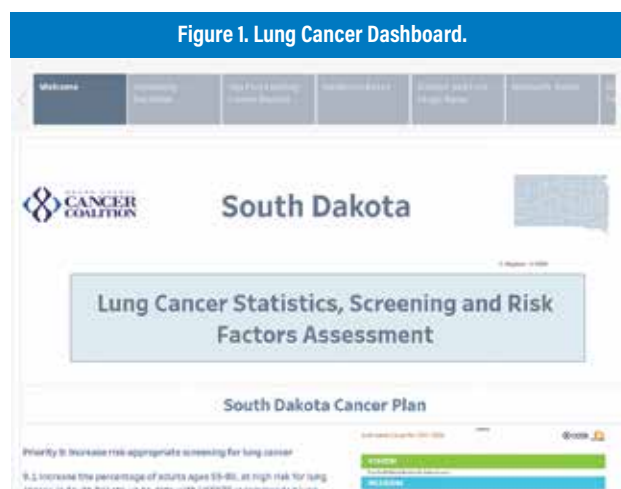
Lung cancer is responsible for the largest number of cancer-related deaths, with an annual average of 124,127 deaths in the United States.<sup>1</sup> In South Dakota, it claims one life per day.<sup>2</sup> This article provides an overview of lung cancer statistics in South Dakota, emphasizing the importance of early detection through screening, and highlighting the creation of a new interactive Lung Cancer Dashboard. The dashboard provides information on lung cancer incidence and mortality rates, associated risk factors, and screening facilities and is available for viewing on the South Dakota Cancer Coalition website.

From 2015 to 2019, the state recorded 3,074 new cases and 2,094 deaths from lung cancer, accounting for 13% and 25% of all cancer-related cases and deaths, respectively.<sup>2</sup> Overall, incidence rates decreased by 4.7% from 2016 to 2019, while mortality rates decreased by 2.5% per year from 2006 to 2020. However, females had an annual increase of 0.9% in incidence rates, while males had a notable decrease of 2.2% from 2002 to 2019. Mortality rates remained stable for females, but decreased for males (4.3%) from 2008 to 2020.<sup>3</sup> Disparities by race remain for both incidence and mortality. The incidence rate per 100,000 for American Indians was 78.4 and 55.7 for White individuals, while the mortality rate per 100,000 for American Indians was 59.0 compared to 37.1 for White individuals from 2015 to 2019.<sup>2</sup>

According to the American Cancer Society, cigarette smoking and radon exposure are the main modifiable risk factors. Approximately 82% of lung cancer deaths are attributable to cigarette smoking,<sup>4</sup> which represents 1,717 deaths in South Dakota from 2015 to 2019. Rural communities face additional challenges with the risks of lung cancer due to socioeconomic vulnerability, limited resources, healthcare access, and high percentages of tobacco use. As of 2023, it is estimated that approximately 19% of adults in South Dakota are smokers. However, there is notable variability among counties, with Todd County having the highest smoking rate at 44%, while Brookings County having the lowest rate at 14%.<sup>5</sup> The survival rate for lung cancer heavily depends on the stage at diagnosis. In general, the overall five-year survival rate for lung cancer in the United States is relatively low and estimated to be around 20%.<sup>1</sup>

Early detection can significantly improve survival. Regular screening, particularly with low-dose computed tomography (LDCT), is recommended for high-risk individuals.<sup>6</sup> The newly released Lung Cancer Dashboard provides lung cancer statistics by gender, race, and county level. It also highlights cigarette smoking prevalence in the state and the availability of screening facilities. Efforts to fight lung cancer should focus on multiple fronts, including increasing public awareness of lung cancer risks, promoting smoking cessation programs such as the South Dakota QuitLine, improving access to screening services, promoting clinical trial participation and improving treatment options. Given the unique challenges faced by rural communities in South Dakota, it is imperative to implement targeted interventions and foster collaborative efforts to reduce the burden of lung cancer and ensure equitable cancer care and prevention across the state.

Figure 1. Lung Cancer Dashboard.



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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](mailto:ereiss@sdsma.org) for a complete listing.

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## Legislative Session Begins

Denise Hanisch, MD  
President, South Dakota State Medical Association



**S**DSMA membership means our voices have the power to reach far beyond our practices to impact the future of health care in South Dakota. Improving health care in the state is part of the SDSMA's mission, and our efforts are guided by our desire to improve the lives of our patients and the health of our profession. Policymakers need our input – the SDSMA amplifies our voices, not only with legislators, but with other elected officials, state agencies, and health plans. With your membership in the SDSMA, we're provided with an avenue to be advocates for our patients. Involvement strengthens our voices and our ability to provide high-quality medical care. When I think about physician advocacy, I can recount specific wins that directly impacted my patients and practice.

South Dakota's 2024 legislative session begins on January 9. We have a wonderful team advocating for patients and the medical profession, making the SDSMA an active player in critical advocacy initiatives and successes. As bills are introduced, we'll keep you updated in our weekly *InSession* newsletter. When we need members to reach out to legislators, we'll email an Action Alert. I urge you to send emails to your legislators, make calls, sign up for the SDSMA's Doctor of the Day program, or other efforts. It's the voices of our member physicians and students that make our advocacy efforts so effective. For example, last year our members amplified the SDSMA's call to action to oppose, and ultimately defeat for the third year in a row, the physician assistants' bill that would have removed physician supervision of PAs and allowed independent practice. The bill was defeated in the Senate by a vote of 14 yea-20 nay. This legislation, being pushed by national special interests in numerous states, is a patient safety issue. This legislation will likely be introduced again during the 2024 legislative session. To ensure that patients receive the best medical care from the people best trained to deliver that care, the SDSMA and the Coalition for Excellence in Patient Care will again be a strong force opposing any efforts to allow non-physicians to independently practice beyond the scope of their education and training.

Physician well-being is another topic in which the SDSMA will be active during session. The SDSMA and our Committee on Physician Wellness have spent years prioritizing and tackling the goal of improving wellness and reducing burnout in recognition that physician well-being is

essential for high-quality patient care. Three years ago, the SDSMA passed legislation that allowed for the creation of the South Dakota Physician Well-Being Program. This program understands physician training and work stressors, as well as personal stressors – it stands with and helps physicians navigate challenges, transitions, and more. The program is confidential and independent of the licensing board, state government and employers. There is no insurance billing and no medical record. Numerous practicing physicians and medical residents have benefitted from the program since its launch. Additionally, the well-being of those in medical training is of utmost importance, and that is why the SDSMA is proposing legislation that seeks to amend the statute in order to expand eligibility to medical students enrolled at the University of South Dakota Sanford School of Medicine. Throughout medical school, providing an environment that promotes positive development is extremely important.

Proposed changes to the South Dakota Board of Medical and Osteopathic Examiners that would impact physician licensure is another issue that the SDSMA will be watching closely. Late in the process, we were notified of an effort underway to expand the SDBMOE to include additional non-physicians. We sent a letter to Gov. Noem and the Department of Health expressing our concerns with the proposed changes.

Lastly, we've learned that the South Dakota Board of Pharmacy may be proposing legislation that would allow pharmacists to administer vaccinations for children as young as 3 years of age. While the SDSMA acknowledges that some childhood vaccination rates have declined as a result of the pandemic, pharmacists should not be authorized to administer any vaccine to children under the age of 7 years, and only be authorized to administer certain vaccines to those aged 7-17 years. Expanding pharmacists' scope of practice is not the solution and will likely cause skipped well-child exams with the child's physician that are necessary for comprehensive preventive care, early diagnosis, optimal therapy and ensured timely vaccinations provided in a safe setting by those who are properly trained.

It is my hope that you will review the 2024 Advocacy Agenda at [sdsma.org](https://sdsma.org) which highlights the pressing issues facing health care this year in South Dakota, and join me and our colleagues in advocating for actions that will help us continue delivering exceptional care to our patients.



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# State of South Dakota's Child: 2023

Ann L. Wilson, PhD; Tyler A. Hemmingson, MPH; and Brad Randall, MD

*I extend to you my warmest greetings and best wishes as the year 2024 begins for us all. This year's annual review of the State of South Dakota's Child presents the most recent data on infant births and sad deaths of infants in our state's community. Any death among the youngest among us is tragic and such losses must challenge us to examine how they may be prevented with care that assures the best possible outcomes of pregnancy.*

*I extend to all my appreciation for your efforts caring for families so they may provide the very safest beginnings of life for the future of our state. I also offer my sincerest gratitude to the authors of this important work. Their efforts help bring a better focus on care for the most vulnerable among us.*

Tim Ridgway, MD, MACP, FASGE  
Dean, University of South Dakota Sanford School of Medicine  
Vice President for Health Affairs

## Abstract

In 2022, there was a decrease in births in the state with 111 fewer resident newborns than in the previous year. This represented a decrease of 1% of its white and 3.5% of its AIBO (American Indian, Black and Other) births. The 2022 birth rate per 1,000 population for the state (12.3) is higher than observed nationally (10.9) but matches its 2020 rate that was an historic low. Approximately 22% of all births in 2022 were AIBO and this percent of the state's entire birth cohort has decreased in the past several years. The American Indian contribution to the AIBO cohort has also decreased as its racial diversity has increased. The percent of births that are low birth weight has consistently been lower in South Dakota than nationally. An increase of 16 infant deaths in 2022 from 2021 and the decreased number of births led to an increase in the infant mortality rate (IMR = deaths in first year of life per 1,000 live births) from 6.3 to 7.8, but this 2022 IMR is not statistically significantly higher than its previous five-year mean. Further, the 2022 increase in the IMR was almost entirely among white infants with the post neonatal mortality rate (PNMR = deaths between 28 and 365 days of life) decreasing between these two years for AIBO infants. Nonetheless, the state's five year mean rates of death (2018-2022) are significantly higher ( $p < 0.01$ ) for the AIBO than white infants for the neonatal (0-27 days) and post neonatal periods of the first year of life. Recently, however, the ratio of AIBO to white post neonatal mortality rate (PNMR) has decreased, but increased for the neonatal mortality rate (NMR). Infants in South Dakota are significantly more likely between 2018 and 2022 to die of congenital anomalies ( $p < 0.01$ ), sudden unexpected infant death (SUID,  $p < 0.01$ ), and accidents/homicides ( $p < 0.05$ ) than in the United States in 2021. SUID remains the leading cause of post neonatal death and its risk may be decreased when babies are placed to sleep supine and alone in environments that are devoid of soft hazards.

During the year 2022, the height of the COVID pandemic peaked, yet concern persists about its impact on the wellbeing of the world's population. This annual review of the first year of life for South Dakota's newborns will examine these possible effects with data from 2022 on births and deaths.

## Natality

In 2022, 11,193 newborns became residents of South

Dakota. This number is 111 births lower (1%) than total number of live births in 2021, which reversed the previous year's lowest birth rate (per 1,000 population) in the state's history.<sup>1</sup> Figure 1 shows that these data for the past three years may well represent a plateau in the downward trend in annual births that has been observed over past decades.

Though the state's birth rate is declining, Figure 2 shows

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Figure 1. Total births, South Dakota, 1960-2022.



Figure 2. Birth rates, South Dakota and United States, 1910-2022.



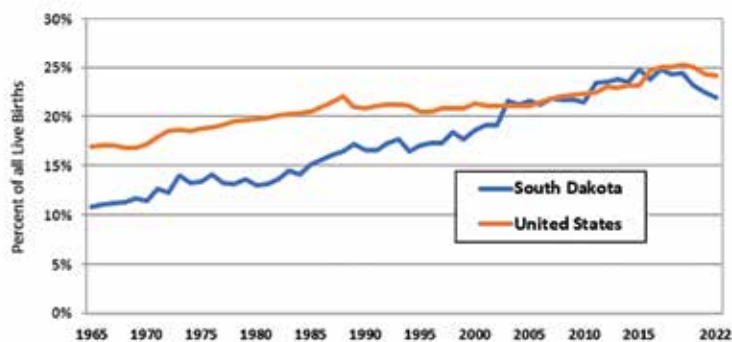
that South Dakota sustains a higher rate of birth per 1,000 population than is noted nationally. Specifically, Figure 2 shows how the landmark low 2020 birth rate for the state (12.3) was also a landmark low (10.9) for the nation. In 2022, the state's rate of birth (12.3) matched its 2020 historic low birth rate.<sup>2</sup>

To optimize respect for all racial and ethnic populations of the state and country, yet also to be as responsive as possible to the challenges of presenting data from small sample sizes, the term AIBO will be used throughout this publication to describe American Indians, Blacks, and Others (Asians and multi-racial/non-Hispanics). In these publications

prior to 2022, the term “minority” was used to describe the combination of these racial groups. The term “white” will continue to be used, as in previous publications, to describe all Caucasians and those of Hispanic origins. Until recently, state data combined these two groups and thus for the sake of continuity of graphs that provide longitudinal data, the numbers representing whites and Hispanics will continue to be combined.

Figure 3 describes the racial diversity of South Dakota's birth cohort and compares it to what is observed nationally. Apparent in this figure is how the percent of babies who represent the AIBO group in South Dakota gradually

Figure 3. Percent of AIBO live births, South Dakota and United States, 1965-2022.





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Figure 4. Low birth weight, United States and South Dakota, 1965-2022.

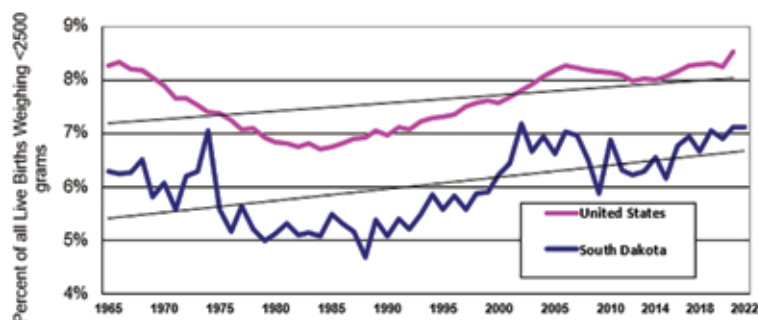
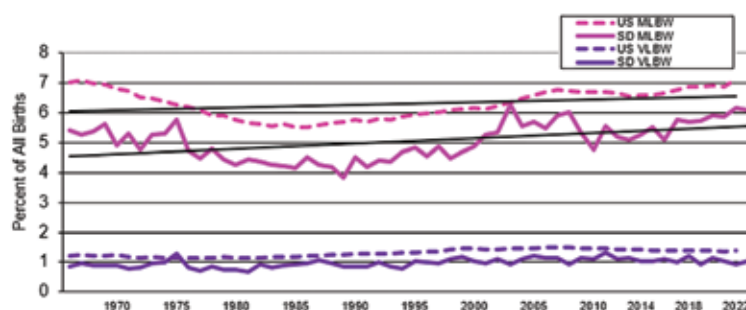


Figure 5. Percent of all births: mid-low birth weight (1,500-2,499 grams), very low birth weight (0-1,499 grams), South Dakota and United States, 1965-2022.



increased over past decades to match what was observed nationally (25% of population) in the early 2000s.<sup>1</sup> Then, in the past several years, this percent of diversity in South Dakota has declined to approximately 22% of all births paralleling a similar national decline. In South Dakota, there has also been a shift in the composition of the AIBO cohort with a slight decline in births of American Indian babies with increases noted in babies representing African American and other races.

Birth weight is an important parameter of perinatal outcome. Figure 4 presents data on low birth weight (LBW = <2,500 grams), which is a comprehensive data point to begin this analysis. Figure 4 shows that South Dakota has consistently had a lower percent of LBW newborns than noted nationally. This figure also reveals how this group of newborns is increasing, both nationally and statewide. Specifically, however, in 2022, South Dakota's LBW newborns comprised 7.1% of all live births and is essentially identical to what it was in 2021. This percent is considerably lower than the 8.5% of LBW that is noted nationally in 2021 and represents an increase from the previous year.<sup>1,2</sup>

Infant mortality increases as birth weight decreases

requiring further differentiation of LBW cohorts to better understand trends in public health. Figure 5 presents these data for very low birth weight (VLBW = <1500 g) and mid low birth weight newborns (MLBW = 1500 – 2499 g) for South Dakota and the United States. These data show that while the 2022 percent of VLBW in the state is quite similar to what was observed nationally (1.1% vs. 1.3%) there is a greater discrepancy in MLBW (6.1% vs 7.3%) when South Dakota data on this parameter are compared to those from the entire nation. Further, in 2022, the state saw a slight decrease in MLBW from the previous year but its VLBW percent slightly increased from 0.9 to 1.3% of all newborns. Trend lines show that the percent of VLBW in the state has been quite consistent approximating 1% while the percent of MLBW has been increasing. Notable, however, in 2022 were 18 live births with weights of less than 500 g (10 white, 8 AIBO), which was an increase from 10 newborns with this extremely low birth weight in 2021.<sup>1</sup> Survival among this birth weight cohort is unlikely.

How the increase in MLBW may be related to multiple births is a question that is raised as data on LBW are reviewed. Figure 6 demonstrates that in 2022 multiples contributed to approximately 3.7% of all births, and that over the past



SOUTH DAKOTA  
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Figure 6. Percent of all births that are multiple, South Dakota.



decades this percent has increased from slightly over 2% of all births. In 2021, 3.2% of all newborns in the United States were the outcome of multiple gestations.<sup>1,2</sup> Associated with observations about the increase in multiple births are discussions of the role assisted fertility may play in contributing to it.

Figure 7 presents data that describe the contribution of multiples to the cohort of VLBW and MLBW newborns. Even with the use of five-year moving means, the plots in this figure create jagged lines revealing year to year variation in LBW multiple live births. Nonetheless, the trend line shows that since the early 1990s multiples consistently comprise about a quarter of all VLBW newborns. Alternately, there has been an increase from about 22% to 28% of all MLBW

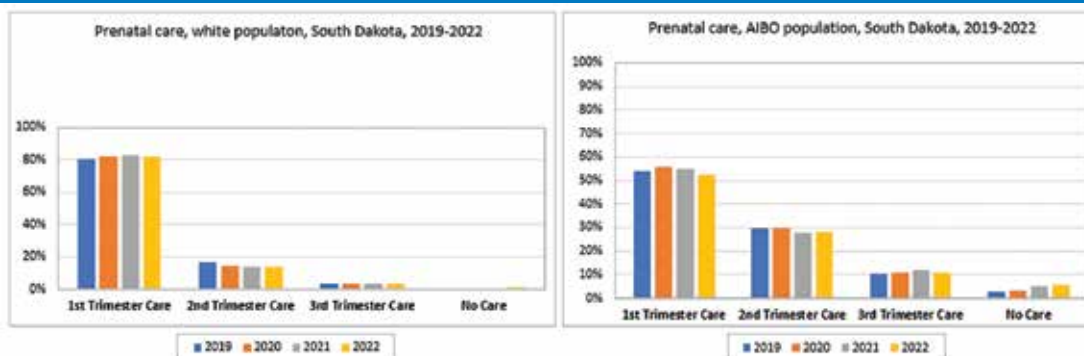
newborns as the outcome of multiple gestations. In 2022, 35% (n=40) of all VLBW newborns (n=115) were multiple live births (up from a mean of 27% for 2017-2021) while this was true of 24% of all MLBW newborns (down from a mean of 28% for 2017-2021).

During the height of the pandemic, concern was expressed regarding how it was affecting access to essential medical care unrelated to treatment for COVID-related illness. Essential to perinatal health is prenatal care and data on its utilization have been followed to understand how care during pregnancy was received and provided when exceptional efforts were required to avoid contagion. Figure 8 shows that during 2020 and 2021 there was a slight increase from pre-pandemic (2019) rates in utilization of first trimester care

Figure 7. Five year moving means of percent of VLBW and MLBW that are outcome of multiple gestations, South Dakota.



Figure 8. Prenatal care utilization, South Dakota, 2019-2022.



for both pregnant white (80 to 82%) and AIBO women (54 to 55%). This rate has been sustained for white women but decreased to 52% for AIBO women in 2022. Of concern, is the observation that among the state's AIBO population, there was an increase in no prenatal care from 3 to 6% during this period of time. The Healthy People 2030 target for first trimester prenatal care is 80.5% and the state has already achieved this goal for its white population but must make significant progress if it is to be achieved for AIBO pregnant women.<sup>3</sup> Of interest is that between 2019 and 2021, the United States has shown a different pattern on this parameter of perinatal care with a decrease from 76.4 to 75.6% of its total population beginning care during the first three months of pregnancy.

### Infant Mortality

The infant mortality rate (IMR) represents deaths during the first year of life per 1,000 live births. Figure 9 shows that compared to the smooth decline in these rates for the United States, South Dakota's rates show a downward trend but with jagged variation. This year to year variation reflects how shifts in absolute numbers of South Dakota's annual infant deaths are expressed in rates for the state's small cohort of annual births. Patterns, however, emerge that reveal how in recent years, the state's IMR has exceeded that which is observed nationally.

In 2022, 87 infant resident deaths occurred in the state compared to 71 the previous year. These 16 additional deaths and 111 fewer births contributed to the increase in the state's IMR from 6.3 in 2021 to 7.8 in 2022. For both years, the state's IMR exceeded the provisional 2022 IMR for the United States of 5.6.<sup>1,4</sup>

Discerning when infant deaths occur during the first year of life adds to an understanding of its rate and its recent increase. Neonatal mortality rates (NMR) reveal deaths that occur before the 28<sup>th</sup> day of life and post neonatal mortality rates (PNMR) refer to deaths that occur between the 28<sup>th</sup> day of life until the end of the first year. Figure 10 shows that compared to 2021, both the state's 2022 NMR (3.3 vs. 4.5) and PNMR (3.0 vs. 3.3) increased.<sup>1</sup> These data will be further analyzed to explore how related variables impact these mortality rates.

Racial disparities observed in perinatal outcomes are a persistent and troubling trend noted for generations as data on infant mortality are examined. This is true for national as well as South Dakota data. While the increase in the absolute number of the state's infant deaths in 2022 were nearly all white infants (from 34 in 2021 to 52 deaths in 2022), the increase noted in Figure 11 of the NMR is particularly steep for AIBO newborns. This increase, however, represents only two more AIBO deaths in 2022 than in 2021. This small

Figure 9. Infant Mortality, South Dakota and United States, 1964-2021.

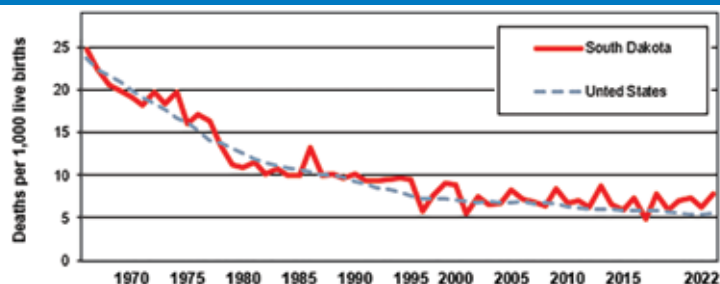


Figure 10. Neonatal and post neonatal mortality rates, total population, South Dakota and United States, 1965-2022.

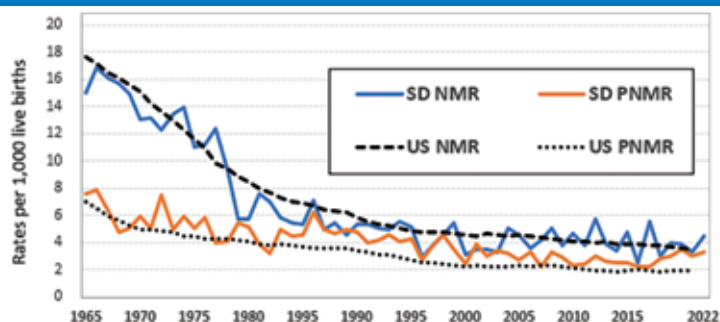
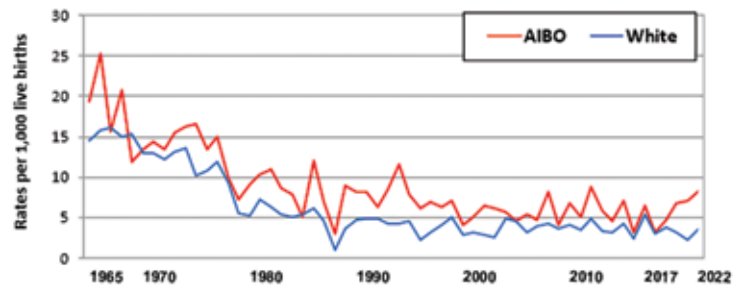


Figure 11. Neonatal mortality rates, white and AIBO, South Dakota, 1965-2022.



increase in absolute AIBO neonatal deaths creates the spike seen in Figure 11 and reflects the 3.5% decrease in their births between 2021 and 2022.<sup>1</sup> Overall, Figures 11 and 12 show how the state's neonatal and post neonatal mortality rates are persistently higher for its AIBO than its white resident infants. Further, these data show that over time there has been greater racial disparity in the PNMR than in the NMR, yet in the last two years this has shifted with a spike in the rate of AIBO NMR. These observations are further explored with the five-year moving means of AIBO to white ratios of neonatal and post neonatal deaths presented in Figure 13. The data in this figure show that though ratio of rates of post neonatal mortality remains higher than that for neonatal rates, it is increasing for the NMR. The mean ratio for 2018-22 was 2.6 for PNMR and 2.0 for NMR demonstrating that each of these rates was twice as high for

AIBO than for white infants.

Table 1 further explores the increase in the 2022 IMR by comparing its NMR and PNMR by race with their mean rates for the previous five years (2017-2021). Apparent in this table is how the largest increase in 2022 in the IMR from the previous five-year mean (2017-2021) was in the AIBO neonatal mortality rates, but this increase is not statistically significant for the AIBO or the white cohort of newborns. As noted above, the decrease in the number of AIBO births yields shifts in rates with small differences in absolute numbers of deaths. In addition, Table 1 shows that the 2022 increase noted in the PNMR from the previous five year rate also was not statistically significant for either white or AIBO infants as was the total infant mortality rate for all babies.

Table 2 compares the most recent five-year (2018-2022) mean

Figure 12. Post neonatal mortality rate, white and AIBO, South Dakota, 1965-2022.

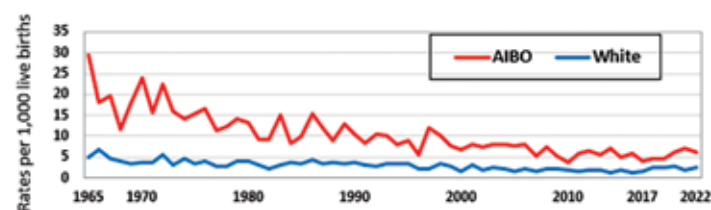
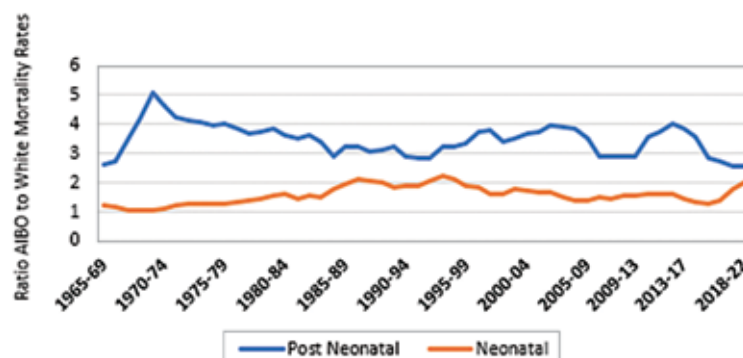


Figure 13. Five year moving averages of ratios of AIBO to white NMR and PNMR, South Dakota.



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*Shaping the Future of Medicine in South Dakota*



Table 1. Comparison of 2022 and 2017-2022 South Dakota neonatal and post neonatal mortality rates by race.

|                                      | 2022 | 2017-2022 | P<br>2022 vs. 2017-2021 |
|--------------------------------------|------|-----------|-------------------------|
| <b>Neonatal mortality rates</b>      |      |           |                         |
| White                                | 3.4  | 3.5       | NS                      |
| AIBO                                 | 8.2  | 5.6       | NS                      |
| <b>Post neonatal mortality rates</b> |      |           |                         |
| White                                | 2.5  | 2.1       | NS                      |
| AIBO                                 | 6.1  | 5.3       | NS                      |
| <b>Infant mortality rates</b>        |      |           |                         |
| White                                | 6.0  | 5.6       | NS                      |
| AIBO                                 | 14.3 | 10.9      | NS                      |

NS = Non significant, P value &gt;0.05

Table 2. Infant mortality rates: South Dakota and United States.

|                                     | South Dakota infant mortality rates |           |      |                     | Total population |            |                |
|-------------------------------------|-------------------------------------|-----------|------|---------------------|------------------|------------|----------------|
|                                     | 2022                                | 2018-2022 |      |                     |                  |            |                |
|                                     | Total population                    | White     | AIBO | P<br>White vs. AIBO | SD<br>2018-22    | US<br>2021 | P<br>SD vs. US |
| <b>Neonatal mortality rate</b>      | 4.5                                 | 3.1       | 5.9  | <0.01               | 3.7              | 3.5        | NS             |
| <b>Post neonatal mortality rate</b> | 3.3                                 | 2.3       | 5.7  | <0.01               | 3.1              | 2.0        | <0.01          |
| <b>Total infant mortality</b>       | 7.8                                 | 5.4       | 11.6 | <0.01               | 6.9              | 5.4        | <0.01          |

NS = Non significant, P value &gt;0.05; P values &lt; 0.05 are considered significant

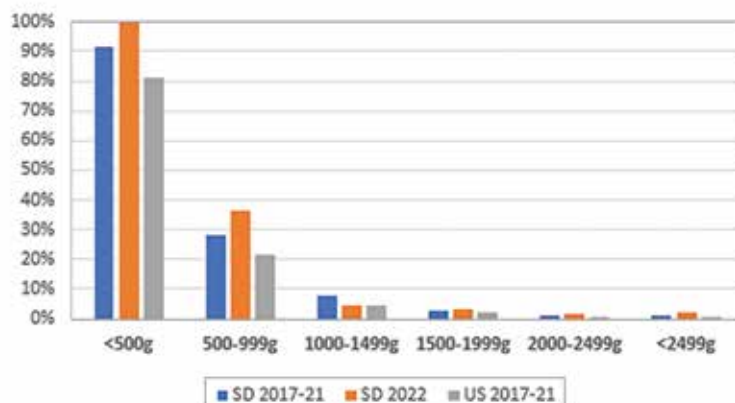
rates of IMR by race for South Dakota. During this period of time, the neonatal, post neonatal and total IMR were significantly higher ( $p<0.01$ ) for AIBO than white infants on each of these measures of survival during the first year of life. Further, the state's PNMR and total IMR for its entire population was significantly higher ( $p<0.01$ ) than that of the United States in 2021.

To further explore possible correlates of the increase in the 2022 IMR are data on birth weight specific mortality. These data are presented in Figure 14. Data in this figure compare the 2022 survival by birth weight with those from the previous five years for both the state and the nation. In 2022, as previously noted, there were 18 live births of less than 500 gram newborns and none survived. In the previous five years (2017-2021) mortality for this weight cohort was 92% and the weight composition within this group of

newborns likely affects mortality within it. Nationally, the mortality rate for this cohort was 81%. In 2022, Figure 14 also shows that the mortality for the 500-to 999 gram cohort of newborns also was higher (36%) than noted the previous five years (28%) and nationally (21%). Alternately, in 2022 the state saw lower mortality for its 1000-1,499 gram cohort (5%) than observed in the previous five years.<sup>1,5</sup>

The increase of 16 more infant deaths in 2022 compared to the previous year begs the question about shifts in their causes. Between these two years, the largest increase ( $n=9$ ) was in perinatal causes. The increase in the number of less than 500 gram newborns in 2022 was likely to have contributed to this finding. There were also five more deaths due to accidents and homicide in 2022 than in 2021 when there were fewer such tragic deaths. A number of these 2022 deaths were coded as the outcome of maltreatment. Though

Figure 14. Percent infant mortality by birth weight, South Dakota and United States.



there were two additional deaths in 2022 compared to 2021 attributed to “Other” causes, none were related to COVID. Table 3 compares the state’s rates of death for various causes for its AIBO and white populations and shows that mean rates of death for 2018-2022 are significantly higher for South Dakota’s AIBO than for its white population for perinatal causes ( $p < 0.01$ ), congenital anomalies ( $p < 0.05$ ), sudden unexpected infant death (SUID) ( $p < 0.01$ ) and other ( $p < 0.01$ ) causes. When the rates of these causes of death are compared to those for the United States in 2021, data

in Table 3 show that the state’s rate of death for perinatal causes is not significantly different from that of the United States; however, the rates are significantly higher than those of the nation for congenital anomalies ( $p < 0.01$ ), sudden unexpected infant death ( $p < 0.01$ ) and accidents/homicides ( $p < 0.05$ ).

Figure 15 contributes to an understanding of differences noted between infant mortality rates for the state and nation. In South Dakota, compared to the United States, the percent

Table 3. Causes of death: South Dakota and United States.

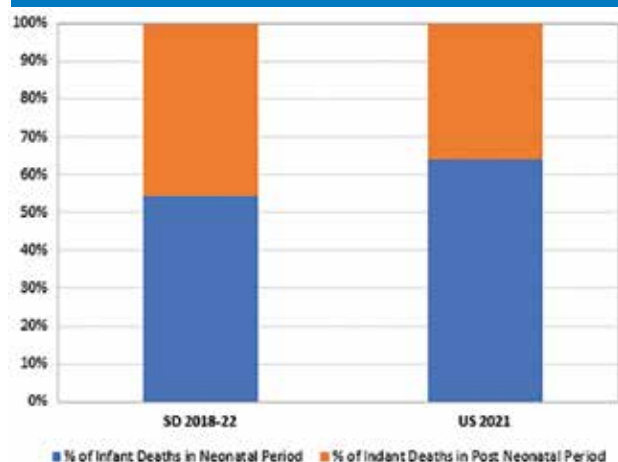
| Cause of death                        | Rates per 1,000 population         |           |      |                        |                  |              |                |
|---------------------------------------|------------------------------------|-----------|------|------------------------|------------------|--------------|----------------|
|                                       | South Dakota infant mortality rate |           |      |                        | Total population |              |                |
|                                       | 2022                               | 2018-2022 |      |                        |                  |              |                |
|                                       | Total Population                   | White     | AIBO | P<br>White vs.<br>AIBO | SD<br>2018-2022  | U.S.<br>2021 | P<br>SD vs. US |
| Perinatal causes                      | 3.0                                | 2.0       | 4.0  | <0.01                  | 2.5              | 2.6          | NS             |
| Congenital anomalies                  | 1.9                                | 1.6       | 2.5  | <0.05                  | 1.8              | 1.1          | <0.01          |
| Sudden unexpected infant death (SUID) | 1.3                                | 1.3       | 2.5  | <0.01                  | 1.6              | 1.0          | <0.01          |
| Accidents/homicides                   | 0.5                                | 0.2       | 0.8  | NS                     | 0.3              | 0.2          | <0.05          |
| Other                                 | 1.2                                | 0.4       | 1.8  | <0.01                  | 0.8              | 0.6          | NS             |

\*All South Dakota data are from South Dakota Department of Health.<sup>1</sup> United States data from CDC.<sup>6</sup>

Other = Medical conditions such as infections, malignancies, etc.

P values < 0.05 are considered significant

**Figure 15. Percent of infant deaths occurring in neonatal and post neonatal periods of time, South Dakota and United States.**



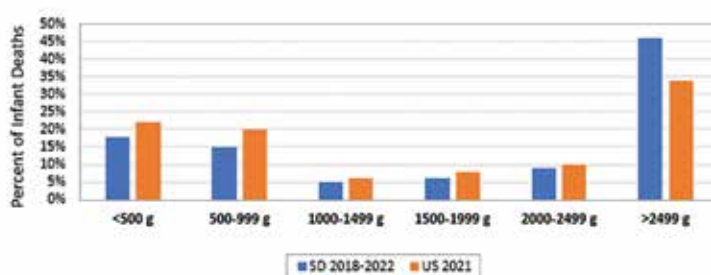
of all infant deaths that occur after the 27th day of life is higher (46%) than nationally (36%). This finding can be understood to reflect the state's statistically significantly higher rate of death due to sudden unexpected infant death (SUID) ( $p < 0.01$ ) and accidents/homicides ( $< 0.05$ ) than is noted nationally, as most all of these deaths occur following the neonatal period of time.<sup>1,6</sup> To complement these findings are the data in Figure 16 that also show a higher percent (46%) of the state's infant deaths are among babies with birth weights above 2,499 grams than is noted nationally (46% vs 36%).

The trend lines in Figure 17 show that deaths due to congenital anomalies, and accidents/homicides have been consistent and have improved for perinatal causes since 2007. Alternately, the trend line for the rate of death due to SUID has slightly increased over these years. To put this observation into perspective, Figure 17 shows that in 2021 and 2022 the rates of death for SUID has declined from those in previous years, but the spikes of higher rates noted in the previous five years contributed to the upward progression of the trendline in Figure 16. Further, Figure 18 shows how SUIDs are certified as caused by sudden infant death (SIDS, when no risks are associated with the death), accidental suffocation or strangulation in bed (ASSB, when hazards in the sleep environment are identified) and unknown (when a cause cannot be determined). Noted in Figure 18 is a decrease over time in the percent of SUIDs attributed to SIDS with an increase in ASSB. This observation is associated with increased scrutiny of death scenes that identify hazards in the sleep environment known to pose risks for unexpected infant death.

### Discussion

Scrutiny of annual natality and mortality data from South Dakota must always be tempered with an awareness of how the state's relatively small birth cohort creates peaks and valleys in rates as they are tracked longitudinally and plotted on graphs. This requires caution as data are interpreted to

**Figure 16. Percent of infant deaths by birthweight, South Dakota and United States.**



**Figure 17. Rates of infant deaths by cause, total population, South Dakota, 2007-2022.**

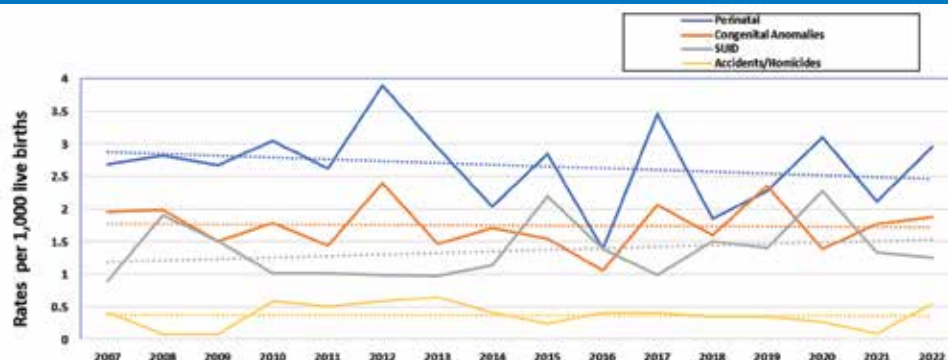
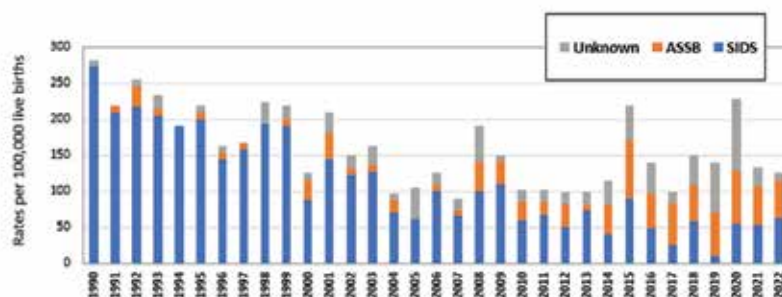


Figure 18. Rates of sudden unexpected infant death, total population, South Dakota, 1990-2022.



understand their meaning so that public health strategies may best promote healthy outcomes of pregnancy. With this unique feature of the state's annual infant mortality data acknowledged, they do tell a story about the first year of life for South Dakota's infants.

The nation's declining rate of birth has aroused concern about its economic and societal implications. Though South Dakota's birth rate remains higher than that of the nation, it too has reached new lows. With nearly half of newborns becoming residents of the most populated counties on the east and west borders of the state, the state also faces continuing and emerging challenges in providing services and care for families residing in the more sparsely populated areas in its center rural and frontier communities. Further, though its size has slightly diminished, the AIBO cohort of newborns is increasing in its diversity with American Indians decreasing in its contribution to it. This increased diversity adds to the complexity and rich culture of communities but also demands sensitivity to differences in social norms that impact health and well-being.

The delivery of newborns with low birth weight is increasing and arouses speculation regarding the dynamics underpinning this observation. Multiple gestations in South Dakota appear to be slightly impacting the percent of all births that are MLBW. Year to year fluctuations are noted in this observation and in 2022 over a third (34%) of all VLBW newborns were the outcome of a multiple gestation. Other variables and their interactions are likely associated with an increase in LBW including environmental influences, substance use, nutrition, access to obstetric care and maternal health. Reducing LBW is a valued perinatal goal as mortality and developmental morbidity increase as birth weight decreases. Examinations of state data on perinatal outcome, however, have persistently revealed that compared to the United States, the state's percent of LBW newborns is lower, but its IMR is higher. How do trends in

data contribute to an understanding of this finding?

To begin this discussion, emphasis needs to be given to how the 2022 spikes noted in South Dakota's rates of death per 1,000 live births during the neonatal period (10-27 days of life), post neonatal period (28-365 days of life) and the entire first year of life were not statistically significantly different from what was observed in the previous five year (2017-2021) mean rates. However, the state's five-year mean PNMR has consistently been higher ( $p < 0.01$ ) than that of the nation and the state has a higher percent of all its infant deaths occurring after the 27<sup>th</sup> day of life than is noted nationwide. Concomitantly, the state has a lower percent of its deaths occurring among LBW infants than noted nationally and its rate of death due to perinatal causes typically has not been significantly different from that of the country as a whole.<sup>7,9</sup> An additional dynamic to consider as perinatal data are examined is the role of multiple births. Data show that in 2022 there was an increase from the previous year in the percent of very low birth weight newborns who were multiples. How treatment for fertility may impact multiple births is a question that is posed as these observations are made.

SUID deaths become a focus of attention for the prevention of infant mortality as it is the leading cause of the state's post neonatal mortality. In 2022, there was a decrease from 15 to 14 total SUID deaths in the state and this hopefully may be the beginning of a decline in this loss of new life. If national rates were present in the state, there would be 11 such deaths a year. SUID has come to be understood as having risks associated with it that, if minimized, could decrease its likelihood. Over time, there has been a growing awareness of how a baby's sleep position and environment are associated with unexpected death. To minimize the risk of SUID, babies should be put to sleep on their backs alone in a setting devoid of soft surfaces.<sup>10</sup> With this awareness and increased investigations of the death scenes,



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sudden unexpected infant deaths are now more likely to be certified as caused by ASSB when babies are found with the presence of sleep hazards. Vigilance in providing education and modeling of safe sleep for infants must be an ongoing mission for those who provide health care for new families and all those who welcome a new baby into their community.

The recent five-year mean rate of deaths caused by accidents/homicides is also significantly higher in South Dakota than the nation and most all occurred post neonatally. These tragedies provoke questions about safety and support for the youngest and most vulnerable in our neighborhoods. What can be done to prevent these tragedies that are likely to have occurred in the midst of hazards and emotional distress or illness for those who provide babies with care? Careful review of their circumstances and how risks can be attenuated is the goal of the state committees that review them. The state's Center for the Prevention of Child Maltreatment aims to foster resiliency of young families – a challenging goal that requires community collaborative efforts to achieve.

The 2022 increase in the state's neonatal mortality rate also deserves attention though, again, it was not statistically significantly higher than its previous five-year mean. Approximately one in five of these deaths (21%) in 2022 were newborns having a birth weight of less than 500 grams, all of whom died in the first 27 days of life. This was twice the percent (10%) of all infant deaths in this weight category that was observed in 2021 when mortality was 70% for this weight category. Consistently, South Dakota's rate of infant death due to congenital anomalies is higher than that noted nationally and the majority of these deaths occur in the first 27 days of life. This observation may be related to parental decisions not to terminate pregnancies with known fatal anomalies. With the *Dobbs vs. Jackson* Supreme Court decision in mid-2022, now this is not possible in the state and monitoring future shifts in data for this cause may reveal changes in this measure of outcomes of pregnancy.

Diverging from previous trends, in 2022, among the 16 additional deaths from the previous year, all were white infants. While there were two additional neonatal AIBO infant deaths than in the previous year, there were fewer post neonatal deaths among this group. The shifting ratio of AIBO to white rates of neonatal and post neonatal deaths adds an emerging dynamic to understanding the state's infant mortality. Specifically, over time, the greatest racial disparity has been for post neonatal rates. Analyses show that this disparity is decreasing in post neonatal rates while it is increasing for neonatal rates. Why this is being observed

arouses questions about the health of AIBO women, their resources and access to perinatal care. Data for 2022 did show a slight increase among the AIBO population delivering babies with no prenatal care.

### Summary of Conclusions

1. Between 2021 and 2022, South Dakota saw a 1% decrease in white and a 3.5% decrease in its AIBO live births.
2. South Dakota's percent of low birth weight (both very low birth weight and mid low birth weight) is persistently lower than that noted nationally but its percent of MLBW is increasing.
3. Onset of prenatal care during the first trimester of pregnancy improved during the height of the pandemic but slightly decreased in 2022 for both the white and AIBO populations.
4. More than one-third (35%) of very low birth weight newborns in 2022 were the outcome of a multiple gestation. Between 2017-2021, this was true of 28% of the VLBW cohort.
5. The state's infant mortality rate (IMR) increased between 2021 and 2022 from 6.3 to 7.8 and is significantly higher than the United States' provisional 2022 rate of 5.6 ( $p < 0.01$ ) but it is not statistically significantly higher than its previous five year (2017-2021) mean.
6. The state's neonatal mortality rate (NMR) increased from 2021 to 2022 for both its white and AIBO newborns, and the post neonatal mortality rate (PNMR) increased for only its white infants. Yet, these increases from 2021 rates are not statistically significantly higher than their previous five mean year (2017-2021) rates.
7. Compared to the United States, currently South Dakota has a higher percent of its infant deaths having a birth weight above 2,500 g (46% vs. 36%). This contributes to understanding its higher than national IMR despite having a lower percent of its total birth weighing more than 2,500 g.
8. South Dakota's five year (2017-2022) mean PNMR is significantly higher ( $p < 0.01$ ) than the national rate in 2021. The state's deaths due to SUID and accidents/homicides most likely occur in the post neonatal period of time and their rates are also significantly higher ( $p < 0.01$  and  $p < 0.05$ ) for the state than the nation.
9. The state's infant mortality rate is over twice that for AIBO than white infants. The ratio of AIBO to white infants is declining for its PNMR and increasing for its NMR.

10. South Dakota's mean 2018-2022 rates of death due to congenital anomalies are statistically significantly higher ( $p < 0.01$ ) than the United States' 2021 rates of death due to this cause.
11. In 2022, there was an increase in South Dakota's NMR from the previous year, yet 2018-2022 mean rates of South Dakota deaths due to perinatal causes are not statistically significantly different from those of the United States in 2021. There were no infant deaths in 2022 related to COVID.
12. SUID remains the leading cause of South Dakota post neonatal death. Over time, with enhanced death scene investigations, these deaths are increasingly certified as caused by Accidental Suffocation or Strangulation in Bed (ASSB) and their risks can be decreased with safe sleep practices for infants.

### Concluding Comment

Survival during infancy is a reflection of a community's commitment to caring for all those who call it home. The synergism of health care, access to resources, maternal well-being and infant survival reveals the connections vital for the life sustaining nurture of babies. Communities ultimately benefit from their investments that assure the optimal outcomes of pregnancy.

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# An Unusual Case Presentation of Non-Pathergy Induced Severe Pyoderma Gangrenosum Localized to the Perianal and Intragluteal Regions

Tyler Friesen, MS III; and Ty Hanson, DO

## Abstract

Pyoderma gangrenosum is a rare neutrophil based disorder presenting as a painful sterile ulcer usually below the knee. The disease is also linked to comorbid conditions including inflammatory bowel disease (IBD) and pathergy. Mainstay treatment begins with high dose steroids, either topical for limited disease or systemic for extensive or rapidly progressing disease. This report presents a patient who had perianal and intragluteal cleft pyoderma gangrenosum, not related to IBD or pathergy, where high dose steroids were contraindicated due to history of steroid induced psychosis.

## Background

Pyoderma gangrenosum is a neutrophil disorder leading to a typical dermatologic presentation, including a severely painful sterile ulcer containing a bluish border.<sup>1</sup> The ulcerative variant is the most common; however, the other variants include pustular, bullous, vegetative, peristomal, genital, infantile, and extracutaneous.<sup>2</sup> In a case study of 19 patients with pyoderma gangrenosum, 57% may have been secondary to some sort of pathergy.<sup>3</sup> Active trauma may be a factor in the presentation of certain but not all pyoderma gangrenosum. Other comorbid conditions associated with pyoderma gangrenosum includes inflammatory bowel disease (IBD),<sup>4</sup> diabetes,<sup>5</sup> cocaine abuse,<sup>6</sup> and neoplasia.<sup>7</sup> A biopsy of the ulcer was performed to determine etiology and help rule out other diagnosis including necrotizing fasciitis, Bechet's syndrome, venous ulcers, and lymphoma.<sup>2,3,8,9</sup> In a case study of 103 patients with pyoderma gangrenosum, 67 (65%) had it on the lower leg.<sup>10</sup> This case report aims to show the importance of keeping pyoderma gangrenosum in mind, even when the lesion is not on the lower legs.

## Case Report

58-year-old male who presents to the dermatology clinic with one month history of erythematous scaly plaques containing a serpiginous border located on the buttocks and perianal region. These plaques evolved into well demarcated purulent ulcerations with jagged undermined violaceous borders. Ulcers were extremely tender and consistent with pyoderma gangrenosum (Figure 1). Patient has been using long term lidocaine prilocaine topical 2.5%-2.5%

Figure 1. The patient presented to the dermatology clinic with one month history of erythematous scaly plaques containing a serpiginous border located on the buttocks and perianal region. These plaques evolved into well demarcated purulent ulcerations with jagged undermined violaceous borders. Ulcers were extremely tender and consistent with pyoderma gangrenosum.



The patient's previous medical history is pertinent for bipolar type 1 with a history of steroid induced psychosis, diabetes, gastroesophageal reflux disease (GERD), and hypercholesterolemia. Patient reported a colonoscopy seven years ago with negative results and has no history of smoking or drinking. He has allergies to the following: penicillin, oxycodone, and Effexor. The patient is married in a monogamous relationship. No relevant past surgical history, and no history of surgeries in the area. The patient denies any known family history of pyoderma gangrenosum.

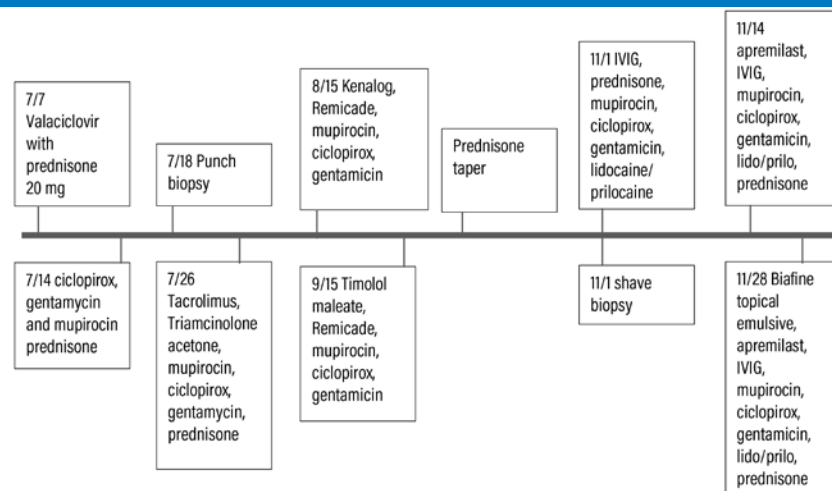
Laboratory tests were unrevealing, complete metabolic panel (CMP) showed glucose 222 (70-99), BUN 20 (6-22), creatinine 0.97 (0.73-1.18), sodium 139 (136-145),

potassium 4.1 (3.5-5.1), chloride 99 (98-109), CO<sub>2</sub> 29 (20-29), alkaline phosphate 85 (40-150), AST 17 (5-34), and ALT 49 (0-55). Prometheus IBD diagnostic test showed a pattern not consistent with IBD. The lipid panel showed mildly elevated triglycerides, cholesterol and low-density lipoproteins. Iron profile showed: ferritin, iron, total iron binding capacity, and iron saturation within normal range. Serologies were all nonreactive for: hepatitis A IgM, hepatitis B core IgM AB, HBsAG, hepatitis C, HIV, IGRA, cryoglobulin S, cryofibrinogen P, and ANCA. The serum protein electrophoresis showed a protein electrophoresis within normal limits and albumin at 4.2 (3.0-5.3). SS-A/Ro antibodies were <0.2 (<1.0), SS-B/La antibodies were <0.2 (<1.0), SM antibodies were <0.2, RNP antibodies IgG <0.2 (<1.0), scleroderma SCL-70 antibodies <0.2 (<1.0), Jo-1 antibodies <0.2 (<1.0), Myeloperoxidase antibodies <0.2 (<1.0), protein 3 antibodies <0.2 (<1.0), varicella zoster was not detected by PCR. Anti-dsDNA antibodies were within normal limits at 22.9 IU (<30 IU/mL negative).

Punch biopsy prior to initial dermatology evaluation revealed extensive ulceration with necrosis. This was confirmed by the Mayo Clinic who showed confluent overlying epidermal ulcerations and a brisk collection of neutrophils in the superficial dermis. They determined that the deep reticular dermis and superficial subcutis appeared normal.

The patient was initiated on valacyclovir with prednisone 20 mg every other day and had mild improvement before switching valacyclovir to gentamycin 0.1% topical twice a day and mupirocin 2% topical ointment BID. After two weeks, these medications did not resolve the ulcerations. The patient was switched to ciprofloxacin 0.77% topical cream BID. With little to no improvement seen on this regimen after two weeks the patient was switched to tacrolimus 0.1% topical BID and Triamcinolone acetonide 60 mg one time dose. A shave biopsy was performed, as the patient was not responding. This showed dermal neutrophilic infiltrate with surface ulcerations. No bacteria or fungi were detected with Brown-Hopps or periodic acid Schiff stains. The biopsy was consistent with pyoderma gangrenosum, and the patient started on Infliximab 5 mg/kg along with continued mupirocin, ciprofloxacin and gentamycin. Figure 2 shows when the biopsies were performed relative to treatment. Patient was

Figure 2. Treatment timeline.



started on timolol maleate 0.5% eye gel forming solution BID to the wound after 4 weeks of infliximab. This was started for its anti-angiogenic and anti-inflammatory properties. The patient had a reaction with infliximab and was switched to IVIG 2g/kg/cycle given across 3 consecutive days along with continued mupirocin, ciprofloxacin, and gentamycin. Two weeks later apremilast 30 mg QD was added to the IVIG regimen, and 20 mg prednisone every other day. The patient has shown 70% improvement on this regimen.

## Discussion

The Paracelsus criteria was created by Jockenhofer et al. as a diagnostic tool for diagnosing pyoderma gangrenosum.<sup>11</sup> This consists of three major criteria (3 points each), four minor criteria (2 points each), and three additional criteria (1 point each), where a score greater than or equal to 10 is highly suggestive of pyoderma gangrenosum (Table 1). This patient was positive for all three of the major criteria points due to the reddish-violaceous wound border, assessment to rule out other differential diagnosis, and from the progression of the disease. The patient has two minor criteria characteristics

Table 1. Paracelsus score for diagnosing Pyoderma gangrenosum.<sup>11</sup>

| Criteria                                              | Points |
|-------------------------------------------------------|--------|
| Progressing disease (developing ulcer within 6 weeks) | 3      |
| Assessment of relevant differential diagnosis         | 3      |
| Reddish-violaceous wound border                       | 3      |
| Amelioration by immunosuppressant drugs               | 2      |
| Characteristically irregular ulcer shape              | 2      |
| Extreme pain >4/10                                    | 2      |
| Localization of lesion at site of trauma              | 2      |
| Suppurative inflammation in histopathology            | 1      |
| Undermined wound border                               | 1      |
| Systemic disease associated                           | 1      |



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including an irregular ulcer shapes and extreme pain. Additional criteria the patient was positive for included: suppurative inflammation and an undermined wound border. The patient has a total of 15 points, which is well above the diagnostic likelihood of pyoderma gangrenosum.

Steroids are the typical first line immunosuppressant agent for pyoderma gangrenosum. This patient has been on prednisone 60 mg two week taper through Mayo Clinic with minimal relief. Some research indicates steroid doses of 100-200 mg may be needed to provide adequate treatment.<sup>1</sup> However, long term steroid use has been avoided due to the patient's bipolar diagnosis. Reports have indicated that high dose steroids can cause a stable patient to switch into mania or psychosis.<sup>12</sup>

Immunosuppressive agents have been shown to be effective as a steroid sparing agent in the treatment of pyoderma gangrenosum. Topical tacrolimus has been shown in previous case reports to be effective with or without steroid use.<sup>13-16</sup> Other immunosuppressant agents as steroid sparing agents that have been shown to be effective include mycophenolate mofetil<sup>17</sup> and cyclosporine.<sup>18</sup> Tacrolimus was used in this patient, since it can be applied topically to the affected areas. Although previous trials show topical tacrolimus can be effective as a steroid sparing agent, this treatment did not provide adequate relief for this patient.

Third line treatment with infliximab has been shown to be effective for 20 out of 29 patients in a randomized trial for improvement of pyoderma gangrenosum.<sup>19</sup> However, 31% of these patients did not have a response to this treatment. It is unclear whether this patient would have responded, since he had a reaction before he was able to complete his treatment.

The case study patient was switched to IVIG, which has been shown in a systematic review with meta-analysis to be effective. In a meta review of 49 patients, 43 received at least a partial resolution of their pyoderma gangrenosum while 26 of those 43 had a complete remission.<sup>20</sup> Apremilast was added to improve the results of IVIG and keep a steroid sparing regiment. Apremilast has been used with other studies including a case report with Apremilast 30 mg BID with oral prednisone 7.5 mg QD, and weekly subcutaneous methotrexate 18 mg.<sup>21</sup> The patient Laird et al. reported, had complete closure by 4 months. A separate case study showed monotherapy with apremilast is effective but took three years to have complete resolution.<sup>22</sup> Other case reports indicate that apremilast can be effective as a combined therapy with IVIG.

## Conclusion

Persistence can be key when treating pyoderma gangrenosum. Frequent office visits and treatment changes may be necessary to see adequate relief for the patient. IVIG with apremilast has been effective for our patient as a steroid sparing agent. Physicians should be aware that this combination can be effective when treating unresponsive pyoderma gangrenosum. At the three month mark, he still had minimal but stable disease. The future goal will be to taper IVIG once the patient is in remission. He will be monitored for relapse.

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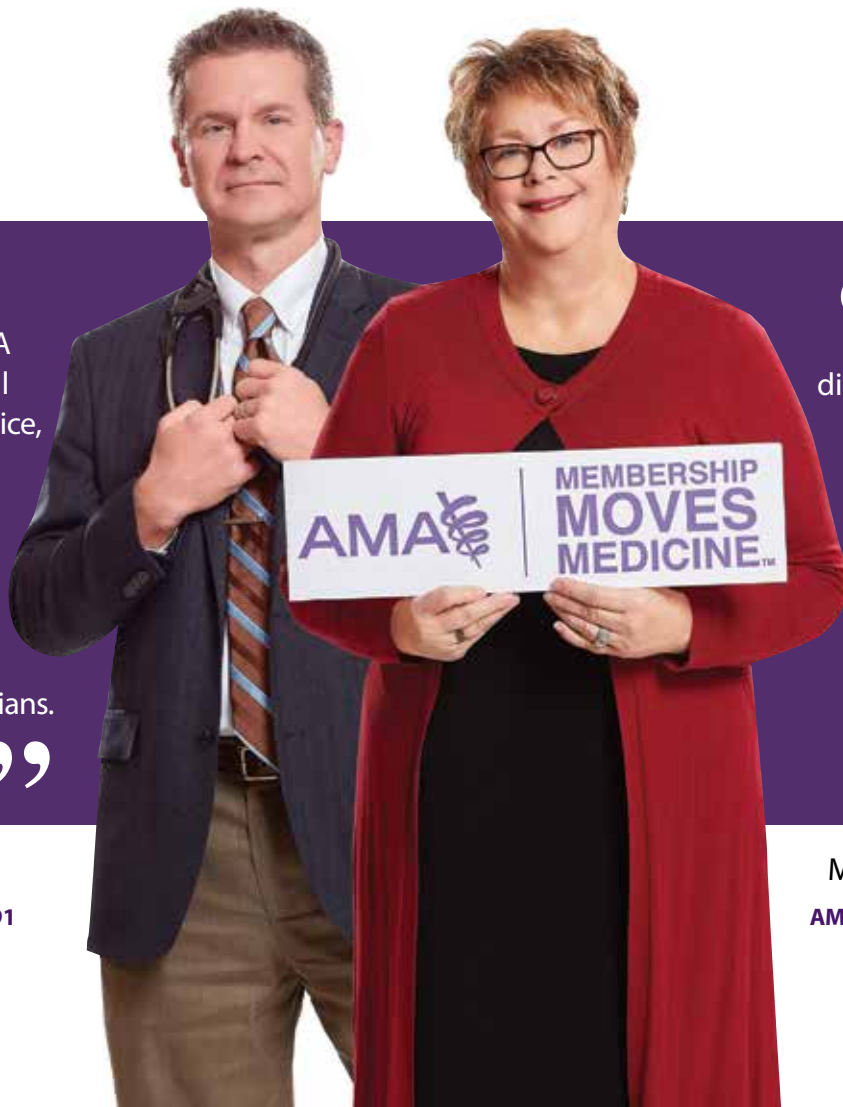
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# New-Onset Seizures in an Adolescent Following Use of LSD while on Low-Dose Lithium Therapy: A Case Study

Cole Edwards, MS IV; Shawn Van Gerpen, MD; and Vivek Anand, MD

## Abstract

This case report presents an occurrence of three generalized seizures within 30 minutes of ingestion of lysergic acid diethylamide (LSD) in a 15-year-old female patient with treatment-resistant depressive disorder recently started on low-dose lithium therapy. She had no personal or family history of seizure, brain injury or other neurological disorder. The patient had a history of monthly LSD use on several occasions in the setting of ongoing fluoxetine and long-acting bupropion (Wellbutrin XL) treatment, with seizures occurring only after initiation of lithium. Although the definitive causal link cannot be established, this case report suggests an increased seizure risk with combination of LSD and lithium, even at subtherapeutic serum lithium levels. This case emphasizes the need for further research, careful clinical practice, and patient education regarding the potential dangers of using psychedelic substances with psychopharmacological treatment.

## Introduction

Lithium remains a cornerstone in the management of treatment-resistant depression and bipolar disorder.<sup>1</sup> Its mechanism of action remains incompletely understood but it is thought to exert its effects through the modulation of various neurotransmitter systems and second messenger pathways.<sup>2</sup> Despite its utility as a mood stabilizer, lithium requires diligent monitoring due to its narrow therapeutic index. Lithium can have various side effects ranging from gastrointestinal distress, tremor, nephrogenic diabetes insipidus, hypothyroidism, and hyperparathyroidism. Of particular concern are complications of lithium toxicity including cognitive impairment, ataxia, and the possibility of lowered seizure threshold.<sup>3</sup> The clinical evidence has been mixed regarding effects of lithium on seizure threshold as lithium can have both anticonvulsant and pro-convulsant properties.<sup>4</sup> Several studies suggest that the association of seizures with lithium is mostly dose-dependent, and higher serum levels of lithium ( $> 1.2$  mmol/L) are likely to increase seizure risk.<sup>5</sup>

The last decade has seen a resurgence of interest in the potential therapeutic uses of psychedelics for treatment-resistant mental illness, particularly major depressive disorder, post-traumatic stress disorder (PTSD), end-of-life care, and debilitating anxiety. Recent evidence has suggested that classic psychedelics such as lysergic acid diethylamide (LSD), psilocybin, *N,N*-dimethyltryptamine (DMT) and mescaline show promise in treating these psychiatric

disorders, extending thousands of years of tradition from the non-western world in which these substances were used to promote spirituality and mindfulness.<sup>6,7</sup> Despite their promise, however, their widespread recreational use and complex pharmacodynamic profile merits cautious use, especially in individuals taking psychotropic medications. One of the many concerns with psychedelic use is that substances like LSD and psilocybin may lower seizure threshold due to their effects on serotonin receptors and locus coeruleus.<sup>8,9</sup>

This report describes the first pediatric case, without personal or family history of epilepsy, where generalized tonic-clonic seizures were related to LSD use even with low serum levels of lithium.

## Case Report

The patient is a 15-year-old Caucasian female with a history of major depressive disorder (MDD), generalized anxiety disorder (GAD), social anxiety disorder (SAD), posttraumatic stress disorder (PTSD), cannabis use disorder, alcohol use disorder, tobacco use disorder, mild obstructive sleep apnea, and obesity. The patient had initially presented to the emergency department a day after she experienced three consecutive generalized seizures following recreational LSD use (two tablets). The seizures were witnessed by several peers. During the seizures, the patient was reported to have loss of muscle tone and consciousness, eye rolling, foaming from the mouth, urinary incontinence, and generalized jerking

body movements. Each of the three seizures had reportedly lasted around 30-40 seconds. The patient was confused after the seizure episodes, at which point her friends returned her to her parent's home. The patient was discovered by the family approximately 15 minutes after being dropped off on the driveway. Parents noted marked confusion and called emergency medical services (EMS). The EMS noted that although the patient was responsive to her name, she had a "far off look," trouble with attention, inability to answer questions about the recent events, and an unsteady gait.

The patient was started on intravenous (IV) fluids by the EMS and taken to the emergency department (ED). When assessed by the ED physician, patient was reported to have become "more verbal" and less confused. The urine drug screen revealed ongoing cannabis use. The laboratory workup was remarkable for subtherapeutic serum lithium levels (0.3 mmol/L; reference range: 0.6-1.2 mmol/L), elevated WBCs (14.6 K/uL; reference range: 4.5-13.5 K/uL) with increased neutrophils (68.6%; reference range 49.6-58.4%), increased anion gap (18 mmol/L; reference range 3-15 mmol/L), and non-fasting glucose level (120 mg/dL; reference range 70-99 mg/dL). The patient was stabilized after a 1-liter IV bolus of normal saline and discharged to home without any changes in medication. No brain imaging or EEG was performed due to reassuring patient presentation. At home, the patient remained medically stable and was promptly brought to our psychiatric hospital the next day for further evaluation and treatment. While in the hospital, the patient reported that her experience with LSD following the addition of lithium was "bad" and subjectively "different" than previous LSD experiences.

Regarding the patient's psychiatric history, she was diagnosed with MDD by her primary care provider in spring 2021 after she had reported a five-year history of depression and anxiety symptoms. She was initiated on fluoxetine which was later increased to 30 mg daily during follow-up visits. A year later the patient was diagnosed with GAD and fluoxetine was adjusted to 40 mg daily due to continued symptoms. Trazodone 50 mg as needed was added to help with sleep and antidepressant augmentation. However, the patient's symptoms continued to worsen, which led to her first psychiatric hospitalization a month later for suicidal ideations with a plan to self-harm (spring 2022). During this admission, bupropion XL (extended-release formulation) 150 mg was initiated to augment fluoxetine while fluoxetine was increased to 50 mg daily, trazodone increased to 100 mg at bedtime, and as needed hydroxyzine 25 mg added for "anxiety

spikes." During outpatient follow-up with child psychiatry (summer 2022), fluoxetine and bupropion XL were further increased to 60 mg and 300 mg daily, respectively. At this outpatient visit, she reported using alcohol on a monthly basis, weekly use of marijuana, and daily nicotine use via a disposable device for which appropriate outpatient services were provided including referral for biweekly substance use therapy and psychotherapy at a facility near her hometown.

Later that summer (2022), she was readmitted to our hospital with suicidal ideations and plan to self-harm following sexual trauma. During this second psychiatric hospitalization her medication regimen was adjusted to fluoxetine 70 mg daily, bupropion XL 300 mg daily, hydroxyzine 25 mg twice daily as needed, prazosin 2 mg nightly for trauma-related nightmares, and trazodone 50 mg at night. The patient reported significant improvement in her symptoms of depression, anxiety, and trauma-related stress at one month follow-up. Additionally, she reported stopping alcohol and marijuana use.

The patient had relapse of depression and anxiety symptoms during late autumn (2022) due to unknown precipitating factors, at which point the outpatient child psychiatrist further adjusted fluoxetine to 80 mg daily and prazosin to 3 mg nightly. During outpatient visit in winter (2023), the patient reported relapsing on alcohol, marijuana, and nicotine use. Additionally, she reported experimentation with LSD for recreation and self-treatment of depression, anxiety, and trauma-related symptoms. She denied experiencing any unpleasant or adverse effects during or after LSD use. She used 2-2.5 tablets during these use sessions leading to visual changes, hallucinations, impaired depth and time perception along with distortions of shapes and sizes of objects around her. She reported "pleasant trips" with self-perceived improvement in her mood during LSD use but continued to struggle with depression symptoms afterward. During subsequent outpatient follow-ups, fluoxetine and bupropion XL were maximized to 80 mg and 450 mg daily, respectively, while prazosin was decreased to 1 mg nightly due to early morning dizziness; trazodone was discontinued per patient's request (lack of effectiveness) and to limit polypharmacy.

During outpatient visitation midway through the year, it was decided that the patient be started on lithium 300 mg twice daily while bupropion XL 450 mg be decreased to 150 mg daily and discontinued after a few days. Six days after the initiation of low-dose lithium, the patient experienced the seizures following LSD use as described above. There was no available record of documented head imaging or electroencephalography (EEG) at the outside ED, which

may have been deferred due to her reassuring presentation. During evaluation in our hospital the next day, family discussed possibility of obtaining a head CT/MRI which was deferred due to the patient having no clinical evidence of acute intracranial bleeding, improved mental status, no focal neurological deficits, and no history of malignancy. The patient's electrolytes were unremarkable, and the seizure episode was clinically assumed to be provoked by interaction between psychedelics and psychotropic medication.

Her hospitalization lasted six days before being discharged home. During her stay, she attended various therapeutic groups and received individual chemical dependency counseling alongside medication management. Besides nicotine replacement therapy, her home medications were restarted on day two of the hospitalization including lithium 300 mg BID, fluoxetine 80 mg daily, and hydroxyzine 25 mg BID as needed. The patient was thoroughly counseled on the risks of comorbid substance use while taking psychiatric medications such as lithium and showed fair insight and judgement, stating that she had no intention of continued substance use. The patient, family, and providers discussed risks and benefits of continued lithium therapy and decided to continue ongoing treatment plan. The lithium dose was increased to 450 mg twice daily before discharge with plans to be followed outpatient by a board certified child psychiatrist and addiction medicine specialist. The patient continues to tolerate her medications, has been abstinent from substance use, and has had no further seizures with much improvement in mood. She continues to participate in substance use therapy, individual psychotherapy, and family therapy as an outpatient.

## Discussion

Our report describes the first case of an adolescent patient, without a personal or family history of seizure, with periodic uncomplicated LSD use who suffered consecutive generalized tonic-clonic seizures after concurrent use of LSD on low-dose lithium therapy. The patient had used LSD without any adverse sequelae while being on high dose fluoxetine and bupropion XL, and the seizures started only after lithium was initiated to augment fluoxetine. Bupropion XL was tapered appropriately prior to lithium initiation, making it unlikely to contribute to the seizure incidence. Bupropion instant release formulation, unlike XL formulation, has been reported to have caused generalized seizures in a dose-dependent manner with an approximate incidence of 0.4%.<sup>10</sup> Similarly, some reports suggest caution with fluoxetine therapy in patients with a history of seizures; however, the

seizures with fluoxetine use are usually in the context of serotonin syndrome. In placebo-controlled trials for major depressive disorder, convulsions have been reported in 0.1% of patients treated with fluoxetine and 0.2% of patients treated with placebo.<sup>11</sup> Our patient had been on high-dose fluoxetine and bupropion XL for several months and had used LSD without any complications. Lithium augmentation may have decreased seizure threshold despite low dose which was confirmed with serum levels.

Classic psychedelic use alone has been found to increase the risk of seizures in certain populations, particularly those with a personal or family history of epilepsy.<sup>12</sup> A recent study analyzing online self-reports of psychedelic use among adults suggested lowered seizure threshold when classic psychedelics were concurrently used with lithium.<sup>13</sup> This observational report however had multiple limitations including the potential for unreliable or falsified self-reports, sparse documentation of medical histories, family histories, concurrent medication regimens, and comorbid substance use, and other underlying factors that may have affected the seizure threshold and seizure risk. Nonetheless, given such reports, there have been provisional concerns about lowered seizure threshold among adults with the combination of lithium and classic psychedelics.

This case suggests that concurrent use of lithium and LSD among adolescents can increase the risk of seizures even when serum lithium levels are subtherapeutic. The lowered seizure threshold with concurrent lithium and LSD use could be related to heightened cortical excitability via 5-HT<sub>2a</sub> agonism and reduction of the anticonvulsive tonic activity of the locus coeruleus.<sup>14,15</sup> Also, as mentioned previously, seizure risk in lithium-treated patients seems to increase in a dose-dependent manner, especially with lithium levels above 1.2 mmol/L. If the pharmacokinetics of LSD, lithium, or both drugs is altered due to drug coadministration or other factors, increased drug levels alone or in combination could potentially have a pro-convulsant effect. Additionally, it has been suggested that baseline seizure threshold could be low among patients with major depressive disorder, which is somewhat reflected in depression being most common comorbid psychiatric disorder in patients with epilepsy. Furthermore, antidepressant medications are also likely to lower the risk of seizure threshold.<sup>16</sup> The antidepressants and baseline psychiatric pathology, however, did not appear to alter seizure risk in the above patient.

In general, lithium prescription rates have declined over the past 30 years as mood-stabilizing anticonvulsants and second-

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generation antipsychotics have become more popular for the treatment of medication-resistant mood disorders.<sup>17</sup> However, despite the availability of newer mood stabilizers, lithium continues to be a first-line treatment for bipolar disorder and estimates from 2021 suggest that nearly 400,000 patients are being treated with lithium.<sup>18</sup> It is also prescribed for major depressive disorder as an adjunct therapy, bipolar disorder without a history of mania, treatment of vascular headaches, and neutropenia. In contrast, both recreational and clinical psychedelic use seems to be on the rise due to promising recent clinical trials on the benefits of classic psychedelics across a range of psychiatric disorders and positive attention from the media and general public in response to these findings.<sup>19</sup> Psilocybin, for example, has received a great deal of attention in recent years following its decriminalization and approval for medical use in Colorado and Oregon, and it's decriminalization in cities in California, Massachusetts, Michigan, Washington state, and Washington D.C.<sup>20</sup> This re-emergence of psychedelics as a whole may leave a large population of lithium-treated patients at an increased risk of complications such as new-onset seizure episodes if they use prescribed medications and psychedelics concurrently.

This case underscores the need for cautious use of lithium, especially in the context of comorbid psychedelic substance use or use disorder. More robust clinical research is needed to further evaluate this association, determine its prevalence, and to develop appropriate clinical guidelines to minimize this risk. Our report cannot prove causation between the seizure episodes and concomitant use of lithium and LSD. Additionally, electrophysiological markers, imaging or other seizure biomarkers were not available. This report, however, adds valuable information to the available body of literature by extending preliminary concerns regarding lowered seizure threshold with concurrent use of LSD and lithium to the adolescent population.

## Conclusion

This case report demonstrates a possible association of lithium and LSD combination with occurrence of new-onset seizures, even at subtherapeutic lithium levels, among the adolescent population. The case highlights a need for awareness among both physicians and patients regarding the potential complications of this combination. As the use of psychedelics becomes more common, understanding their interactions with commonly prescribed psychiatric medications is increasingly vital in providing safe and effective care.

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# Digital Glomus Tumor – A Commonly Undiagnosed Cause of Finger Pain: Case Report

Hunter A. O'Connor, MS IV; Trenton Sprenkle, DO; Victoria Durkin, MD; Andrew Reuter, MS III; Meredith Hayes, MD; and Robert E. Van Demark, Jr., MD

## Abstract

Glomus tumors are rare vascular hamartomas most commonly found in the subungual region of the fingers. They present with a classic triad of paroxysmal pain, point tenderness, and cold sensitivity. The diagnosis is often missed for several years due to under recognition of this condition.

A 42-year-old female presented with a several year history of pain in the middle finger when it was struck or exposed to cold. She had point tenderness on the fingernail, and increased curvature of the nail. Magnetic Resonance Imaging (MRI) revealed a 7mm subungual glomus tumor. The tumor was surgically excised via a transungual approach, resulting in complete relief of her pain.

Glomus tumors are diagnosed clinically based on the presence of classic symptoms and positive provocative tests. These tests include point tenderness on palpation and pain when ice is placed on the digit. MRI imaging can be used when the diagnosis is unclear or to localize the tumor prior to surgery. Increased awareness of this condition among physicians could reduce the time to diagnosis and treatment.

## Introduction

Glomus tumors are rare benign vascular hamartomas that most commonly occur in the subungual region of the fingers.<sup>1,2</sup> These tumors account for 1 to 5% of soft tissue tumors in the hand<sup>3</sup> and are most often found in women between the ages of 30 and 50.<sup>4</sup> They develop from glomus bodies, which are vascular structures found in the dermis that help with regulation of body temperature and blood pressure. Glomus bodies are found throughout the body, and are most concentrated in the fingertips, and below the fingernails.<sup>5</sup>

Glomus tumors present with the classic triad of intense paroxysmal pain, point tenderness, and sensitivity to changes in temperature.<sup>2</sup> Other features such as fingernail abnormalities, and discoloration may also be present.<sup>2</sup> Diagnosis and treatment is often significantly delayed due to under recognition of this condition,<sup>4,6</sup> with an average time between symptom onset and diagnosis of 4.5 years.<sup>7</sup> Treatment with complete surgical excision usually leads to permanent symptom relief.<sup>1</sup> We present a case of a subungual glomus tumor with clinical photographs.

## Case Report

A 42-year-old female presented with a several year history of

intense pain in the left middle finger when the finger was bumped against objects or exposed to cold temperatures. The pain was localized to the distal part of the finger, below the fingernail, and she reported that this fingernail grew differently and felt, "spongier."

On physical exam, her pain was reproduced on palpation over the lunula, and the fingernail was noted to be thicker, and slightly more curved than the others (Figure 1). Range

**Figure 1. Photo of left hand revealing increased fullness and curvature in the fingernail of the middle finger (red arrow).**





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of motion of her finger was normal and painless. A diagnosis of glomus tumor was made based on the history and clinical findings. X-ray of the finger was unremarkable (Figure 2). An MRI of the finger demonstrated a T2 hyperintense, and T1 gadolinium contrast enhancing 7mm x 2mm x 2mm subungual mass, confirming the diagnosis of glomus tumor (Figure 3a, b, c).

The glomus tumor was surgically excised under local with monitored anesthesia care (MAC) through a transungual approach. The fingernail was removed (Figure 4), and a longitudinal incision was made in the nail plate, revealing marked thickening of the plate (Figure 5). Dissection was carried out down to the distal phalanx. The tumor was found in the proximal portion of the wound beneath the lunula. This was excised using a needle and micro rongeur. The tumor was approximately 5mm in size. The nail plate was closed, and the nail was reattached using suture.

Pathology evaluation of the excised tumor revealed a sheet-like growth of small, round, uniform nuclei within a hyalinized to myxoid stroma (Figure 6a). There was absence of cytologic atypia and mitotic activity. Strong immunohistochemical staining for smooth muscle actin (SMA) further confirmed

Figure 2. Lateral middle finger X-ray.



Figure 3a. T2 hyperintense subungual glomus tumor (red arrow); (sagittal MRI, T2-weighted, fat saturation (FS), fast recovery fast spin echo (FrFSE)).

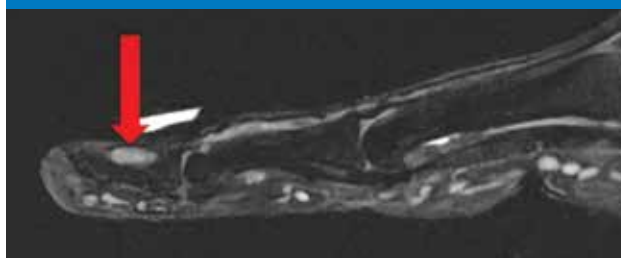


Figure 3b. T2 hyperintense subungual glomus tumor (red arrow); (Axial MRI, T2-weighted, FS, FrFSE).



Figure 3c. T1 contrast enhancing subungual glomus tumor (blue arrow); (sagittal MRI, T1-weighted with IV gadolinium contrast, FS, fast spin echo (FSE)).

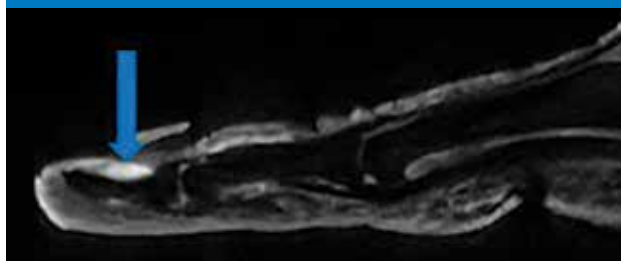


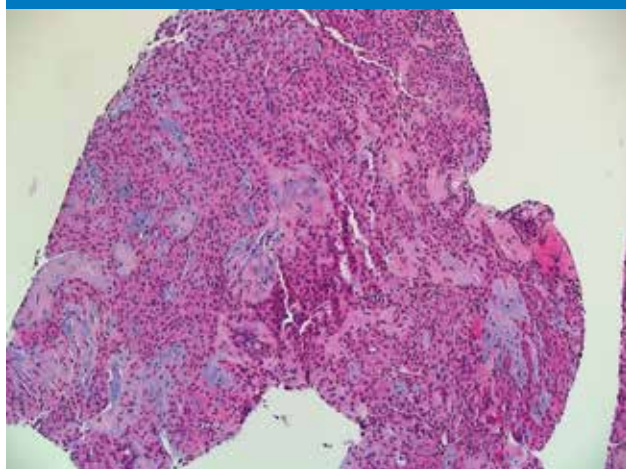
Figure 4. Intraoperative photograph of nail bed after fingernail removal.



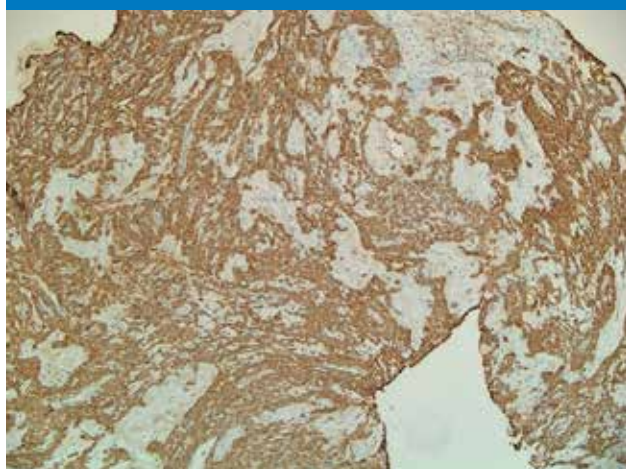
**Figure 5. Intraoperative photograph of nail bed dissection.**



**Figure 6a. Sheet-growth of small, round, uniform nuclei within a hyalinized to myxoid stroma (H&E at 10X magnification).**



**Figure 6b. Strong immunohistochemical smooth muscle actin (SMA) staining (SMA stain at 10X magnification).**



**Figure 7. Photograph of middle finger four weeks post op.**



the diagnosis of glomus tumor (Figure 6b). The tumor was classified as the solid subtype based on the absence of large ectatic blood vessels and smooth muscle cells.

On postoperative follow up four weeks later, the patient's previous pain had completely resolved. The nail plate was well healed, and the fingernail had begun to regenerate (Figure 7).

## Discussion

Glomus tumors were first described by Wood in 1812 as a pea sized subcutaneous tubercle that causes paroxysmal severe pain when struck or exposed to changes in temperature.<sup>8</sup> Recent studies on the clinical presentation of glomus tumors have found that almost all patients experience pain with touch, around two thirds experience cold sensitivity, one third have blue-red discoloration of the nail, and one third have fingernail or digital pulp deformity.<sup>9</sup> Several physical examination techniques targeting these clinical features can aid in diagnosis. The Love test involves applying pressure to multiple points on the fingernail with a pointed object such as a pin or a paper clip. This test is positive if the patient reports pain localized to a specific point on the nail. The Hildreth test involves applying a tourniquet to the finger and is positive if the patient's pain resolves and cannot be reproduced with the Love test or with palpation while the tourniquet is in place. The patient's pain usually returns rapidly following deflation of the tourniquet. Finally, the cold test involves applying an ice cube to the digit or submerging the digit in an ice bath, and this test is positive if cold exposure provokes pain.<sup>2</sup> A study involving 18 patients with digital glomus tumors found the cold test to be the most sensitive, specific and accurate of the three tests.<sup>10</sup> Specifically, the cold test was found to have a sensitivity,

to have a sensitivity of 100% and accuracy of 78%, while the Hildreth test had a sensitivity of 77.4%, specificity of 100%, and accuracy of 78%.

Glomus tumors are diagnosed clinically, but imaging may be used in cases in which the diagnosis is uncertain or to assist with pre-operative localization.<sup>2</sup> In these situations, high-resolution MRI is the preferred imaging modality.<sup>4</sup> Doppler ultrasound can also be used<sup>11</sup> but operator variability may decrease the reliability of this test.<sup>4</sup> Plain film x-rays are usually normal except in long standing tumors, which may result in bony erosions. On MRI, glomus tumors demonstrate T2 hyperintensity, T1 hypointensity, and T1 contrast enhancement (as shown in Figure 3a, 3b, 3c).<sup>1</sup> MRI is useful for visualizing tumors larger than 2mm but can miss smaller tumors. MRI has a high sensitivity (90%) and positive predictive value (97%) but a relatively low specificity (50%) and negative predictive value (20%).<sup>12</sup> Thus, MRI has a high false negative rate for glomus tumors,<sup>12</sup> and surgical exploration should be performed if there is high clinical suspicion even if no tumor is seen on MRI.<sup>1,2,12</sup>

Glomus tumors are composed of three cell types that are found in normal glomus bodies including smooth muscle cells, glomus cells, and vascular endothelial cells.<sup>13</sup> Glomus cells are a specialized type of smooth muscle cell that aid in the thermoregulatory function of glomus bodies.<sup>14</sup> Glomus tumors can be categorized into three histologic subtypes based on which cell type predominates in the tumor. The solid subtype, as seen in the current case, is the most common type and is predominantly composed of glomus cells. The glomangioma subtype is composed primarily of vasculature cells, and the glomangiomyoma subtype is composed mostly of smooth muscle cells. A characteristic histologic feature of glomus tumors is that they react diffusely with smooth muscle actin immunostaining as seen in Figure 6b.<sup>13</sup>

Tumor recurrence and fingernail deformity are important complications of subungual glomus tumor resection.<sup>2</sup> Fingernail deformities occur in around 3.3% of cases that are removed through a transungual approach.<sup>9</sup> There is some evidence that the risk of nail deformity can be reduced by reattaching the nail postoperatively, as was performed in the treatment of this patient.<sup>15</sup> Tumor recurrence occurs in 4 to 20% of all glomus tumor resections.<sup>2</sup> Recurrence within weeks of surgery are likely due to incomplete resection and repeat surgical exploration is indicated in these cases.<sup>2</sup> Recurrences that occur months to years after resection are thought to result from growth of separate satellite tumors within the digit that were not removed during the original

surgery.<sup>16</sup> Patients should be warned on the risk of recurrence prior to surgery.

This case reported above represents a classic presentation of a glomus tumor, a rare and underrecognized condition. The diagnosis was made using a combination of clinical findings and MRI imaging. The patient was successfully treated with surgical excision resulting in complete relief of her symptoms. Increased awareness of this condition among physicians could improve diagnosis and reduce the time to definitive surgical treatment.

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There are more SDSMA benefits to tell you about, and you'll hear about them in the months to come. In the meantime, if you'd like more information about our legislative services and advocacy programs, give us a call at 605.336.1965 or visit [www.sdsma.org](http://www.sdsma.org).

Thank you for your membership in SDSMA.

*"For Your Benefit" is the SDSMA's monthly update on programs and services available to physicians through their affiliation with the SDSMA.*

## Volunteers needed – sign up to be Doctor of the Day!

The SDSMA is looking for volunteers for the association's Doctor of the Day Program at the State Capitol during the legislative session.

This volunteer commitment involves one day at the State Capitol in Pierre by providing basic medical assistance to elected representatives and staff as needed. South Dakota's 2024 legislative sessions open Jan. 9. Sign up to volunteer at [sdsma.org](http://sdsma.org).

Doctors of the Day have the unique opportunity to interact with legislators and get a first-hand look at the legislative process and how it affects the

practice of medicine. Your presence at the Capitol shows legislators not only your expertise, but also your concern for the health of South Dakotans.

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

Questions? Contact Justin Ohleen, SDSMA Director of Advocacy and Policy, at 605.336.1965 or [johleen@sdsma.org](mailto:johleen@sdsma.org).

## American Medical Association Delegate Report - 2023 Interim Meeting

The Interim Meeting of the American Medical Association House of Delegates was attended by South Dakota's delegation in November including Mary Carpenter, MD and Rob Allison, MD seated as Delegates with Denise Hanisch, MD and Robert Summerer, DO attending as Alternate Delegates. Barb Smith also represented the SDSMA in her role as CEO. Medical student attendees included Sena Uzunlar, Jada Tschetter, Brock Goeden, and Nadya Ekhteraee-Sanaee. As always, a wide array of issues were brought to the house of medicine for consideration. A resounding theme was a battle cry to fix Medicare. Additionally, the North Central Medical Caucus, of which the South Dakota is a member, was particularly active in a rousing discussion that pitted Scope of Practice against Rural Medicine. Here are some of the highlights of the meeting:

### Fix Medicare, Protect Care Access

Through various actions at the meeting, the HOD made it clear that the unsustainable Medicare payment system poses a threat to patients' access to high-quality physician care. In addition to this year's 2% cut in Medicare physician pay, doctors face a further 3.37% cut set to take effect in January. After adjusting for inflation, physician pay actually fell by 26% since 2001. Delegates adopted new policy to "continue to prioritize reforming the Medicare payment system to ensure the continued economic viability of medical practice." The delegates also passed policy to:

- Prioritize preventing the imminent 3.37% Medicare payment cut from taking effect by any means available.
- Work toward achieving the highest sustainable annual Medicare payment increases possible, whether tied to the Medicare Economic Index, the consumer price index or some other relevant measure of inflation that is sufficient to ensure that Medicare beneficiaries can receive robust access to care and that medical practices do not continue to encounter economic challenges as a result of insufficient payment updates.

### Pluralistic Approach to Health System Reform

The AMA maintained its opposition to single-payer health reform after delegates discussed a proposal during a reference committee meeting. The AMA has longtime, extensive policies that support a pluralistic system that ensures choice of coverage for patients and autonomy of practice for physicians.

### Clinical Trial Enrollment in Medicare Advantage

No institution or managed care network, however large, can offer all relevant clinical trials, so the Centers for Medicare & Medicaid Services (CMS) needs to change a policy that results in Medicare Advantage enrollees having to self-refer for consultation in an out-of-network clinical trial, according to a resolution presented. Delegates adopted amended policy to advocate that CMS "allow out-of-network referral of patients with Medicare Advantage for the purpose of consultation for

enrollment in a clinical trial, require covering plans to pay for such consultations, and that these consultations be considered administratively as participation in a clinical trial."

### Medical Board Oversight

Delegates restated the need for state medical boards to maintain oversight in the regulation of nonphysician health professionals. They reaffirmed existing policy that calls on the AMA to:

- Advocate maintaining the authority of medical boards to regulate the practice of medicine through oversight of physicians and nonphysician health professionals.
- Oppose the establishment of autonomous regulatory boards for nonphysician health professionals.
- Oppose efforts to certify nonphysician health professionals in a manner that misleads the public to believe such certification is equivalent to medical specialty boards' certification.

### Standards for Health Plan Network Adequacy

Concern remains that patients' health care needs are not being met by health plans that offer inadequate networks of physicians, clinicians, and facilities. To facilitate patient choice and promote adequate access to timely, convenient, quality care, Delegates voted to adopt policy supporting establishment and enforcement of standards to strengthen network adequacy. The policy encourages a multilayered approach for regulatory oversight that includes meaningful standards, transparency of network breadth, parameters for out-of-network care, and effective monitoring and enforcement of existing standards. The new policy strengthens the AMA's continued work to ensure patients have access to adequate networks of care and to hold health plans accountable for networks that are too narrow.

### Insurance Coverage Parity For Emerging Obesity Treatment

As a new generation of weight-loss medications has created additional options to treat obesity, insurance coverage barriers limit broad accessibility of these medications. In response, delegates voted to adopt policy supporting health insurance coverage parity for evidence-based treatment of obesity, including FDA-approved medications without exclusions or additional carve-outs. When obesity is left untreated it can put patients at risk for serious health consequences. The costs for the patient and broader health care system associated with obesity, including the treatment of weight-related conditions and potential complications, can be substantial. It is crucial to recognize the urgency of addressing this disease comprehensively and proactively through a range of suitable treatments.

### Rural Medicine and Scope of Practice

One of the resolutions submitted by the Emergency Medicine Caucus called for a requirement for real time on-site physicians in every emergency department. The model legislation would call for those phy-

sicians to have training and experience in emergency medical care. Delegates from rural areas worried that this would place such a burden on rural hospitals that it would result in widespread closures of rural facilities that provide emergency care. Jordon Warchol, MD, an emergency medicine physician in Omaha spoke on behalf of the NCMC explaining rural states' concerns regarding small hospital staffing challenges. ER physicians testified their concerns over substandard care by non physician providers. In the end, rural delegates were successful in referring the issue back to the AMA's Board of Trustees for further study.

## **Other Important Business of Interest to South Dakota Physicians**

- Cannabis warnings and safety regulations particularly involving pregnancy and breast feeding.

- Collaborative agreements with pharmacist for public health measures.
- Rural hospital innovative payment models.
- Parity for Medicare payment in various facility settings.
- Working with police departments and local government to provide safe storage devices to prevent inadvertent gun injury.

Robert L. Allison, MD, Delegate

Mary S. Carpenter, MD, Delegate

Denise S. Hanisch, MD, SDSMA President

Robert J. Summerer, DO, Alternate Delegate

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