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Expanding Medicaid a Top Priority

By Mary J. Milroy, MD
SDSMA President

This past November the Executive Committees of the SDSMA and SDAHO met jointly to discuss health care in South Dakota. The top priority voiced by both organizations was providing accessible, affordable, quality health care to all our citizens. However, a major obstacle in reaching that goal is the lack of health insurance for about 104,400 individuals. These individuals often cannot afford preventive health services and therefore must seek episodic sick care, often in the ER. Not only is this not cost effective care but it fails to provide the longitudinal comprehensive care which is an essential component of quality health care and does not allow access to innovative programs such as medical homes which promise to both improve health and decrease costs. The federal government has drastically decreased the money formerly provided to help defray costs of uncompensated care believing that with Medicaid expansion it wouldn’t be necessary. Unfortunately, in states that have not expanded Medicaid, this increases the burden of uncompensated care. These uncovered costs often necessitate cost shifting to the private sector, placing an unfair burden on the individuals and businesses who buy health insurance.

Medicaid covers nearly 65 million people and was created to provide health insurance coverage for low income populations. States were not required to participate, although all states have since voluntarily agreed to participate. After meeting certain federal requirements, the states then administer their own programs as far as eligibility, payment rates, and scope and types of services. The Affordable Care Act (ACA) revised and expanded Medicaid to begin in 2014 and mandated states to expand to individuals making less than 133 percent of the federal poverty level (FPL). At 100 percent, that’s $11,670 per year, and at 133 percent is $15,282 per year for one individual. The federal government agreed to pay 100 percent of the cost for the newly eligible enrolled beneficiaries in 2014, 2015 and 2016. Coverage would be 95 percent in 2017, 94 percent in 2018, 93 percent in 2019 and 90 percent in 2020 and subsequent years. This mandate was challenged in the U.S. Supreme Court which struck down the mandate and thus, states were given the option of either expanding Medicaid or continuing at their pre-ACA Medicaid levels of funding and eligibility. So far, 27 states have expanded Medicaid and a number of other states including South Dakota have chosen not to.

The ACA also created the Health Insurance Marketplace and provided premium subsidies for individuals making between 100-400 percent of the FPL. When the Supreme Court struck down the mandate to expand Medicaid, it left those individuals below 100 percent of the FPL without access to either Medicaid or subsidies through the insurance exchanges. Of the uninsured South Dakotans, 39,000-42,000 fall into this loophole and have been left with no access to health care.

In addition, expanding Medicaid makes good business sense for South Dakota. Medicaid expansion could boost state economic growth and employment by bringing in new federal funding in amounts comparable to federal highway funds and federal defense procurement contracts. The National Women’s Law Center estimates that South Dakota would experience a $62 million savings in uncompensated care over the next decade with Medicaid expansion. The Commonwealth Fund projected a negative $224 million dollar federal funding flow as a result of failure to expand Medicaid by 2022.

The SDSMA Council of Physicians met, discussed Medicaid expansion, reaffirmed the SDSMA’s commitment to access to care for all South Dakotans and voted to support Medicaid expansion for all individuals making below 100 percent of the FPL. Opponents to Medicaid expansion cite uncertainty and unreliability of federal coverage in the future as a reason to deny expansion. I believe that the future is always somewhat uncertain. I believe in South Dakotans’ ability to meet funding challenges in the future if or when they might occur. The current and real problems facing uninsured South Dakotans can be alleviated by expanding Medicaid today. This is an important advocacy issue for the SDSMA as we enter into the upcoming legislative session. I urge you to join in this effort by contacting your legislators and making your voice heard as a health care provider in speaking out for access to quality health care for all South Dakotans. Let’s all work together to expand Medicaid in South Dakota now.

Book Suggestions
The Power of Habit: Why We Do What We Do in Life and Business by Charles Duhigg
Being Mortal by Atul Gawande
The Bully Pulpit by Doris Kearns Goodwin
One Summer by Bill Bryson
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The American Medical Association 2014 Economic Impact Study, completed in conjunction with the South Dakota State Medical Association, shows how much physicians add to the economic health of South Dakota.

Check the effect physicians have on the U.S. economy by viewing the national report from the AMA, as well as highlights from the South Dakota study, at ama-assn.org/go/els.
Membership – it’s at the heart of any organization. Defined as “the fact of being part of a group,” members in a group of like-minded individuals can probably change the world, or at least a little part of it.

For over 100 years, the South Dakota State Medical Association Alliance has been just such a group – like-minded, supportive of the unique challenges of being a medical family, focused on an endless list of health-related community service projects in towns large and small across South Dakota. Soup kitchens and backpack meals, anti-smoking videos donated to schools, fundraising for medical student scholarships, anti-bullying and nutrition campaigns, Cribs for Kids projects across the state, nursing student scholarships, sweatsuits for patients returning home after emergency room visits, support for health-related legislation, Meals on Wheels. These are but a few of the many projects successfully completed across the state.

The common thread across all these projects is you, the members of the Alliance – past, present and future. At the district level, you have pitched in and worked together. You’ve served in positions of leadership and you’ve been “worker bees.” You’ve seen a need, and worked to meet it. And through each of you, you have made a difference.

But as Connie Schroeder said in her November article, “The Times, They Are a-Changin’”. The Alliance realizes that what was relevant in the past, likely no longer is. And while the history of any organization has value, to live in that history and not adapt to “changin’” times can quickly lead to a stressed out, burned out, tired out, not interested membership. And so as members, the Alliance invites you to reshape the organization according to the needs you see – to work on projects important to the members in your district or community; to share your great ideas; to be as structured, or unstructured as your members choose, while still working under the Alliance umbrella, there to assist you if needed, but not to dictate how you function.

Your lives are busy. Your careers are demanding. Your commitments are many. But if this appeals to you, if you still see value as a medical spouse in continuing to support health-related projects, and getting to know other physician spouses while doing so, then please consider renewing your SDSMA Alliance membership, or becoming a new member. Shape the Alliance for the future, whatever that future turns out to be.

If you need more information, just ask:
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In this issue of South Dakota Medicine, Ann Wilson, PhD’s manuscript, “State of South Dakota’s Child: 2014,” is published. I urge you to read this important manuscript which brings to light a number of essential facts about our youngest residents. First, there has been an increase in rate and racial diversity of births in the state. Interestingly, the number of births to 15-19-year-olds has decreased, but remains above the national average. An important fact is the significant racial disparity in births to 15-19-year-olds, with American Indian teens having 4.5 times higher rates than white teens.

On a positive note, the results demonstrate that more women, both white and American Indian, are obtaining prenatal care. Those who receive prenatal care are found to have a lower infant death rate. The infant mortality rate has decreased from the “2013 spike” but remains higher than the national average – 6.5 per 1,000 live births and 5.98 per 100 live births, respectively. The persistence of racial disparities is noted in this report with more infant deaths in Native Americans. The legislature has expanded the availability of prenatal care, but despite this attempt, there are still a significant number who do not seek care. This discrepancy in improved access but limited utilization highlights the many social, economic and emotional issues that affect health care during pregnancy.

Despite the reduction in teen births, there is still need for improvement. Long-acting reversible contraception (LARC) is available and consists of implants and intrauterine devices. There are currently two IUDs available in the U.S. – the levonorgestrel intrauterine system (LNG IUS), the copper T380A, and the etonogestrel single-rod contraceptive implant. These LARCs’ typical pregnancy rates are copper IUD 0.8 percent, LNG IUS 0.2 percent, and the implant 0.05 percent per year. The recent CHOICE project demonstrated that with diminished barriers to use, including financial, LARCs were more highly sought than other forms of contraception. These authors have also demonstrated low rates of discontinuation of LARCs for all users including adolescents. The most common reasons for discontinuation included cramping for IUD users and irregular bleeding for those using implants.

LARC methods of contraception, including IUDs and implants, can be offered to adolescents and nulliparous women. These methods are safe, effective and have high rates of acceptance by these patients. Results demonstrate that there may be a higher expulsion rate and increased risk of removal due to bleeding and pain in the nulliparous woman. There are no data suggesting an increased risk of infertility or pelvic inflammatory disease with the copper IUD or LNG IUS. Most women, including adolescents and the nulliparous, are eligible to use LARCs with very few contraindications. The Centers for Disease Control and Prevention and World Health Organization have developed evidence-based criteria for initiating and continuing various forms of contraception. The U.S. Medical Eligibility Criteria for Contraceptive Use “Summary of Classifications for Hormonal Contraceptive Methods and Intrauterine Devices” can be accessed at www.cdc.gov/mmwr/pdf/rr/rr5904.pdf.

I recommend that you read “State of South Dakota’s Child: 2014” on page 15 of this issue. Ann Wilson, PhD highlights important facts about our youngest residents with emphasis on improvements in care and current challenges.

REFERENCES
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Cyclic Vomiting Syndrome

By Tonya R. Adamiak, MD; and Melissa J. Jensen, MD

Abstract

Cyclic vomiting syndrome (CVS) is characterized by stereotypical episodes of intense vomiting separated by periods where the individual feels completely well. There is a strong link between CVS and migraine headaches, with many overlapping symptoms and similarities in treatment. There are consensus criteria for CVS diagnosis, but there is no specific diagnostic test, and there is often a delay in diagnosis resulting in a high degree of morbidity. Recognizing the CVS vomiting pattern can facilitate earlier diagnosis and treatment, which can greatly improve the quality of life for CVS patients.

Background

Cyclic vomiting syndrome (CVS) is characterized by discrete stereotypical episodes of intense vomiting separated by periods where the individual feels completely well. Oftentimes there is a delay in the recognition of the overall pattern of the recurrent vomiting episodes and it takes years for children with CVS to be correctly diagnosed. It is important for primary care providers to be familiar with CVS, so the diagnosis can be made in a timely manner and treatment initiated. This clinical update will review the consensus criteria for CVS diagnosis, typical CVS symptoms, evaluation of children with suspected CVS, and treatment recommendations.

Etiology

The exact etiology and pathogenesis of CVS is not entirely known. There is a strong link between CVS and migraines. Both CVS and migraines have similar symptoms, there is the common coexistence of both conditions in the same individual, there is a high family prevalence of migraines in patients with CVS, and anti-migraine therapy is effective in CVS patients. Another possible hypothesis is related to mitochondrial DNA mutations that cause defects in energy production. This may predispose patients to vomiting episodes during periods of heightened energy demands, and stress and excitement are known triggers of CVS. Additionally, mitochondrial DNA is maternally derived and in CVS patients there is a predominance of migraine family history on the maternal side compared to the paternal side.

Hypothalamic-pituitary-adrenal axis activation could play a role in CVS, where a heightened hypothalamic stress response involving Corticotropin releasing factor (CRF), Adrenocorticotropic hormone (ACTH), and the adrenal axis activates the emetic response. In support of this hypothesis is that the circadian CRF peak in the early morning hours between 4-8 a.m. correlates with the time of onset of many CVS episodes. And then also possible is autonomic dysfunction, which is consistent with the many CVS symptoms that are mediated by the autonomic nervous system.

Clinical Presentation

When evaluating a child with recurrent vomiting, it is important to first distinguish between a cyclic vomiting pattern and a chronic vomiting pattern. In cyclic vomiting, there are recurrent, discrete, self-limited episodes of vomiting. This compares to chronic vomiting, where the vomiting is low grade and nearly daily, for example reflux.

In 2008, the North American Society of Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN) published consensus criteria for CVS diagnosis (Box 1): episodic attacks of intense nausea and vomiting lasting one hour to 10 days and occurring at least one week apart; stereotypical pattern and symptoms in an individual patient; peak vomiting during an attack of at least four times per hour for at least one hour; at least five attacks in any interval, or a minimum of three attacks during a six-month period; return to baseline health between episodes; and symptoms not attributed to another disorder.
A number of population based surveys have reported the pediatric prevalence of CVS ~2 percent.\(^1\)\(^2\) CVS can occur in all races, though Caucasians seem to be affected disproportionately. There is a slight predominance of girls over boys (55 percent vs. 45 percent).\(^4\) CVS onset is most common in preschool or early school aged children, with the median age of onset of symptoms 5-6 years old. Adult onset cases have been reported but are rare. Eighty-two percent of children with CVS have a positive family history of migraine headaches.\(^5\)

It is not uncommon for children to have vomiting episodes for years before finally being diagnosed with CVS. The median interval from onset of symptoms to diagnosis is 2 ½ years. This may in part be because the individual episodes of vomiting may be evaluated by different physicians, for example the primary care provider or emergency department physician, and so the vomiting episode may be misdiagnosed as acute gastroenteritis or food poisoning, with the overall pattern of recurrent vomiting not being appreciated. Additionally, some episodes may be very mild and some may be short nighttime episodes that do not cause the child to miss school, so these children may not initially be referred to a pediatric gastroenterologist.\(^6\)\(^5\)

Early morning onset of CVS episodes is common, typically 2-4 a.m. or upon awakening at 6-8 a.m. One study showed that 76 percent of patients had one or two characteristic times of onset of episodes (during the night or right on arising), 24 percent had no characteristic time of onset and the vomiting episodes would start at random times of the day or night. Most commonly, CVS episodes last 24-48 hours, though some patients have episodes that are less than six hours and others have episodes that last five to seven days. Eighty-five percent of episodes are of fairly uniform length for the specific patient, while 15 percent of patients have attacks of variable length. Approximately half of patients have regular, somewhat predictable, intervals between attacks (within a week on either side), and most often this is monthly.\(^5\)\(^6\) There is a seasonal pattern in about 30 percent of patients, with episodes being more frequent in the winter while remitting in the summer.

Children with CVS that have episodes starting during the daytime may have a short prodrome or warning before the vomiting starts, median 1 ½ hours, where they may have abdominal pain, headaches, nausea, and pallor. Once the vomiting starts, it typically reaches its peak intensity within the first hour and will begin to decline after four to eight hours. In the average CVS episode, there is intense vomiting, with median 11 and mean 22 emeses per episode. The median peak vomiting is six times per hour. Following this, there is a recovery period of about six hours on average, from the end of vomiting to the point of improvement. Parents often describe this as the child suddenly better and like “turning off a switch.”\(^6\)

The most common associated signs and symptoms during a CVS episode are lethargy, pallor, abdominal pain, retching, nausea, and anorexia. Some children will also have diarrhea or low grade fever, and about 30-40 percent have headaches and photophobia. At times, children with CVS are described as lethargic and listless, like a “conscious coma.” The CVS child is oriented and able to respond appropriately to commands, but prefers not to because of incapacitating nausea. Nausea is often identified by patients as the most persistent and distressing symptom unrelieved by vomiting.\(^6\)

About two-thirds of children/families are able to identify a trigger for their episodes. Some have a psychological trigger, which many times can be positive stress like a birthday, holiday, or vacation; other times this could be school or family related stress. Infections can trigger CVS episodes, also physical exhaustion or lack of sleep, dietary factors, motion sickness, atopy, weather changes, fasting, or menses.\(^6\)

There is a high degree of morbidity related to CVS. One study reported that 50 percent of children with CVS required intravenous fluids (IVF) and 28 percent required IVF with every episode. School age children over 7 years old missed 20 days of school in the previous year. The estimated average annual cost of care for a child with CVS, including clinic and emergency department visits, hospitalizations, tests, and missed work days for parents was just over $17,000.\(^5\) CVS episodes are worse than rotavirus; CVS patients are 75 times more likely than rotavirus patients to have dehydration requiring IVF.\(^5\)

**Evaluation**

There is no specific test to diagnose CVS. The diagnosis is based upon the fulfillment of the consensus diagnostic criteria in the absence of another explanation for the symptoms. Other causes of recurrent vomiting should be considered, as other diagnoses can also present with a cyclic vomiting pattern. B. Li et al. conducted a chart review of 225 children with at least three discrete episodes of vomiting between which the child was free of symptoms. Eighty-eight of these children were ultimately diagnosed with CVS, but 12 percent had another disorder that, based on complete resolution after specific therapy, was thought to be the probable cause of the vomiting. These other diagnoses included gastroesophageal reflux disease, esophagitis, malrotation, chronic appendicitis, metabolic and neurologic disorders, among others.\(^5\)

A red flag in a child with a cyclic vomiting pattern that would be suspicious for another diagnosis is an abnormal
neurologic exam, including severe alteration of mental status, abnormal eye movements, papilledema, motor asymmetry, gait abnormality, etc. These children should have a brain MRI ordered to evaluate for posterior fossa or hypothalamic tumor, Chiari malformation, hydrocephalus, subdural hematoma, etc. Another red flag is if the child has vomiting episodes precipitated by an intercurrent illness, fasting, or high protein meal, this raises the possibility of a metabolic disorder. In these children, metabolic labs should be obtained during a CVS episode and before administering IVF, as labs may be normal if done when the patient is asymptomatic or after receiving IV dextrose. Also concerning is children with bilious vomiting and/or patient is asymptomatic or after receiving IV dextrose. Administering IVF, as labs may be normal if done when the patient is asymptomatic or after receiving IV dextrose. Further evaluation including labs, EGD, proton pump inhibitor may be beneficial if pain is localized to the epigastric area.

The 2008 NASPGHAN consensus recommendations for children with suspected CVS are to do an upper gastrointestinal series (UGI) to exclude malrotation, and to consider labs during an episode of vomiting before administering IVF. Routine endoscopy (EGD) is not required in every child, but should be done if there are chronic symptoms between episodes and/or the child has hematemesis. Otherwise, if there are no alarm findings, the recommendations are to screen and treat empirically for two months. If the child responds to therapy with at least 50 percent reduction in episode frequency and/or severity, further evaluation is not required. If the child does not improve, then further evaluation including labs, EGD, renal ultrasound, and brain MRI are recommended.1

Treatment

The treatment of CVS requires an individually tailored plan that takes into consideration the clinical course, frequency and severity of attacks, and resultant disability balanced against the potential side effects of treatment. Treatment goals can be categorized based on the CVS phase. When the child is between episodes and is in the well phase, the goal is to prevent episodes by identifying and avoiding triggers. During the prodromal phase, before the vomiting episode starts, the goal is to provide early treatment with abortive medications to try to stop the episode from progressing. Recommended medications are intranasal Sumatriptan, an anti-migraine medication, and Ondansetron, an anti-emetic medication. Response to Sumatriptan seems better if episodes are less than 24 hours and/or there is a personal or family history of migraines.4

If vomiting progresses despite abortive therapies, supportive care at home or in the hospital is focused on providing relief from nausea, vomiting, and abdominal pain. Children with CVS should be placed in a dark and quiet nonstimulating environment. If in the emergency department or hospital, they can be given a normal saline bolus and then D10 ½ NS at 1.5X maintenance. The D10 is ideal compared to D5, as the additional dextrose can lessen any possible metabolic crisis that can be worsened by catabolism, and the fluids can replace lost electrolytes and volume.

Anti-emetic and sedative medications are the most effective combination during the vomiting phase. Hospitalized patients can be given scheduled IV Ondansetron and Lorazepam for the first 24 hours and then as needed. CVS patients may benefit from higher Ondansetron dosing of 0.3-0.4 mg/kg/dose (up to 20 mg). The Lorazepam can help with sedation and can provide relief by helping the patient sleep, which may shorten the nausea and vomiting episode. An alternative combination is Chlorpromazine and Diphenhydramine, but this provides less anti-emetic and more sedative effect, and there are potential side effects from Chlorpromazine. Ketorolac can be given for pain management, and morphine if needed. Additionally, a H2 receptor blocker or proton pump inhibitor may be beneficial if pain is localized in the epigastric area.

Once the episode is over, most children can start eating a normal diet right away, and parents describe this change “like turning off a switch.” But some children require stepwise reintroduction of foods to prevent the recurrence of nausea.

Prophylaxis for CVS is recommended if abortive therapy fails and/or the child has severe or frequent episodes, for example episodes more than once a month, episodes greater than two days in length, and/or greater than 15 emeses per episode. Cyproheptadine is the first choice for children 5 years old or younger. Amitriptyline is the preferred choice for children over 5 years old. Propranolol is the second choice in children of all ages. Other less frequently used prophylactic medications include Topiramate and Phenobarbital.

A retrospective chart review comparing Amitriptyline and Cyproheptadine as prophylactic therapy for 27 children with CVS found that 73 percent of the children treated with Amitriptyline and 66 percent treated with Cyproheptadine achieved complete remission. If also including patients with partial response, meaning 50 percent or greater reduction in frequency of attacks, this increased to 91 percent in the Amitriptyline group and 83 percent in the Cyproheptadine group. A another study looked at Propranolol and Amitriptyline in children with CVS. Amitriptyline was effective in 56 percent of 81 patients and Propranolol was effective in 92 percent of 83 patients. Patients who were non-responsive to
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Amitriptyline were treated with Propranolol and most of them had a satisfactory response.\textsuperscript{10}

L-carnitine and Coenzyme Q10 (CoQ10) are mitochondrial cofactors that have been found to be beneficial for treating CVS. There was a retrospective study comparing CoQ10 and Amitriptyline in children and adults with CVS that found similar improvement of 72 percent in those on Amitriptyline and 68 percent of those on CoQ10. This study reported more side effects in those taking Amitriptyline, requiring 21 percent to discontinue the medication.\textsuperscript{11} There have additionally been reports of using erythromycin, low estrogen oral contraceptives in girls with menstrual related CVS, acupuncture, and psychotherapy stress reduction for CVS patients.

Natural History

The natural history of CVS is for episodes to continue for four to six years. As the child gets older the episodes generally become less severe. Two studies have shown that the median age of resolution of symptoms was about 10 years old. The younger the age of onset of the CVS correlated with a longer duration of symptoms. If age at CVS onset was prior to 3 years old then the length of illness was 5.8 years; if onset between 3 to 8 years old then 4.9 years, and if onset prior to 8 years old then 2.9 years. Almost one-third of children underwent the transition from CVS to migraine headaches as they reached early adolescence. And projection analysis estimated that 75 percent would develop migraine headaches by age 18 (BUK Li and JR Hayes unpublished data 1999, BUK Li and A Kagalwalla unpublished data 2002).

Conclusion

In summary, CVS is characterized by stereotypical episodes of repeated vomiting separated by periods where the individual feels completely well. The typical CVS patient starts having vomiting episodes in the early school age years, has monthly episodes of intense vomiting with associated nausea, abdominal pain, pallor, and lethargy that lasts 24-48 hours, with these episodes starting in the middle of the night or right upon awakening. Often there is a family history of migraine headaches. Initial evaluation in children with recurrent vomiting should include detailed history, exam, and UGI study; labs, brain MRI, renal ultrasound, and/or EGD should be done if any red flags or if there are continued vomiting episodes despite empiric CVS treatment. The goals of treatment of CVS are to prevent episodes from occurring with prophylactic medications and lifestyle modifications to avoid potential triggers, abortive therapies at the onset of an episode to try to stop the episode from progressing, and supportive treatment when episodes do occur. The Cyclic Vomiting Syndrome Association (www.cvsaoonline.org) is a good resource for patients with CVS and health care professionals.

**REFERENCES**


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Thank You!

for adding quality to the ‘CARE’ in DAKOTACARE

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State of South Dakota’s Child: 2014

By Ann L. Wilson, PhD

Abstract
For the third consecutive year in 2013, South Dakota had a slight increase in the number of resident births and also an increase in their racial diversity with 25 percent represented by minorities. In 2013 there was a slight decrease in very low birth weight with the percent of multiple births remaining stable. Following the previous year’s spike in infant deaths, mortality for infants in South Dakota in 2013 returned to a rate (6.5 per 1,000 live births) similar to previous years but was higher than the current national infant mortality rate of 6.0. Within the state, mortality is twice as high for infants of minority races as it is for white infants.

Introduction
This annual report presents data on the 2013 cohort of births of South Dakota residents and reviews deaths during the first year of life. Trends in these data that offer possible approaches to preventing these tragic deaths during infancy will be described.

Births
In 2013, South Dakota welcomed 12,243 new babies with this number sustaining the recent four-year upward trend in the total number of annual live resident births for the state. The data presented in Figure 1 show this 3.7 percent increase in births since 2010. The expanding size of birth cohorts is perhaps a generational “echo” from the most recent peak in births noted in the 1980s and may also represent an increase in age of parenthood as the interval of years between the peaks of births appears to be expanding.

Also observed in the 2013 birth data is ongoing increased racial diversity in the cohorts of annual births. In 2013, one in four newborns in South Dakota represented a racial minority. Noted in Figure 2 is how South Dakota is continuing to exceed the national percent of 23 percent of births representing racial minorities. Currently, 16 percent of all live births in South Dakota are American Indian...
with 9 percent representing other minority populations. Recent announcements from the National Center for Health Statistics have applauded the national reductions in teen birth rates. This decline noted in Figure 3 has been accompanied by $9.4 billion in cost savings since 2010. Presented in Figure 3 also are data from South Dakota showing that though the state has observed a decline in total births to 15-19-year-olds, our rates since 2009 have exceeded national observations. Analyses of these data show racial disparities in births to teen mothers. Rates of births to American Indian teens (15-to 19-years-olds) between 2009 and 2013 are 4.5 times higher than those for white teens in South Dakota. Further, during these years, the mean rate of birth of 97.4 births per 1,000 15- to 19-year-old South Dakota American Indian young women is approximately 2.5 times higher than its rate observed nationally (38.4) for American Indian teenagers. Another way of examining these data shows that while 16 percent of South Dakota births are American Indian, they also represent 38 percent of all births to 15- to 19-year-olds in the state. The South Dakota mean rate of teen births for its white population (22) for the years 2009-2013 is slightly higher than its national rate (20.5) in 2012.

Birth weight is a critical measure of the health of a cohort of newborns and Figure 4 shows that South Dakota has typically had a lower rate of low birth weight than observed nationally. Also apparent in Figure 4 is that in 2013, there was a slight decrease from previous years in the percent of very low birth weight newborns in South Dakota with 1.02 percent of all newborns weighing less than 1,500 grams. This decrease was noted for both the white and minority populations. There was also noted a slight increase to 5.3 percent of mid low birth weight newborns (1,500 to 2,499 grams) in the state with this increase only observed in the white population. Overall, 6.3 percent of all newborns were low birth weight in 2013 compared to 8 percent observed nationally in 2012.

Helpful to an analysis of birth weight is an understanding of the role multiple births plays in the outcome of an annual cohort of newborns. In 2013, similar to previous years, approximately 3 percent of all South Dakota births were multiple. The percent of these births and singleton births that were low birth weight is presented in Figure 5.
Apparent in these data is how in 2013 there was a slight increase in the percent of mid low birth weight but only for singletons. Overall, the contribution of multiples to the percent of low birth weight has remained fairly stable over recent years.

Data on prenatal care in 2013 yield the positive finding that utilization of first trimester care in South Dakota increased for both the white and American Indian populations. Currently, 78 percent of white women and 50 percent of American Indian women accessed prenatal care during the first trimesters of their pregnancies. Nonetheless, the small percent who delivered without this care (less than 1 percent) remained nearly the same as in previous years. Striking are data presented in Figure 6 showing how infant mortality rates vary by when prenatal care began. These mean data for 2009-2013 demonstrate that the rate of death of infants whose mothers did not receive prenatal care is 10 times higher than for those whose care began in the first trimester of pregnancy.

**Infant Mortality**

Eighty infant residents of South Dakota died during their first year of life in 2013. As noted in Figure 7, this number represents a 30 percent decrease in the unfortunate spike of 104 deaths in 2012 and returns the state’s rate of infant mortality (6.5 per 1,000 live births) to slightly less than the state’s mean of 6.7 for the years 2009-2011. While the 2013 decrease in the infant mortality rate (IMR) is a positive finding, it remains higher than the most recent 2012 rate observed nationally of 5.98.

Helpful to an analysis of infant mortality is an examination of when during the first year of life these deaths occur. The neonatal mortality rate (NMR) is a measure of deaths during the first 27 days of life and may be considered a measure of access to tertiary perinatal services. In South Dakota, the NMR in 2013 decreased to a level (4.0) comparable to those years prior to 2012 and is currently slightly less than the most recent available national rate (2011) of 4.1. Presented in Figure 8 are data showing how the decrease in the NMR in 2013 occurred in both the white and the minority populations of newborns in the state. Figure 9 presents data on Post neonatal mortality rates (PNMR) that measures deaths of infants that occur between the 28th day and the end of the first year of life. These data show that in 2013, this rate decreased to 2.6 from its 2012 rate of 2.9. This decrease came with fewer deaths in the minority population of babies whose rate decreased to 5.2 from 6.3, while the white population saw a slight increase in this rate of death, from 1.6 to 1.7 per 1,000 live births. Overall, the state’s PNMR has consistently remained above that observed nationally and currently is 23 percent higher than the national rate for 2011.

Racial disparities in infant mortality rates in South Dakota have been an ongoing observation. In 2013,
similar to previous years, the NMR was 1.5 times higher for minority than for white newborns, and this ratio is comparable to that observed in previous years. While the gap in mortality is typically broader during the post neonatal period, in 2013 it expanded with 3.5 times as many infants of racial minority dying after the first 27 days of life as white infants. This gap is apparent in Figure 9 and is broader than the ratio (1.98) observed nationally.

To explain the 2012 spike in infant deaths, an analysis of birth weight specific mortality showed an increase in the percent of deaths among infants with birth weights of 500 to 999 grams. This analysis was also completed with 2013 data, and its findings are presented in Figure 10. Apparent is the improved survival in 2013 of infants with birth weights 500 to 999 grams, but the mortality for this cohort of infants remains higher than previously observed. Further, in 2013 mortality for the 1,000 to 1,499 gram cohort is also higher than in recent years. When these birth weight-specific mortality data are broken down by race, the survival rates are essentially similar.

Noted with the 2012 increase in mortality for very low birth weight infants was an increase in the rate of death due to “perinatal causes.” Noted in Table 1 is the finding that there was a decrease in this cause of death in 2013, but that it was over twice as high for minority as for white infants. The 2013 decrease in infant deaths from the previous year can also be accounted for by fewer deaths due to congenital abnormalities. Other causes of death remained essentially unchanged.

Of importance to reviewing infant mortality data is an understanding of the changing way in which sudden unexpected infant deaths during sleep are reviewed and assigned a cause. Between 1995 and 1999 the state’s mean rate of death due to sudden infant death syndrome (SIDS) was 1.77 and in 2013 it has decreased to 0.72. This 59 percent decrease, though encouraging, must be interpreted in light of how these unexpected deaths are now coded. In all likelihood, there is variation in how these deaths are certified. Many of these deaths in the past were identified as caused by SIDS but are no longer currently coded in this way. Rather, current recommendations are that this certification be used only when deaths remain unexplained following a thorough investigation. Indeed, in 2013 South Dakota had six infant deaths coded as caused by accidental suffocation or strangulation in bed, or other specified/ unspecified threats to breathing. Overall, the mean rate of infant deaths due to injuries and homicide increased by 41 percent between the years 1995-1999 and 2009-2013.

The data presented in Figures 11 and 12 help to identify the dynamics that impact deaths occurring in the neonatal and post neonatal periods of time in South Dakota. Between 2011 and 2013, 63 percent of all infant deaths occurred during the first 27 days of life. Two-thirds of these deaths were due to perinatal causes, primarily associated with prematurity. These causes, plus deaths caused by congenital abnormalities, comprised 95 percent of mortality during these early days of life. From the 28th day of life through the end of the first year, a different pattern is apparent. During this period of life, injuries and homicides are the leading cause of death, claiming 27 percent of all deaths, with SIDS accounting for another 23 percent of mortality. These causes are followed by “other

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Rate of Infant Death per 1,000 Live Births</th>
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</thead>
<tbody>
<tr>
<td>Perinatal Causes</td>
<td>White</td>
</tr>
<tr>
<td>Congenital Abnormalities</td>
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<tr>
<td>Sudden Infant Death Syndrome</td>
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<tr>
<td>Accidents and Homicides</td>
<td>0.44</td>
</tr>
<tr>
<td>Other</td>
<td>0.44</td>
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<tr>
<td>Total Infant Mortality</td>
<td>5.25</td>
</tr>
</tbody>
</table>
causes” that include infections. Congenital anomalies and perinatal causes comprise 24 percent of the post neonatal deaths.

Discussion
In 2012, the concerning observation was made that there was a striking increase in infant mortality without a concomitant raise in low birth weight or multiple births. Findings from 2013 show that this 2012 increase was indeed a spike, and that the mortality rate returned to a level comparable to that observed in previous years. Analyses of the 2012 data showed that there was an increase in mortality for the cohort of 500 to 999 gram infants. In 2013, this level of mortality decreased but still remained higher than in previous years as was the rate for 1,000 to 1,499 gram infants. This observation suggests the need for a closer examination of reasons for these findings.

Typical of years past, racial disparities persisted in the state’s 2013 data revealing the complexity of the social dynamics impacting survival during the first year of life. The state’s percentage of births representing minority populations now exceeds what is observed nationally and our rate of births to young women 15-19 years of age also exceeds national trends. The daunting data revealing the association between lack of prenatal care and mortality during the first year of life also suggest social dynamics that impact health promoting behavior during pregnancy and its very apparent relationship to survival during a baby’s first year of life. Recent state legislative initiatives have attempted to expand publically funded coverage for prenatal care. These initiatives could have resulted in increasing first trimester care that has been lacking. To be recognized, however, is the reality that access to care does not assure its utilization and that complex emotional and social issues impact how a woman responds to a pregnancy. Nonetheless, creating a culture of interpersonal support and understanding that encourages use of prenatal care will benefit not only the health of a pregnant woman but the outcome of her pregnancy and well-being of her baby.

Post neonatal mortality has consistently been higher in South Dakota than nationally, especially for the population of infants of minority races. Between 2011 and 2013, half of these deaths were attributable to SIDS, injury or homicide and represent deaths that occur outside of medical facilities. As previously described, certification of unexpected deaths that occur during sleep is currently in a state of flux. Data from the Regional Infant and Child Mortality Review Committee, which reviews deaths in the 10-county region of southeastern South Dakota, show that between 2009-2013 there has been only one SIDS death in this part of the state where 39 percent of its residents are born. Alternately, during these years, in this region of the state there have been three to four annual unexpected deaths of infants during sleep that were coded as accidents, undetermined or SUID. Data from this region also show that unexpected infant deaths are not decreasing. In 2013, not one of these deaths occurred in a crib. Rather, they all occurred in environments that posed preventable hazards to “safe sleep.” Such observations beseech all those whose personal and professional lives impact the care of infants to educate new parents that sleep that is safe for a baby should be solo, supine and in a crib with no soft bedding or bumper pads. Though bare and perhaps un-cozy in its appearance to those who care for babies, this is the safest setting for a baby to sleep. Further, advocacy is encouraged on limiting the marketing of products that impede safe sleep for infants.

In 2015 a new process of reviewing infant deaths statewide will be initiated as an outcome of the efforts of First Lady Linda Daugaard’s 2011 Infant Mortality Task Force. The state is now coordinating a statewide effort to review

Figure 11. Cause of Infant Deaths, Neonatal, South Dakota, 2011-13

Figure 12. Cause of Infant Deaths, Post Neonatal, South Dakota
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infant deaths to better understand how they may be prevented. The initiation of the first statewide review will be held in 2015 and will enable identification of issues that will make data analysis more effective.

Each year, this report reflects a review of data that aims to find trends in numbers that lend themselves to an understanding of the dynamics that impact survival during the first year of life. To be recalled is that not until the sixth decade of life will the likelihood of death ever be as great as during the first vulnerable 12 months following birth. While the connections that exist between a woman and fetus during pregnancy are perceptible, recognition of the vital social connections that support their well-being is critical. How communities may best support and nurture new life is a challenge for all to embrace for the well-being and productivity of our society and its future.

REFERENCES

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Introduction
Unconjugated hyperbilirubinemia of the newborn is a common occurrence during the neonatal period. Nearly 80 percent of newborns develop non-pathologic hyperbilirubinemia during their first week of life. Clinically, hyperbilirubinemia is evidenced by yellowing of the skin, mucous membranes and sclerae. Usually hyperbilirubinemia is not harmful and may even have antioxidant effects for the newborn. By definition, hyperbilirubinemia is defined as a total serum or plasma bilirubin (TB) that exceeds the 95th percentile on the Bhutani hour-specific nomogram (Figure 1). Hyperbilirubinemia that exceeds 25-30 mg/dl places the newborn at high risk for bilirubin-induced neurologic dysfunction (BIND). BIND occurs when unconjugated bilirubin freely crosses the blood brain barrier and deposits in the central nervous system, most commonly the basal ganglia. The predilection for the basal ganglia may be due to the increased metabolic activity, and thus increased blood flow, to this part of the brain. Because unconjugated bilirubin is a neurotoxin, irreversible nervous system damage can occur with elevated unconjugated bilirubin levels. The acute manifestations of BIND are referred to as acute bilirubin encephalopathy (ABE), whereas the term “kernicterus” is the term used to refer to the chronic, irreversible neurologic damage.

Three separate phases of bilirubin neurotoxicity are described. The first occurs on day one to two and is characterized by poor feeding, low tone and lethargy. Late in the first week, the second stage appears with the infant developing increased tone and opisthotonus (arching due to spasm of spinal muscles), along with fever and a high-pitched cry. Seizures may also be
Newborns are also at increased risk of hyperbilirubinemia. This process is known as enterohepatic circulation. The intestinal epithelia and return to the vascular system. Irreversible effects such as sensorineural hearing loss and cerebral palsy are imminent once the infant progresses to phase three.  

**Metabolism**

The metabolism of bilirubin is fundamental in understanding the pathophysiology of hyperbilirubinemia. Bilirubin is a product of heme breakdown. Heme oxygenase catalyzes the conversion of heme to biliverdin with carbon monoxide (CO) excreted as a by-product. Biliverdin is subsequently converted to bilirubin via biliverdin reductase. Newborn infants have a much larger amount of bilirubin production due to an elevated hematocrit (50-60 percent) and fetal red blood cell life span of just 85-90 days, in comparison to 120-day life span of an adult red blood cell.

Once released from heme, free bilirubin then binds to albumin in the circulation and is transported to the liver. Conjugation occurs in the hepatocyte via the enzyme uridine diphosphoglucuronate glucuronosyltransferase (UGT). Conjugated bilirubin, which is more water-soluble than unconjugated bilirubin, is excreted into the bile and subsequently, the intestine. Conjugated bilirubin cannot be absorbed through the intestinal epithelia. Bacterial enzymes in the adult reduce the conjugated bilirubin to urobilin, which is then excreted. Because newborns have sterile intestinal tracts, bacterial enzymes do not metabolize the bilirubin. Instead, beta-glucuronidase, an enzyme in the intestinal mucosa, deconjugates the bilirubin, which allows it to be absorbed by the intestinal epithelia and return to the vascular system. This process is known as enterohepatic circulation.

Newborns are also at increased risk of hyperbilirubinemia due to diminished clearance. This is predominantly due to decreased activity of the hepatic conjugating enzyme, UGT, in the neonatal period. In the first week of life, UGT activity of term infants is 1 percent of adult liver and does not reach that of the adult liver until 3 months of age. 

**Neonatal Hyperbilirubinemia – Physiologic**

Non-pathologic, or physiologic, hyperbilirubinemia often resolves after the first week of life. Total bilirubin (TB) levels usually peak at 7-9 mg/dl in the Caucasian and African-American term infant at day of life 2-4. Many factors contribute to physiologic bilirubin levels including gestational age, race, genetic factors, and enteral feedings. Premature infants are at greater risk for hyperbilirubinemia due to delayed induction of UGT. The bilirubin levels peak at day of life 3-5 in infants born at 35-37 weeks gestation and even later for more premature infants. Asian infants are at increased risk of hyperbilirubinemia due to genetic variations in conjugating ability. Polymorphisms in the UGT gene in Asian infants are associated with decreased conjugating activity and thus, an increase in unconjugated bilirubin levels.

**Breastfeeding vs. Breast Milk Jaundice**

Infants who consume breast milk are likely to have bilirubin levels that exceed those of formula-fed infants and are at greater risk for severe hyperbilirubinemia. Breastfed infants have higher bilirubin levels in the first several days of life, which can persist for several weeks. Breastfeeding jaundice is a separate entity from breast milk jaundice. Infants who develop breastfeeding jaundice, also referred to as breastfeeding failure jaundice, have jaundice that appears in the first week of life and is due to either inadequate milk production or inadequate transfer of breast milk to the infant. This can result in dehydration with excessive loss of weight, as well as hypernatremia with serum sodium levels greater than 150 mEq/L. Breast milk jaundice is caused by an unknown factor in maternal milk, which results in deconjugation of bilirubin in the intestine. Beta-glucuronidase may be the enzyme, which causes this deconjugation, as 20-40 percent of women have significant levels of this enzyme in their breast milk.

**Pathologic Hyperbilirubinemia**

Pathologic hyperbilirubinemia can be categorized according to increased production, decreased clearance, and increased enterohepatic circulation. Infants with blood type incompatibilities (ABO or Rh (D)) have elevated bilirubin levels due to antibody-mediated red blood cell hemolysis. Less common causes of hemolysis include hereditary red blood cell membrane and enzyme defects such as hereditary spherocytosis and glucose-6-phosphate dehydrogenase (G6PD) deficiency. Sepsis may also result in hemolysis although the mechanism is not fully understood.

As mentioned previously, defects in the gene that codes for UGT activity, UGT1A1, impairs the conjugation, and thus, the clearance of bilirubin. Examples of this are Crigler-Najjar syndrome and Gilbert syndrome. There are two variants of Crigler-Najjar syndrome, type I and type II. In type I, the enzyme activity of UGT is absent resulting in a life-long need for phototherapy. Liver transplant is the only other option to avoid the effects of severe hyperbilirubinemia. In Crigler-Najjar type II, UGT activity is present, although in substantially lower amounts that normal. The hyperbilirubinemia in Crigler-Najjar type II frequently responds to phenobarbital therapy.

Infants born with Gilbert syndrome have a mutation in
the UGT1A1 gene that results in diminished amounts of UGT and impaired conjugation in affected infants. These infants have markedly elevated bilirubin levels when paired with an additional risk factor such as G6PD.7

Breast milk jaundice, breastfeeding jaundice, and intestinal obstruction all result in an increase in enterohepatic circulation.

**Risk Assessment**

Each newborn requires a formal risk assessment for hyperbilirubinemia prior to discharge from the birth hospital. These recommendations have been published by the AAP Subcommittee on Hyperbilirubinemia, and include the recommendation of a pre-discharge measurement of bilirubin and assessment of the risk zone based on the infant’s age in hours.8 The two strongest risk factors, which correlate with hyperbilirubinemia include younger gestational age and exclusive breastfeeding. Other risk factors include clinical jaundice noticed in the first 24 hours, hemolytic disease, a previous sibling with jaundice requiring phototherapy, cephalohematoma, and Asian race.9 Most infants require follow up within 48 hours if the infant is less than 72 hours old at hospital discharge.

**Methods to Evaluate**

Clinical observation is not a reliable predictor in detecting bilirubin levels.9,10 Use of total serum bilirubin levels or transcutaneous bilirubin (TcB) levels are used frequently in determining bilirubin levels in infants, which can then be plotted on the Bhutani graph to assess severity of bilirubin with regard to time. TcB devices are used to estimate TB through multi-wavelength reflectance on the skin but may not be reliable in darkly pigmented infants and those undergoing phototherapy.11 TcB devices are less reliable at high bilirubin levels and should be confirmed with a serum TB determined in the laboratory if results are greater than 15 mg/dl.12 Because the byproducts of heme catabolism are biliverdin and CO, CO detectors have been used to identify elevated levels of CO in infants who also have elevated bilirubin levels. The use of end-tidal carbon monoxide concentration corrected for ambient CO (ETCCOc) detectors are not currently in widespread use.

Some physicians use the bilirubin/albumin ratio to determine which infants are at highest risk for bilirubin neurotoxicity as unbound bilirubin freely crosses the blood brain barrier. Ideally, laboratory testing would be available to determine the unbound portion of bilirubin, but it is not. As a proxy, the ratio of bilirubin to albumin (B/A) guides the clinician in management decisions and is used with TB levels to determine which infants require exchange transfusion. Premature infants are at greater risk of unbound bilirubin (high B/A ratios) due to a lower serum albumin concentration. Septic infants are at risk of acidosis, which results in reduced binding of bilirubin.13 Those infants receiving the medication Ceftriaxone, or any medications from the sulfa class, are also at higher risk of hyperbilirubinemia due to these medications displacing bilirubin from albumin.

**Additional Evaluation**

Infants at high risk of hyperbilirubinemia may require additional laboratory testing. For example, infants with hemolysis due to ABO incompatibility should have a complete blood count, blood type and direct Coomb’s test, reticulocyte count, and a peripheral smear performed. Infants with hyperbilirubinemia should also have a conjugated bilirubin level obtained as levels greater than 20 percent of the total bilirubin are abnormal and require further evaluation as this may signify biliary obstruction.

**Treatment**

Ensuring mothers are successful at breastfeeding is a first step in preventing severe hyperbilirubinemia. In the first days of life, newborns should breastfeed eight to 12 times per 24-hour period. Lactation consultation and nursing support should be readily available in the hospital prior to discharge and accessible for follow up after discharge. In follow up with the primary medical doctor, an assessment of weight, voiding and stooling patterns as well as feeding schedules will help determine if the intake is appropriate.

For those infants with elevated bilirubin levels not requiring exchange transfusion, phototherapy has been the popular choice since the 1970s. Phototherapy has also reduced the risk of bilirubin reaching a level, which requires exchange transfusion. Phototherapy, with wavelengths in the blue-green range (460-490 nm), works predominantly by structural isomerization, whereby bilirubin is changed to a more water-soluble compound, lumarubin. Lumarubin is then excreted in urine and bile and does not require conjugation in the liver. Irradiance is the key factor in phototherapy, with doses of greater than 30 microW/cm²/nm, considered intensive phototherapy. Available light sources include fluorescent blue light, halogen white light, fiberoptic blankets, and blue LED lights. Fluorescent blue lights are preferred as they deliver light in the blue-green spectrum, which is best absorbed by the skin. It is also critical to expose as much of the infant as possible so the phototherapy can reach the skin surface. Use of goggles to cover the infant’s eyes is required to prevent damage to the retina. There have not been studies documenting the effects of phototherapy on the newborn’s eyes, but data have demonstrated retinal degeneration in animals with 24 hours of exposure.14 Infants may continue breastfeeding during phototherapy.
However, if the bilirubin levels are approaching exchange transfusion levels, continuous phototherapy and nil per os (NPO) status is appropriate. Some providers may decide to replace human milk feedings with formula for the infant with severe hyperbilirubinemia to decrease enterohepatic circulation. If breastfeeding is interrupted, or formula feedings are instituted, attempts should be made to resume human milk feedings as soon as possible.

Phototherapy has been used for decades and with very few side effects. Infrequently, an erythematous rash may appear on the skin of infants undergoing phototherapy. Infants also experience an increase in insensible water loss and we frequently observe hyperthermia in term babies receiving phototherapy. Determination of the conjugated portion of the bilirubin is necessary when using phototherapy, as phototherapy use on an infant with an elevated conjugated bilirubin will result in “bronze baby syndrome” where the skin of the infant becomes dark brown. The etiology of this is unknown but may be due to deposition of copper-porphyrin photo-byproducts in the skin. Once phototherapy has been discontinued, the bronze-colored skin will return to normal color over several weeks.

Use of sunlight in lowering bilirubin levels is not recommended as it is difficult to determine what duration of sunlight will be necessary to lower the bilirubin level. This also places the infant at high risk of skin damage by too much sun exposure.

Those infants who have hyperbilirubinemia requiring treatment and have also lost greater than 10 percent of their birth weight should be considered for intravenous fluid replacement. Initially, intravenous fluid boluses may be appropriate as well. We often use normal saline or 5 percent albumin in 10 ml/kg bolus amounts.

Treatment with intravenous immunoglobulin (IVIG) decreases the need for an exchange transfusion in infants with hemolysis and rising bilirubin levels despite the use of intensive phototherapy. IVIG is thought to block red blood cell antibody receptors. We typically administer a dose of 1 gram/kg over four hours and repeat in 12 hours if necessary.

**Exchange transfusion**

A double volume exchange transfusion (DVE) is the preferred procedure for lowering bilirubin levels emergently. A DVE replaces the infant’s red blood cells with cross-matched reconstituted blood. DVE usually reduces the TB by 50 percent. The indications for a double volume exchange transfusion include infants with potentially toxic bilirubin levels despite maximal phototherapy and hydration, premature infants with elevated bilirubin levels who are septic (as these infants are more likely to experience a delay in enteral feeds, which increases the enterohepatic circulation of bilirubin), or those infants showing signs of encephalopathy secondary to acute hyperbilirubinemia. A DVE should only be performed by medical professionals trained in the procedure since there is a significant risk for complications.

**Conclusion**

Because hyperbilirubinemia is common in newborn infants, providers need to be cognizant of those infants at highest risk for severely elevated bilirubin, increasing their risk of acquiring permanent neurologic sequelae from deposition of unconjugated bilirubin in the CNS. Each infant deserves a TB measurement and a formal assessment prior to discharge from the newborn nursery to determine risks of severe hyperbilirubinemia. Plotting bilirubin levels on the Bhutani nomogram identifies each infant’s risk of severe hyperbilirubinemia in a time-dependent fashion. Understanding the risk factors for severe hyperbilirubinemia, as stated in Table 2, alerts the provider to those infants requiring closer follow-up.

Infants, who experience increasing bilirubin levels despite use of phototherapy, are candidates for transport to a neonatal intensive care unit (NICU) as additional therapies may be necessary. The risks of permanent disability are

### TABLE 1. Risk Factors for Development of Severe Hyperbilirubinemia in Infants of 35 or More Weeks’ Gestation (in Approximate Order of Importance)

<table>
<thead>
<tr>
<th>Major Risk Factors</th>
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<tbody>
<tr>
<td><strong>Predischarge TSB or TcB level in the high-risk zone</strong> (Figure 1)</td>
</tr>
<tr>
<td><strong>Jaundice observed in the first 24 hours</strong></td>
</tr>
<tr>
<td><strong>Blood group incompatibility with positive direct antiglobulin test, other known hemolytic disease (e.g., G6PD deficiency)</strong></td>
</tr>
<tr>
<td><strong>Gestational age 35-36 weeks</strong></td>
</tr>
<tr>
<td><strong>Previous sibling received phototherapy</strong></td>
</tr>
<tr>
<td><strong>Cephalohematoma or significant bruising</strong></td>
</tr>
<tr>
<td><strong>Exclusive breastfeeding, particularly if nursing is not going well and weight loss is excessive</strong></td>
</tr>
<tr>
<td><strong>East Asian race</strong></td>
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</tbody>
</table>

<table>
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<tr>
<th>Minor Risk Factors</th>
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<tbody>
<tr>
<td><strong>Predischarge TSB or TcB level in the high intermediate-risk zone</strong></td>
</tr>
<tr>
<td><strong>Gestational age 37-38 weeks</strong></td>
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<tr>
<td><strong>Jaundice observed before discharge</strong></td>
</tr>
<tr>
<td><strong>Previous sibling with jaundice</strong></td>
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<tr>
<td><strong>Macrosomic infant of a diabetic mother</strong></td>
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<tr>
<td><strong>Maternal age 25</strong></td>
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<tr>
<td><strong>Male gender</strong></td>
</tr>
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*AAP Subcommittee on Hyperbilirubinemia 2004; aap.org*
likely to develop as the serum bilirubin concentration rises to 25-30 mg/dl. However, at our institution we recommend transfer to a NICU as the serum bilirubin approaches 20 mg/dl in an infant being treated with phototherapy, so that we have adequate time to put in place those therapies, such as exchange transfusion, which may require hours to prepare.

*Reference to hyperbilirubinemia treatments and protocols refer to the standards at the Boekelheide Neonatal Intensive Care Unit at Sanford Children's Hospital, Sioux Falls.

REFERENCES


Please note: Due to limited space, we are unable to list all references. You may contact South Dakota Medicine at 605.336.1965 for a complete listing.

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Here are the details.

From 2008 to 2013, SD QuitLine coaching participants had the option of self-selecting a cessation medication (Chantix or Zyban) or product (nicotine replacement therapy-NRT), if interested.

To determine the effectiveness of these services, a follow-up telephone survey was conducted 7 months after enrollment. Survey participants were asked if they had used tobacco in the past 30 days.

A total of 16,138 callers were reached and answered questions related to current tobacco use and use of a cessation product or medication in their effort to quit. QuitLine callers who responded to the survey were quite successful at quitting, with nearly one-half (46.2%) reporting no tobacco use. The majority had selected to use Chantix (59%), followed by NRT (27%), Zyban (6%), and no medication (5%).

The common factor shared between groups that selected various cessation medications or products was the coaching received.

Less than 10% variability in the quit rate (30 dpp) existed between the different types of medications, NRT, or coaching only (range 41.7% to 49.7%).

Coaching plus Chantix and coaching plus Zyban were at the top of the range, and coaching plus NRT and coaching alone were on the lower end.
In the recently updated American Academy of Pediatrics Clinical Practice Guidelines for bronchiolitis, the use of bronchodilators is no longer recommended. In the previous guidelines published in 2006, the recommendations were not as strong, and stated to avoid bronchodilators in the management of bronchiolitis, but gave the option of a monitored trial of alpha-adrenergic or beta-adrenergic medications. The 2006 guidelines also stated that bronchodilators should be continued in those with a positive objective response. Even with this recommendation from the 2006 guidelines, the utilization of bronchodilators, specifically albuterol and racemic epinephrine, has remained a common practice. Since acute bronchiolitis is the most common lower respiratory infection and the leading cause of hospitalization in infants, understanding the evidence-based management of this infection is crucial. Historically, evidence to support bronchodilator use was controversial, with some studies showing a benefit and others showing no benefit. What evidence resulted in the latest strong recommendation? This article will examine the new evidence available for the use of bronchodilators in bronchiolitis.

Because acute bronchiolitis is the most common lower respiratory tract infection and the leading cause of hospitalization of infants, it is one of the most expensive diseases in hospitalized patients. It is estimated that bronchiolitis costs more than $500 million annually and these costs appear to be increasing. Despite finding a decrease in bronchiolitis hospitalizations, this increase is thought to be due to increased use of mechanical ventilation and an increase in average hospital charge per case-day. Respiratory syncytial virus is the most common infectious cause and leads to airway inflammation, accumulation of debris, and narrowed airways leading to blocked passage of air. Common signs and symptoms associated with bronchiolitis include increased mucous production, fever, rhinitis, cough, tachypnea, wheezing, and rhales. Bronchodilators are often used in this infection due to their mechanism of widening the air passages and relaxing the bronchial smooth muscle. However, since the etiology of wheezing is different than in asthmatics, bronchodilators are less likely to be effective.

The effect of bronchodilators on hospital length of stay (LOS) has been investigated in various studies. Florin et al. examined the variation in the management of bronchiolitis and the utilization of resources generally not recommended for routine use by the 2006 AAP bronchiolitis guidelines. This study looked explicitly at the use of chest radiography, albuterol, racemic epinephrine, systemic corticosteroids, and antibiotics. Compared to placebo, both albuterol and racemic epinephrine resulted in a longer hospital LOS. Specifically, albuterol was associated with an additional 0.59 days in average LOS compared to placebo. Racemic epinephrine was associated with an additional 0.76 days in average LOS compared to placebo. Similarly, Gadomski and Scribani reported on bronchodilator effect on hospital LOS. However, in this analysis, there was no difference in hospital LOS with bronchodilators compared to placebo. Frequently, the main goal of treatment while hospitalized is to shorten LOS in order to decrease overall healthcare costs. Therefore, in this sense, if bronchodilators either increase or have no effect on LOS, use of these agents seems potentially counterproductive.

Various other parameters have been evaluated with the use of bronchodilators. In addition to hospital LOS, Florin et al. looked at readmission rates associated with the use of the two bronchodilators. Neither albuterol nor racemic epinephrine had an effect on readmission at three, seven, or fourteen days post discharge. Gadomski and Scribani also looked for differences in oxygen saturation, clinical scores, need for hospitalization, time to resolution of disease, and pulmonary function tests with bronchodilators. Bronchodilators did not have any effect on improvement of oxygen saturation measured by pulse oximetry. In fact, decreased oxygen saturation was reported as a statistically significant adverse effect. Likewise, bronchodilators were shown to lack any effect on rates of admission to the hospital or time to resolution of symptoms. Yet, not all findings were negative. Gadomski and Scribani showed that bronchodilators helped improve clinical scores to a greater extent than placebo using the Respiratory Distress Assessment Instrument and the Respiratory Assessment Change Score. However, this improvement was thought
to be clinically insignificant. While bronchodilators improved clinical scores, their use seems to have no effect on symptoms or disease resolution.

The use of bronchodilators is no longer recommended in the treatment of bronchiolitis. Despite improvement in clinical scores, bronchodilators lacked benefit in more important areas of therapy. One study showed that bronchodilators were associated with an increased LOS while the systematic review showed that bronchodilators had no effect on hospital LOS compared to placebo. When it comes to hospitalization, treatment that does not aid in shortening LOS may be disregarded. Additionally, bronchodilators had no difference in effect on rates of admission, readmission, oxygen saturation, or time to resolution of bronchiolitis. At this time, published evidence for the use of bronchodilators in bronchiolitis appears only to expose patients to drug related adverse events and increase healthcare costs.

**REFERENCES**


**About the Author:**

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Kristina Peterson, PharmD, PGY1 Pharmacy Resident, Rapid City Regional Hospital.
Similar to a physician assistant, a certified nurse practitioner (CNP) is a health professional who may, with appropriate licensure, collaboration and compliance with other legal and ethical requirements, provide certain types of direct patient care. In order to practice in South Dakota as a CNP, the person must be licensed by the South Dakota Board of Medical and Osteopathic Examiners (SDBMOE) and by the South Dakota Board of Nursing (SDBON) and have in place a written Collaborative Agreement approved by both the SDBMOE and the SDBON.

In order to be licensed as a CNP, the person must be licensed by the SDBON as a registered nurse, complete a training program approved by both the SDBMOE and the SDBON, and pass any examinations which the SDBMOE and SDBON may require. Applicants must also submit to a criminal background check.

There must also exist a written collaborative agreement between the CNP and a collaborating physician. For the purposes of a collaborative agreement, the term “collaboration” means “the act of communicating pertinent information or consulting with a [licensed physician], with each provider contributing their respective expertise to optimize the overall care provided to the patient.” The collaborative agreement must be approved by both the SDBMOE and SDBON and must include the following:

1. A definition or description of the overlapping advanced nursing practice and medical functions permitted to be performed by the CNP;
2. A description of the manner and level of communication between the CNP and the collaborating physician; and
3. Such other information as the SDBMOE and SDBON may require.

Changes to the scope of practice or other terms of the collaborative agreement must be submitted to the SDBMOE and SDBON and approved before the changes take effect.

Of note that the SDBMOE and SDBON have joint jurisdiction over the regulation of CNPs and therefore, both boards must concur as to all regulatory matters, including the approval of collaborative agreements.

Assuming it is within the terms of the collaborative agreement and the CNP’s professional skill level, the CNP may perform initial diagnosis and formulation of a plan of treatment or referral, prescribe medication, complete and sign official documents such as birth and death certificates, take X-rays, and perform athletic physicals. The CNP should not provide any treatment which is beyond the scope of the CNP’s area of expertise or which cannot safely be undertaken by the CNP. It is recommended that a physician not collaborate on matters which are beyond the nature of the collaborating physician’s practice or area of expertise.

The collaborating physician and CNP must meet in person at least twice a month, provided, however, that the SDBOME and SDBON may if they deem it appropriate instead substitute a phone meeting for one of the monthly in-person meetings. If the CNP’s practice location is remote from that of the collaborating physician, an on-site visit to the CNP’s practice location is required as directed by SDBOME and SDBON, but in any event at least once every 90 days. If the CNP has more than one practice location, the collaborating physician must conduct an on-site visit at each location; this requirement does not apply to special or occasional practice locations such as patient homes and school health screening events.

In order to qualify as a collaborating physician, the person must be licensed as a physician and maintain the written collaborative agreement. A collaborating physician may collaborate with as many CNPs as the SDBMOE and SDBON will allow, up to a maximum of four full-time equivalents. One or more CNPs may collaborate with two or more collaborating physicians.

As a matter of good patient care and to limit exposure to malpractice and other liability claims, it is recommended that the collaborating physician and CNP should jointly develop and agree upon the terms of treatment protocols and guidelines that include the duties and responsibilities of the CNP and care the CNP may and may not provide under the collaborative agreement. The protocols should be signed and dated by both the collaborating physician and CNP and copies kept in the offices of both the collaborating physician and the CNP. The protocols and guidelines should be reviewed, updated, and re-signed periodically.

A collaborating physician should conduct periodic patient chart reviews and maintain a log of the charts that have been reviewed. It is also strongly recommended that the collaborating physician make appropriate arrangements for insurance covering the potential liability of both the physician and the CNP.
Special Features

In Memoriam 2014

Honoring physician members of the SDSMA who passed away in 2014

G. Robert Bell, MD
Thomas M. Braithwaite, MD
Kennon E. Broadhurst, MD
James H. DeGeest, MD

H. Phil Gross, MD
Edward H. James, MD
Robert K. Johnson, MD
Joseph Kass, MD

Paul R. Leon, MD
Warren L. Opheim, MD
David Seaman, MD
Gregg M. Tobin, MD

John C. Vidaloff, MD
Karl H. Wegner, MD
Dylan L. Yu, MD
The Interstate Medical Licensure Compact: What Physicians Should Know

What is the Interstate Medical Licensure Compact?
The compact would be a new pathway to expedite and simplify physician licensing for those seeking to practice medicine in multiple states. The compact would strengthen public protection because it would help states share investigative and disciplinary information.

The proposal could:
- Increase health care access for underserved or rural areas; and
- Allow medical expert consult by telemedicine technologies.

Is the Interstate Compact a national license?
No. Each license to practice medicine will be issued by a state medical board and physicians must be licensed in the state where the patient is located. A licensed obtained through the expedited procedure will provide the same

Can a physician ineligible to participate in the Compact still obtain multiple licenses?
Yes. Physicians who are ineligible for the expedited licensure process facilitated by the Interstate Compact may seek additional licenses in those states where they desire to practice and will apply through the respective traditional licensure processes.

Who is eligible to seek licensure through the Compact process?
To be eligible, a physician would have to possess a full and unrestricted license in a member state, be board certified in a medical specialty and have no history of being disciplined, penalized or punished by a court, a medical licensing agency or the Drug Enforcement Administration. Initial surveys estimate that nearly 80 percent of the physician population licensed in the U.S. would be eligible for expedited licensure.

How do I apply for expedited licensure?
An eligible physician would designate a member state as the state of principal licensure and select the other member states in which a medical license is desired. The state of principal licensure will verify the physician’s eligibility and provide credential information to the Interstate Commission. The Interstate Commission will collect applicable fees and transmit the physician’s information and licensure fees to the additional states. Upon receipt in the additional states, the physician would be granted a license.

What state can serve as the state of principal licensure?
The physician must possess a full and unrestricted license to practice medicine in the state of principal licensure, and the state must be:
- The state of primary residence for the physician, or
- The state where at least 25 percent of the practice of medicine occurs, or
- The location of the physician’s employer, or
- If no state qualifies, the state designated as state of residence for purpose of federal income tax.

How long will it take for me to be licensed in other states?
The compact will substantially reduce the time it takes to receive multiple licenses. As soon as eligibility is verified and fees are transferred, additionally selected states will issue a full and unrestricted license to the physician.

Will the Compact be used for renewing licenses?
As long as a physician remains eligible for the Compact, expedited licenses granted by a member state will be renewed through a process created by the Interstate Commission.

Where can I learn more about the Interstate Compact?
http://www/fsmb.org/state-medical-boards/interstate-model-compact/

Support from the U.S. Senate
In a letter sent Jan. 9 to the Federation of State Medical Boards (FSMB), a bipartisan group of 16 U.S. senators applauded the progress being made by the state medical boards in the development of an Interstate Medical Licensure Compact.

In the letter, the senators noted that the proposed compact system retains important patient-protection advantages of the current state-based medical licensing process. “We agree that allowing states to share information while allowing each state to retain jurisdiction over physicians who choose to practice in the state is in the best interest of both physicians and patients,” the letter said. The senators noted that the new expedited licensure system would help ensure telemedicine is practiced in a “safe and accountable manner.”

The letter was signed by: John Thune (R-SD), Michael Enzi (R-WY), Lamar Alexander (R-TN), John Barrasso (R-WY), Roy Blunt (R-MO), John Boozman (R-AR), Tom Carper (D-DE), Tom Coburn (R-OK), Thad Cochran (R-MS), Al Franken (D-MN), James Inhofe (R-OK), Johnny Isakson (R-GA), Tim Johnson (D-SD), Amy Klobuchar (D-MN), John D. Rockefeller IV (D-WV), and Mark Warner (D-VA).

SDBMOE Board News is a monthly bulletin from the South Dakota Board of Medical and Osteopathic Examiners. For more information, contact the Board at SDBMOE@state.sd.us or write to SDBMOE, 101 N. Main Avenue, Suite 501, Sioux Falls, SD 57104.

January 2015 33
Cervical cancer is preventable

More than 12,000 women get cervical cancer every year. Up to 93% of cervical cancers are preventable. Human papillomavirus (HPV) vaccination helps prevent infection with the HPV types that cause most cervical cancers. The Papanicolaou (Pap) test screens for abnormal cells that may develop into cancer and the HPV test screens for the HPV virus that causes these cell changes. Even though screening works, 10% of women in the US in 2012 reported they had not been screened in the last 5 years. Every visit to doctors and nurses is an opportunity to discuss cervical cancer prevention. No woman should die of cervical cancer.

Doctors, nurses, and health systems can:
- Help women understand what screening tests are best for them and when they should get screened.
- Screen or refer all women as recommended at any visit.
- Make sure patients get their screening results and the right follow-up care quickly.
- Use reminder-recall systems to help doctors, nurses, and patients remember when screening and HPV vaccination are due.
- Strongly recommend that preteens and teens get vaccinated against HPV.

See page 4

Want to learn more? Visit

[www.cdc.gov/vitalsigns](http://www.cdc.gov/vitalsigns)
Problem

Too many women have not been screened.

To prevent more deaths, screening efforts must continue.

◊ Widespread use of the Pap test led to dramatic declines in deaths from cervical cancer. Deaths from cervical cancer did not continue to decrease in the US from 2007 to 2011.

◊ The percentage of women screened decreased slightly from 2008 to 2010.

The HPV vaccine can reduce risk of cervical cancer.

◊ HPV causes most cervical cancers.

◊ Only 1 in 3 girls and 1 in 7 boys had received the recommended 3 doses of the HPV vaccine in 2013.

◊ Adolescents are not getting HPV vaccination as often as other recommended vaccines, even though it is safe and effective.

Almost there: fewer missed opportunities can help get women ages 21 to 65 screened.

◊ More than 50% of all new cervical cancers are in women who have never been screened or have not been screened in the previous 5 years of their lives.

◊ About 7 in 10 women who have not been screened in the last 5 years have a regular doctor and had health insurance.

Missed opportunities for cervical cancer screening

In 2012, 8 million women were not screened in the last 5 years.

7 out of 10 women who were not screened had a regular doctor and health insurance.


How HPV infection can lead to cervical cancer

It could take years to decades

<table>
<thead>
<tr>
<th>Normal cervical cells</th>
<th>HPV infection (Most infections do not turn into precancers)</th>
<th>Precancers (May still go back to normal)</th>
<th>Cervical cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccination opportunity</td>
<td>11-12 years old</td>
<td>Screening opportunities</td>
<td>21-65 years old</td>
</tr>
</tbody>
</table>

No woman should die of cervical cancer
Screening leads to fewer deaths

We can do better.

Current vaccination and screening recommendations

Use HPV Vaccination
Vaccinate both girls and boys ages 11 to 12 against HPV
- Girls and boys have the best protection when they receive all doses as recommended before they are exposed to HPV.
- Girls ages 13-26 and boys ages 13-21 should get the vaccine if they have not received it already.

Screen Women for Cervical Cancer
Use Pap tests every 3 years for women ages 21-29
- Doctors or nurses collect cells for the Pap test during an exam.
- The Pap test can find abnormal cells that may develop into cancer, if left untreated.

Choose 1 of 2 options for women ages 30-65
Doctor and patient decide together which screening approach is preferred:
1) Pap test every 3 years, or;
2) Pap test plus HPV test every 5 years. The HPV test can find the HPV virus by testing cells collected at the same time as a Pap test.


Women should get screened as recommended. More frequent screening does not provide more protection.
Some women may need a different screening schedule because of their health history.
Women over age 65 should ask their doctor if they need to continue screening.
Women should talk with their doctors and nurses to understand their screening results.
Women who had the HPV vaccine should still start getting screened when they reach age 21.
What Can Be Done

Federal government is

◊ Through the Affordable Care Act:
  ■ Ensuring that most health plans cover cervical cancer screening as recommended at no additional cost to the patient.
  ■ Ensuring that most health plans cover HPV vaccination as recommended for males and females at no additional cost to the patient.
  ■ Helping people sign up for insurance coverage offered in the Health Insurance Marketplace.
  ■ Investing in community health centers to expand women’s access to health care services.

◊ Increasing access to immunizations through the Vaccines for Children (VFC) program.
  www.cdc.gov/vaccines/programs/vfc/index.html

◊ Supporting federal programs that increase cervical cancer screening rates.
  www.cdc.gov/cancer/nbcedp/
  www.hhs.gov/opa/title-x-family-planning/

Women can

◊ Learn about screening options and get the test that is right for them and follow-up on any abnormal results.

◊ Encourage other women to be screened for cervical cancer.

◊ Contact their local health department to learn how they can get screened for cervical cancer.
  apps.nccd.cdc.gov/dcpc_programs/

◊ Use every health care visit to ask if it’s time to get screened.

◊ Get their sons and daughters vaccinated against HPV as recommended.
  www.cdc.gov/vaccines/teen

State and local public health can

◊ Encourage women to get screened by working with state Medicaid programs, community health centers, and community-based groups.

◊ Help women get screened, get medical appointments, and get treated as needed.

◊ Promote reminder-recall systems for screening and HPV vaccination.

◊ Promote recommended screening options and HPV vaccines to the public.

Doctors, nurses, and health systems can

◊ Help women understand which screening tests are best for them and when to get them.

◊ Screen or refer all women as recommended at any visit.

◊ Make sure patients get their screening results and the right follow-up care quickly.

◊ Use reminder-recall systems to help doctors, nurses, and patients remember when screening and HPV vaccination are due.

◊ Strongly recommend that preteens and teens get vaccinated against HPV.
  www.cdc.gov/vaccines/youarethekey

For more information, please contact
Telephone: 1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348
Web: www.cdc.gov
Centers for Disease Control and Prevention
1600 Clifton Road NE, Atlanta, GA 30333
Publication date: 11/05/2014

a public health message from the SOUTH DAKOTA DEPARTMENT OF HEALTH
The other day I heard a radio story on the troubles associated with under-exercising, and then in the same report the author pointed to the dangers of over-use injury. Of course the conclusion to the story was to find a Goldilocks balance: not too little, not too much, just the right amount of exercise every day.

I Googled the word “balance” and ran into philosophical advice about simplifying one’s life, spending less time online, respecting one’s body and organizing time commitments. Another advised intense listening to one’s body, to nature, to others, to one’s inner spiritual chakra. Boy! That was a lot for an early morning writing exercise about balance, and it made me ask for another cup of coffee.

But there is something to this finding balance. I believe care providers should do less prescribing medicines, and do more encouraging balanced physical activity in people of all ages. Not only would there be less falling and fractures in the elderly, but emotional, spiritual, as well as physical balance would follow. Finding the right exercise prescription is a challenge, however.

More than one middle aged person has started out too fast, in running for example, resulting in a hamstring injury, and/or plantar fasciitis, which takes her or him out of doing any exercise for months and then years. Over-doing exercise programs can end up doing more harm than good.

More than one middle aged person has grown bored of sitting on a stationary bike and has found every excuse to put that off. It works for some, but too often that bike becomes a clothes drying device in the laundry room, and ends up on a yard sale. Discouraged, these well-meaning people too often do not try exercise again. Under-committed exercise programs can end up doing more harm than good.

The best exercise is balanced: not too much, not too little, but just the right amount every day. We need more bike or walk-to-work or school programs that get people of all ages moving; more group sport activities that include bunches of kids with lots of action; more coffee-klatches of walkers chatting and savoring the day while the miles roll off; more ways to get moving every day, even through the winter months in a wintry climate.

It should be every person’s daily and lifelong quest to find a way to enjoy physical activity, which in turn brings emotional, spiritual and physical balance.
The Centers for Medicare and Medicaid Services (CMS) currently maintains a number of websites designed to help consumers make decisions about where they get their health care. The Hospital Compare website\(^1\) includes readmission measures, infection rates, patient satisfaction scores, and even cost measures such as Medicare spending per beneficiary. The Nursing Home Compare website\(^2\) has implemented a five-star rating system, and nursing homes are rated on their health inspection results, quality measure performance, and staffing levels.

In 2010, Section 10331 of the Patient Protection and Affordable Care Act (ACA) established the Physician Compare website,\(^3\) which was launched later that year. The website currently functions as a health care provider directory, allowing consumers to search for providers in any town. Information on the website includes:

- Physicians’ and other health care professionals’ names, addresses, phone numbers, specialties, clinical training, and genders;
- If physicians and other health care professionals speak languages other than English;
- The hospitals physicians and other health care professionals are affiliated with;
- If physicians and other health care professionals accept the Medicare-approved amount (patient will not be billed for any more than the Medicare deductible and coinsurance); and
- Group practice information including their location addresses, phone numbers, maps and directions, specialties, as well as a list of physicians and other health care professionals within that practice.

CMS has plans to expand to quality reporting on the Physician Compare website, detailed in the Physician Fee Schedule (PFS) Final Rule fact sheet.\(^4\) Future plans include:

- Million Hearts Initiative participation information;
- Physician Quality Reporting System (PQRS) measures; and

The information available on the Physician Compare website will be increasing over the upcoming years, and I encourage you to review your information that is available to the public. CMS has set up an email for feedback and questions at PhysicianCompare@Westat.com. If you would like to learn more about the website, please visit CMS.gov and search for Physician Compare Overview.

**REFERENCES**

1. [www.medicare.gov/hospitalcompare](http://www.medicare.gov/hospitalcompare)
2. [www.medicare.gov/nursinghomecompare](http://www.medicare.gov/nursinghomecompare)
3. [www.medicare.gov/physiciancompare](http://www.medicare.gov/physiciancompare)
Special Features

DAKOTACARE Update:
2015: The Year of Healthcare Quality

By Jacque Cole, RN, MS, CHC, FNAHQ, FAHM, FHIAS
Director of Compliance and Quality

Happy new year to you and your family! Let this be your notification that you will be hearing much from DAKOTACARE throughout the entire year regarding the quality of the health care you provide to our members. We have entered a time where “big data” is more readily available and analytic systems have advanced to the point where we can much more reliably measure quality parameters which have national/global acceptance as true measures of care. It is imperative we all work together to foster a culture of quality and patient safety, in order to assure the philosophy of continuous quality improvement maintains as a daily (and lifelong) mindset. A key component for your relationship with our company in this area going forward will be “collaboration.” We want to assist you in learning how to measure quality in your practice.

Director of Compliance and Quality Jacque Cole, RN, MS, CHC, FNAHQ, FAHM, FHIAS, will be assisting me throughout the year in authoring/editing this year-long series. Jacque has a longtime commitment to health care quality and recently received the highest recognition of Fellow from the National Association for Healthcare Quality (NAHQ). We are fortunate and proud to have her as an integral part of our team.

As always, please contact me with any questions or thoughts you have regarding the content of these articles. I can be reached at pamundson@dakotacare.com or 605.274.3155.

Make a commitment to take care of yourself in the new year. Hope to see you soon.

– Paul

Part 1: How to Start or Enhance Quality Improvement

With the changes in the health care arena, the expectations associated with quality health care delivery have escalated. All segments involved in the funding of care (private, public, employer, consumers) expect transparency and participation in the national quality measures and a robust quality improvement program. Regardless of size, the federal, state and local oversight agencies and accrediting bodies are auditing for quality measures and improvements.

Throughout 2015, I will be addressing Quality Tools and Measure Activities designed to help with your quality efforts. If you have any questions or have a topic idea, please forward them to me at jacole@dakotacare.com.

As a start, the following elements are vital prior to starting any improvements:

1. Organizational priority – Make sure quality improvement is part of your mission statement and strategic plan. If your organization centers its activities and initiatives on the mission and strategic plan, the integration of quality will be simpler. Embedding into the culture so everyone in the organization bears responsibility creates a positive and motivated culture. Keeping the sight on the philosophy of “how can we do better” maintains the positivity of change.

Nothing is worse than a negative attitude toward changes. It is counterproductive.

2. Non-punitive culture – Nonpunitive structure and leadership must come from the top and permeate down throughout the whole organization. One suggestion is to change the name from “incident” reporting to “opportunity for improvement.” When I hear the term “incident,” I think of the childhood “time-out corner.” There is an automatic defense screen raised. Using the “opportunity for improvement” is the “let’s fix it” attitude. It brings a non-judgmental atmosphere into play.

3. Teamwork – When opportunities arise, the development of a small multidepartment/specialty team helps to promote stronger relationships between departments as well as individuals. The team effort also helps to address any connected processes that might be affected with a change in one area. All of us at one point in time have been on a team where we fixed problem A but the attached processes of B, C and D ended up a disaster. This is not the domino effect you want to happen. This is usually the scenario attached to comments like “We tried that years ago and it didn’t work.”

4. National measures – National standard measures have been designed by the Centers for Medicare and Medicaid
Services (CMS) for all sections of the health care continuum. They utilized the National Quality Forum (NQF) as the central repository for measures. This repository utilizes measures historically recognized as standards and have added additional measures from specialty organizations. Many of the measures are used in more than one section of the healthcare continuum. These measures are now a piece of the reporting requirements of accrediting bodies, third-party payers, government agencies and organizations.

5. Individualized measures – Personalize quality measurements specific to your organization are key to improving your local services. These sets of measures are used to help with internal process changes and service enhancements. They are usually for a shorter period (one to three years) vs. the national measures (somewhat perpetual).

6. Right data elements – Our databases are wonderful warehouses of information. The problem comes when there is so much data deciphering what is usable is muddled. Much of the data is not being used. Only the data used to evaluate the current set of projects are key to your process. The remaining might be used later. The best data is utilized to inform the management to assist in critical decision making and planning.

7. Regular collection and reporting – The only way to improve the quality of our services is by measuring, analyzing and reporting information to an organizational body which has the authority to make decisions and changes. With health care reform, public reporting initiatives are crucial. Justified or not, the public equates lack of participation as a black mark on an organization’s quality of care.

8. Make IT a key partner – Investing in statistical analysis tools and management information systems supporting quality improvement leads to timely information, which is quickly actionable. Make sure all the key clinical and administrative players have regular access to computerized information from all sources (pharmacy, clinical, medical, claims, etc.). The more you have available through your IT resources the more efficient you will be with your efforts. The secret is having the right data.

9. Networks, partnerships, accountable care organizations – A great strategy is to join forces to share experiences and pool resources to facilitate quality improvement activities. In doing collaborative studies and reporting, benchmark information becomes more reflective of your organization and trends and problems for the whole area can be addressed quickly and locally.

10. Subject matter experts – Everyone should take advantage of the assistance available to them. Do not forget to look internally. There is a tendency to look outside of one’s organization rather than looking at those who have a vested interest already in your walls. Numerous external organizations and professional associations can offer expertise along with educational and analysis tools to assist each area of the health care continuum with quality improvement initiatives.
# 2015 South Dakota Legislative Directory

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## SOUTH DAKOTA SENATE
State Capitol, 500 E. Capitol Ave, Pierre, SD 57501

- **President Pro Tempore**
  Sen. Corey Brown (R)

- **Majority Leader**
  Sen. Tim Rave (R)

- **Asst. Majority Leader**
  Sen. Dan Lederman (R)

- **Majority Whips**
  Sen. Ried Holien (R)
  Sen. Ernie Otten (R)
  Sen. Deb Soholt (R)

- **Minority Leader**
  Sen. Billie Sutton (D)

- **Asst. Minority Leader**
  Sen. Troy Heinert (D)

- **Minority Whips**
  Sen. Jim Peterson (D)
  Sen. Scott Parsley (D)

## SOUTH DAKOTA REPRESENTATIVES
State Capitol, 500 E Capitol, Pierre, SD 57501

All representatives can be reached during the Legislative Session by calling the house lobby at 605-773-3851. Email forms can be found at legis.sd.gov.

### Speaker of the House
Rep. Dean Wink (R)

### Speaker Pro Tempore
Rep. Mark Mickelson (R)

### Majority Leader
Rep. Brian Gosch (R)
### 2015 South Dakota Legislative Directory

#### Asst. Majority Leader
Rep. Steve Westra (R)

#### Majority Whips
- Rep. Jim Bolin (R)
- Rep. Don Haggar (R)
- Rep. Kris Langer (R)
- Rep. Mike Stevens (R)

#### Minority Leader
Rep. Spencer Hawley (D)

#### Asst. Minority Leader
Rep. Julie Bartling (D)

#### Minority Whips
- Rep. Paula Hawkes (D)
- Rep. Dean Schrempp (D)

#### Representative | Home | Dist. | Telephone |
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| Latterell, Isaac | Tea | 6 | 605-368-1002 |
| Marty, J. Sam    | Prairie City | 28B | 605-866-4477 |
| May, Elizabeth   | Kyle | 27 | 605-455-2588 |
| McClerey, Steven | Sisseton | 1 | 605-698-7478 |
| Mickelson, G. Mark | Sioux Falls | 13 | 605-371-3365 |
| Munsterman, Scott | Brookings | 7 | 605-691-9930 |
| Novstrup, Al     | Aberdeen | 3 | 605-360-9711 |
| Otten, Herman    | Tea | 6 | 605-498-5460 |
| Partridge, Jeff  | Rapid City | 34 | 605-718-1912 |
| Peterson, Kent   | Salem | 19 | 605-425-3299 |
| Qualm, Lee       | Platte | 21 | 605-337-3682 |
| Rasmussen, Nancy | Hurley | 17 | 605-238-5321 |
| Ring, Ray        | Vermillion | 17 | 605-675-9379 |
| Romkema, Fred    | Spearfish | 31 | 605-722-1432 |
| Rounds, Tim      | Pierre | 24 | 605-224-6588 |
| Rozum, Tona      | Mitchell | 20 | 605-996-2190 |
| Russell, Lance   | Hot Springs | 30 | 605-745-6871 |
| Schafer, James   | Kennebec | 26B | 605-869-2357 |
| Schoenbeck, Lee  | Watertown | 5 | 605-886-0010 |
| Schoenfish, Kyle | Scotland | 19 | 605-660-6468 |
| Schrempp, Dean   | Lantry | 28A | 605-964-6541 |
| Sly, Jacqueline  | Rapid City | 33 | 605-343-4956 |
| Soli, Karen      | Sioux Falls | 15 | 605-338-5934 |
| Solum, Roger     | Watertown | 5 | 605-882-7056 |
| Stalzer, Jim     | Sioux Falls | 11 | 605-838-0354 |
| Stevens, Mike    | Yankton | 18 | 605-661-0057 |
| Tulson, Burt     | Lake Norden | 2 | 605-785-3480 |
| Verchio, Mike    | Hill City | 30 | 605-574-2466 |
| Werner, Dick     | Huron | 22 | 605-353-0957 |
| Westra, Steve    | Sioux Falls | 13 | 605-271-1623 |
| Wiik, John       | Big Stone City | 4 | 605-880-1440 |
| Willadsen, Mark  | Sioux Falls | 11 | 605-361-6104 |
| Wink, Dean       | Howes | 29 | 605-985-5240 |
| Wollman, Matthew | Madison | 8 | 605-480-3038 |
| Zikmund, Larry   | Sioux Falls | 14 | 605-373-0975 |

Listed below are the SDSMA district medical societies and the state legislative districts contained within each medical society.

#### SDSMA District | Legislative Districts
---|---
1 | 1, 2, 3, 23
2 | 2, 4, 5
3 | 4, 7, 8, 22
4 | 23, 24, 26B, 27, 28A
5 | 22, 23
6 | 8, 19, 20, 26B
7 | 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19, 25
8 | 16, 17, 18, 19, 21
9 | 27, 28B, 29, 30, 31, 32, 33, 34, 35
10 | 21, 26A
11 | 23, 28A, 28B
12 | 1, 4
With early diagnosis and medical treatment, complications from serious but uncommon disorders may be prevented. Newborn screenings help identify babies who may have a disorder and alert medical providers for the possible need for further testing and/or special care. Thus, all newborns in South Dakota are required by law to have a blood test shortly after birth to screen for ketonuria, hypothyroidism metabolic and other inherited disorders.

In addition, hospitals and birth centers must screen newborns for congenital heart defects through the use of pulse oximetry. Physicians must inform the parents or guardians of the newborn of the possibility of ophthalmia neonatorum and give advice for the prevention of its development.

For more information, download the SDSMA legal brief Newborn Screening Requirements at www.sdsm.org. Through the SDSMA Center for Physician Resources, the SDSMA develops and delivers programs for members in the area of practice management, leadership and health and wellness.

For Your Benefit:

Shaping Your Profession

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

- SDSMA policy is developed through your representatives on the Council;
- Leadership opportunities on SDSMA committees, task forces and through sections;
- Representation for students, residents, young physicians and senior physicians;
- Low-interest educational loans and scholarships for students and residents;
- Collaborating with the University of South Dakota Sanford School of Medicine on physician workforce and medical education funding;
- Networking with colleagues during SDSMA meetings, conferences, seminars and social events; and
- The SDSMA Annual Meeting offers free CME credit hours, showcases technical and scientific exhibits and presents expert speakers on relevant medical topics.

We want to help nurture your professional development and your personal development. If you have questions about these programs, give us a call at 605.336.1965, or visit our website today at www.sdsm.org. Your membership in SDSMA is of great value to us and we want it to be equally valuable to you.

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.

**Senate Passes Bill to Preserve Rural Access to Therapy Services**

The U.S. Senate has passed legislation that prohibits the Centers for Medicare and Medicaid Services (CMS) from enforcing a regulation that could harm access to therapy services in rural areas.

The extension of the prohibition on enforcement provides additional time for the Protecting Access to Rural Therapy Services (PARTS) Act (S1143), which clarifies that general supervision of outpatient therapeutic services is sufficient for payment of therapeutic hospital outpatient services. The effort was led by Sens. John Thune, Jerry Moran and Jon Tester.

Thune said the legislation will provide rural health care facilities in states like South Dakota with the flexibility needed to continue to deliver quality outpatient therapy services without being subjected to budget-busting workforce regulations.

Outpatient therapeutic services include services such as drug infusions, blood transfusions, and cardiac and pulmonary rehabilitation services. These health care services have always been administered in hospitals under the direction of a physician. However, in its attempt to clarify existing regulations in 2009, CMS retroactively interpreted existing policy in place since 2001 to require a supervising physician be physically present in the department at all times when Medicare beneficiaries receive outpatient therapy services, the majority of which are low risk.

In response to concerns, CMS delayed enforcement of its direct supervision policy from 2009 through 2013 for critical access hospitals (CAHs) and other small, rural hospitals. The PARTS Act was offered as an amendment to the SGR and Medicare Beneficiary Access Improvement Act, which passed by voice vote out of committee last year. The language would permanently prohibit enforcement of this regulation for CAHs.

Source: SDSMA staff

**Newborn Screening Requirements**

With early diagnosis and medical treatment, complications from serious but uncommon disorders may be prevented. Newborn screenings help identify babies who may have a disorder and alert medical providers for the possible need for further testing and/or special care. Thus, all newborns in South Dakota are required by law to have a blood test shortly after birth to screen for ketonuria, hypothyroidism metabolic and other inherited disorders.

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For more information, download the SDSMA legal brief Newborn Screening Requirements at www.sdsm.org. Through the SDSMA Center for Physician Resources, the SDSMA develops and delivers programs for members in the area of practice management, leadership and health and wellness.

Source: SDSMA staff
With the recent release of the 2015 Medicare Physician Fee Schedule final rule, the Centers for Medicare and Medicaid Services (CMS) made it official: funding for independent continuing medical education (CME) will not be subject to reporting under the Physician Payments Sunshine Act as initially proposed by the agency earlier this summer.

CMS proposed modifying the existing rule that excluded from reporting certain independent CME funding by medical device and drug manufacturers in the new “Open Payments” public database. The AMA, SDSMA and dozens of other medical associations in called on CMS to reject the proposed change.

The agency finalized a new rule that excludes from reporting all independent CME. The exception is if the industry selects or pays the CME speaker directly, or suggests speakers to the CME provider. However, the rule does not exempt manufacturers from reporting the financial value of reprints and medical textbooks provided to physicians. The agency does not consider these items to be continuing education.

Eliminating the exemption for payments to speakers at certain accredited or [certified] CME events will create a more consistent reporting requirement and will also be more consistent for consumers who will ultimately have access to the reported data, CMS said about the 2015 fee schedule.

The AMA’s advocacy surrounding the Sunshine Act also has included providing guidance for physicians to review and dispute the data reported about them in the Open Payments database, and educating reporters about the context of the data release.

Source: AMA

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

Nominate a Physician or Supporter for SDSMA Awards!

Nomination for the 2015 SDSMA Awards are now being accepted. Each year the SDSMA recognizes physician members and supporters for their work to improve the practice of medicine in South Dakota by presenting four distinguished awards at the SDSMA Annual Meeting.

Please consider nominating a colleague or supporter who is deserving of recognition for his or her work. They may work right alongside of you, or serve on a committee with you, or volunteer in your organization or community, or maybe they are your mentor. Through these awards, the SDSMA strives to encourage and recognize the highest standards of service, and give recognition to the accomplishments and dedication of our members and supporters to the medical profession and citizens of South Dakota.

The SDSMA is seeking award nominations for the following awards:
- Distinguished Service Award
- Community Service Award
- Young at Heart Award
- Outstanding Young Physician Award
- Media Award

SDSMA members were sent an email with an Awards Nomination Booklet highlighting each of the award categories as well as some of the past recipients along with an Awards Nomination Form. If you did not receive your email and need a nomination form, or if you have questions about the nomination or awards process, contact Laura Olson, Director of Administrative and Member Services, at 605.336.1965 or lolson@sdsm.org.

The deadline for award nominations is Feb. 1. Complete your nomination form today and help your colleagues and supporters get the recognition they deserve!

Source: SDSMA staff
Members of the South Dakota State Medical Association (SDSMA) and the SDSMA Medical Student Section attended the American Medical Association (AMA) Interim Meeting in Dallas Nov. 8-11 with hundreds of others from across the country. The gathering was filled with activities and policy debate that will help shape the future of health care.

Some highlights include the following:

**Regulatory Oversight of e-Cigarettes**
Members of the House of Delegates (HOD) supported regulations that would establish the minimum legal purchase age for e-cigarettes to be 18, place marketing restrictions on manufacturers, and prohibit claims that e-cigarettes are effective tobacco cessation tools.

**Expanded Access to Medicaid**
Delegates voted to support Medicaid expansion and to encourage lawmakers to identify realistic coverage options for adults currently in the coverage gap, even if states choose not to adopt the Medicaid expansion outlined in the Affordable Care Act. Delegates also approved a report that would encourage states not participating in the Medicaid expansion to develop waivers that support expansion plans that best meet the needs and priorities of their state’s low-income adults. The AMA is calling on the Centers for Medicare and Medicaid Services to approve waivers that are consistent with the goals and spirit of expanding insurance coverage.

**ICD-10**
A resolution passed which supports working toward a goal of insurance companies and the federal government reimbursing physicians for the increased costs of ICD-10 coding changes.

**Access to Care for Veterans**
Secretary of Veterans Affairs (VA) Robert A. McDonald presented information on access to care for veterans. The VA is working to right wrongs, reframe perceptions and enhance care for veterans, and it needs the help of physicians, VA Secretary Robert A. McDonald told the HOD. Citing recent access-to-care issues for veterans, McDonald told physicians about the VA’s “blueprint for excellence,” which seeks to improve performance of the VA health care system, reset the VA’s culture to place value on job performance, transition from “sick care” to “health care,” and develop efficient, transparent processes.

**Preservation of Private Practice**
A resolution passed by the HOD reaffirms AMA policy to encourage physicians to maintain their private practices and seek legislation to create waivers for small practices to use non-electronic records to seek legislation to eliminate non-compete clauses for physicians who join hospital groups.

**Ebola**
An update on Ebola was given by the Centers for Disease Control and Prevention regarding how to prepare for and manage Ebola patients in ambulatory care settings. The HOD passed a resolution in support of the formation of an Ebola Resource Center on the AMA website.

**Medicare Vaccinations**
The HOD passed a resolution calling for the AMA to advocate that Medicare cover all vaccinations for seniors recommended by the Advisory Committee on Immunization Practices.

Respectfully submitted by SDSMA delegates to the AMA Herbert A. Saloum, MD, and Mary S. Carpenter, MD
**CME Events**

Continuing Medical Education events which are being held throughout the United States (Category 1 CME credit available as listed)

### January 2015

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<th>Event</th>
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<tr>
<td>Jan. 7-10</td>
<td>Mayo Clinic Cardiology Update: A Focus on Prevention</td>
<td>AMA PRA</td>
<td><a href="http://www.mayo.edu/cme">www.mayo.edu/cme</a></td>
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<td>Jan. 9</td>
<td>Effective Clinical Management of Borderline Personality Disorder</td>
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<td><a href="http://www.mayo.edu/cme">www.mayo.edu/cme</a></td>
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<td>Jan. 15-17</td>
<td>9th Annual Mayo Clinic Spine Center: Medical and Surgical Spine Course</td>
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<td>Jan. 18-22</td>
<td>Tutorials in Diagnostic Radiology</td>
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<td>Jan. 23-25</td>
<td>Clinical and Multidisciplinary Hematology and Oncology 2015: The 12th Annual Review</td>
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<td>Echocardiography and Multimodality Imagine Case-Based Clinical Decision Making</td>
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<td>Feb. 16-20</td>
<td>Mayo Clinic 18th Annual Endocrine Update Course</td>
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**DO YOU HAVE A CME EVENT COMING UP? WOULD YOU LIKE TO HAVE IT LISTED HERE?**

Contact: Elizabeth Reiss, South Dakota Medicine, 2600 W. 49th Street, Suite 200, Sioux Falls, SD 57105
Phone: 605.336.1965
Fax: 605.274.3274
Email: ereiss@sdsmma.org

---

**Oppenheimer Endocrinology**

Diabetes & Thyroid Care

Mark J. Oppenheimer, MD is board-certified in Internal Medicine and Endocrinology, with specialized training in cholesterol/lipid disorders.

Oppenheimer Endocrinology works with health care providers to treat patients with diabetes, thyroid disease, cholesterol disorders and other hormonal abnormalities.

**3926 S. Western Ave.**
**Sioux Falls, SD 57105**

**Now Accepting New Patients**
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Mark J. Oppenheimer, M.D.
If not, contact us to reach over 2,000 physicians!

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Elizabeth Reiss, South Dakota Medicine
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605.336.1965
E-mail: ereiss@sdsm.org
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If you have a patient with possible venous insufficiency, the physicians at Physicians Vein Clinics have the advanced training and technology to efficiently diagnose and treat the problem. Our vein specialists provide your patients with a FREE ultrasound screening to uncover deep vein problems and help us determine whether insurance will cover their procedures.

Common symptoms of venous insufficiency include:

- Leg aching
- Heaviness
- Muscle cramping
- Leg fatigue
- Restless Legs Syndrome
- Ankle or leg swelling
- Itching and burning
- Skin discoloration
- Ulcers of the skin
- Eczema to the lower legs

Lornell Hansen, M.D., is Board Certified by the American Board of Venous and Lymphatic Medicine and has a background in family medicine. Dr. Hansen performs vein procedures in Sioux Falls, Sioux City, Sioux Center and Watertown.

Jeff Heier, M.D., is a Board Certified Internist specializing in Phlebology. Dr. Heier performs vein procedures in Sioux City, Sioux Center and Watertown.

Specific questions for us? Just give us a call at 800-VEIN-DOC to discuss your needs today!