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Dr. Rif’at Hussain
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Here we are at the end of another calendar year, and physicians are facing another mandated Medicare payment reduction at almost 25 percent if Congress does not act. With Congress deeply divided on very serious economic issues (for example, the budget and debt ceiling) it is very likely this issue will again come down to the last days of 2013 unsolved. What is this formula and why must it be fixed?

The sustainable growth rate (SGR) formula came into being with the Balanced Budget Act of 1997 as a mechanism to update yearly Medicare physician reimbursement. It should be noted that it only affects physician payments, not hospital payments. Using this formula, the federal government computes an annual target for Medicare physician spending based, in large part, on annual changes in economic growth as measured by the gross domestic product (GDP).

Since 2003, this formula has mandated a negative payment for physician services. Congress has stepped in annually to “fix” this problem. That solution has usually amounted to a zero percentage update.

Medicare physician payments over the last two years have actually stabilized, and in many cases have gone down. This has resulted in a cost to “fix” this issue at $139.1 billion over 10 years, down from $273.3 billion estimated in July 2012.

The U.S. House of Representatives did vote this summer to eliminate this formula with a yet to be determined replacement. It is believed this would be more value based than volume based. The U.S. Senate never took up the issue.

Complicating factors in finding a replacement include the following:

- The need to curb overall government spending; and
- Finding a method of payment that shifts from volume to value.

There has been much debate in the physician community around possible replacements. Features of different solutions offered are:

- Any solution must respect the doctor-patient relationship. Physicians must be free to recommend treatments needed to care for their patients. Physicians must recognize and only recommend care needed and that has been accepted practice (evidence-based care).
- Restore balance billing and the right to privately contract. This is currently prohibited by Medicare regulations. Advocates argue that patients should be allowed to use their benefits in any way they see fit. Opponents argue that this practice may set up a second-tier system that the elderly poor may be placed into.
- Insist that long term SGR reform be coupled with fundamental long term Medicare reform. It’s time to end the incremental repair work and settle on a system all parties can support and one that offers long term stability.

The officers and staff of the SDSMA continually look for opportunities to inform our Congressional delegation of the issues at hand and how they affect our members (you) in South Dakota.

Let us know what you think.

Book Recommendations This Month

Margin: How to Create the Emotional, Physical, Financial & Time Reserves You Need by Richard Swenson, MD.

Einstein: His Life and Universe by Walter Isaacson

The Four Agreements: A Practical Guide to Personal Freedom by Miguel Angel Ruiz
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Melinda Talley, MD
Thomas Cink, MD
David Schlesinger, MD
In an effort to help mentor and increase quality time spent with the chairs and committees of our state Alliance, our nominating committee suggested that a third president be approved to share responsibilities. Kristina Zimmerman stepped forward to take on this challenge. The SDSMAA board voted its approval, and Kris became our third co-president.

Kris Zimmerman is known to many of us as a former state president, having served with Grace Wellman in 2010-2011. She is a native of Bakersfield, Calif., where her 93-year-old father still lives independently. Kris attended Oregon State University and has lived in Utah in addition to California and Oregon. She arrived in the Black Hills in 2002 with her late husband, Dr. Paul Zimmerman, an ophthalmologist. Kris has three incredible sons who are successfully making their way in the adult world. Her middle son is beginning a medical career as a chief ophthalmology resident in the U.S. Navy. Kris also has 10 wonderful grandchildren and still has energy left for Alliance activities! She has been active in the Alliance for years, beginning with a resident’s spouse group, and most recently serving in many capacities with the Black Hills Alliance. As a co-president, Kris will oversee the function of the standing committees of the state Alliance, including historian, parliamentarian, by-laws, health promotion, legislation, nominating and public relations.

Mary Lou Pierce will continue her work with the finance, auditing, membership and SDSMAA Foundation committees. Connie Schroeder’s responsibilities will remain the same – submitting monthly president’s articles for South Dakota Medicine and the Alliance newsletter, preside over state board meetings, and visit the Alliance districts over the course of the year as their contact. We welcome the experience and leadership qualities that Kris brings to the office of president.

On Oct. 5-6, Alliance members from 11 states joined together for the North Central States Medical Alliance Regional Conference held again this year in Omaha. For the second year, South Dakota hosted the conference with Grace Wellman of Sioux Falls again doing an excellent job as conference chair. The theme this year was “Keep The Train Running” and was attended by state leaders and members from Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio and South Dakota.

The timely program included sessions on health projects, legislation, membership, mentorship, leadership and effective communication skills. South Dakota Co-President Peggy Huber, Sharon Chontos, AMA Alliance President Jo Terry, Grace Wellman, Mary Lou Pierce and Connie Schroeder were among those who attended the North Central States Medical Alliance Regional Conference Oct. 4-6 in Omaha.

Mary Lou Pierce of Rapid City presented our 2013 legislative project, “Take A Lick Out of Smoking,” and AMA Alliance President Jo Terry of Tennessee spoke movingly on “What Lights You Up and Makes You Glow.” Many conference members shared personal stories of how they came to be committed to the Alliance organization. The comment heard over and over was, "Someone asked me."

On day two of the conference, the hot discussion topics were the struggles with membership recruitment, creating relevancy and nurturing leaders. Strategies to combat these challenges included first creating awareness of the Alliance, making sure there is a clearly stated mission, keeping projects simple and relevant, and showing the benefits of Alliance membership. The conference attendees also raised close to $2,100 for the Carol Harding Scholarship Fund. These funds are available to first-time attendees for registration and travel expenses.

Sharon Chontos of Sioux Falls returned to facilitate the conference discussions and kept the lively discussions on track. The North Central States Conference is very successful; so much so, that the AMA Alliance has appointed a task force to study our meeting format and develop it for use at Alliance regional conferences across the United States.

Throughout our organization’s history, membership recruitment and finances have presented a challenge. Did you find an answer for the number of members in 1929? Our treasurer reported 54 paid members at that time. That compares with 229 in 2012-2013. We are proud that Grace Wellman has organized a successful North Central States Regional Conference these past two years. She has also been selected to bring her expertise to the task force that will develop a format for other regional meetings across the United States. But did you know that she is not the first South Dakotan to chair the North Central organization? In 1936, another Sioux Falls member was the first South Dakotan to serve in a national capacity. Can you identify her?
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I t hits us every year. It is one of the most burdensome and deadly of the infectious diseases. It is a major cause of hospitalization, outpatient visits, missed work and school absentees. Every year around Halloween, Thanksgiving or Christmas the influenza virus strikes South Dakota and the rest of the Northern Hemisphere.

While the holidays are predictable in calendar, character and consequence, the annual influenza epidemic is unpredictable in timing, composition and intensity. Although influenza’s seasonality and ubiquity make it seem like another one of life’s unavoidable hassles, along with blizzards and mosquitoes, we can lower the risk to ourselves, our families, our patients and our communities by prevention. Of all the prevention measures (vaccinating, cough covering, hand washing, masking, avoiding, isolating and prophylaxing), the flu vaccination is the best and most practical tool to prevent and control influenza.

Influenza viruses are constantly evolving, making the annual individual and societal burden dubious to predict and imprecise to measure. Each year, new viral subtypes evolve and circulate throughout the population with variable seasonal pathogenicity ranging from mild to severe. The Centers for Disease Control and Prevention (CDC) estimates 3,350 to 48,614 annual influenza-associated deaths per year in the United States, which for South Dakota extrapolates as eight to 128 deaths annually. National influenza-associated hospitalizations range from 158,000 to 431,000 annually, which calculates to 420 to 1,140 South Dakotans hospitalized. In addition to illness and death, influenza’s annual economic burden is estimated at tens of billions of dollars in direct medical costs and lost earnings. In South Dakota during the 2012-2013 season, over 46,000 rapid influenza tests were reported to the state Department of Health. Assuming that only 10 percent of people with fever, cough and sore throat sought health care, were tested and reported, we infer that over half of the state’s population was stricken last winter with influenza or one of its lesser respiratory viral cousins: parainfluenza, RSV, adenovirus or human metapneumovirus.

South Dakota leads the nation in flu vaccination coverage. We have consistently had the highest coverage rate in the country over the past several years ranging from 51.1 percent to 55.5 percent, typically 10 percentage points above the national rate and better than any other state. This high coverage rate is, I believe, attributable in part to our medical and public health efforts, but mostly to the common sense conscientiousness of our citizens. Despite our comparatively high flu vaccination coverage rates, nearly half the state’s population has not been protected.

Of particular relevance to readers of this medical journal is influenza vaccination coverage among those in the health care profession. Health care personnel (HCP) flu vaccination reduces sickness and death from influenza among not only HCP, but also their families and their patients. Recent national studies show overall HCP vaccination coverage at 66.9 percent, with physicians at 85.6 percent, nurses 77.9 percent, pharmacists 88.7 percent, administrators and support staff 54.3 percent, and assistants/aides at 46.8 percent. Inexcusably, the coverage rate among those working among the most vulnerable in long-term care facilities is 25 percentage points lower than hospital-based-HCP, 52.4 percent vs. 76.9 percent, respectively. The recommendation for HCP is annual vaccination with current seasonal vaccination and the goal is 90 percent coverage. Some South Dakota facilities enforce mandatory influenza vaccination and have had coverage rates surpassing the 90 percent goal, whereas other facilities with more laissez-faire policies have coverage well below the national

Gov. Dennis Daugaard receives his flu vaccination from Chip Rombough, the South Dakota Department of Health’s family and community health regional manager for the Pierre area.
To improve HCP flu vaccination rates, facilities should educate and promote vaccination among employees through clear policy, fair enforcement, easy access to no-cost vaccine and routine monitoring. This year’s new mandatory influenza vaccination policy by South Dakota’s three largest health care systems implants prevention into the fabric of our medical infrastructure and should be applauded and followed by others in the health care community, particularly long-term care.

Only a decade ago, serious shortages of influenza vaccine led to rationing, and the “flu shot” was the only route available. Today, enough vaccine is produced to meet the need, and vaccination options have expanded to include not only the traditional intramuscular injection, but also intradermal, nasal spray, high dose, quadrivalent, non-egg based recombinant and zero mercury vaccines. Although we now have more options than ever, the perfection of influenza vaccines is elusive. The effectiveness of the annual flu vaccination fluctuates from season to season, and never reaches above 90 percent efficacy. The goal of a long-lasting vaccine that protects against all influenza viruses has not yet been accomplished. Until science realizes the goal of a universal, long-lasting, safe, high-efficacy influenza vaccine, it is critical to our personal and public health to get the yearly vaccination, because it is still the best protection available.

REFERENCES


About the Author: Lon Kightlinger is State Epidemiologist at the South Dakota Department of Health.
Influence of the H1N1 Pandemic on University Students’ Knowledge of Influenza

By Evelyn H. Schlenker, PhD; Rachel L. Tschetter, BS; and Holly R. Straub, PhD

Abstract

Background
Avoidance of influenza among college students requires understanding the risks for falling ill, outcomes of this disease, and utilizing methods to prevent developing influenza. We hypothesized that the behavior and knowledge of college students in the midst of a pandemic situation would be different than that during a regular influenza season.

Methods
We evaluated influenza knowledge of 311 university students in 2008 prior to and 318 students during the 2009-2010 H1N1 pandemic using voluntary online surveys that contained 25 questions regarding vaccination behaviors and influenza knowledge. Data were analyzed according to year and vaccination uptake.

Results
Very similar overall knowledge levels were found in the two cohorts independent of vaccination status. Both cohorts overestimated the prevalence of influenza and the number of people hospitalized due to influenza, but underestimated the number of deaths. Vaccination rates for seasonal influenza were in the two cohorts about 36 percent. By contrast, 4.8 percent participants had received the H1N1 vaccine, 40.1 percent intended to and 54.8 percent had no intentions of being vaccinated.

Conclusions
The overall knowledge levels and vaccination behaviors of college students were not affected by the presence of an influenza pandemic. However, students’ responses displayed a shift in belief toward greater rates of hospitalization and deaths in the 2009 sample, suggesting a change in perception due to the ongoing pandemic.

Introduction
Among healthy young adults in the U.S., influenza is responsible for lost work time, increased physician visits, more prescription medications, and increased expenditure of health care costs. For example, Nichol et al. indicated that among college students influenza vaccination was associated with performance advantages, reduced rates of illness, and decreased use of health care resources. Because of the densely populated university setting, influenza is fairly common among college students, with the potential to cause considerable health and financial burden, thus, its prevention impacts on students’ overall health and well-being. Getting a yearly influenza vaccination has been recommended by the Centers for Disease Control and Prevention (CDC) as the most powerful protection against the influenza virus. However, the vaccination rates for the 2008-2009 season were 22.4 percent for ages 18-49 years and 41.9 percent for ages 50-64 years. Elderly Americans age 65-plus had the highest vaccination rates, with 67 percent receiving their influenza vaccination. These percentages have changed little over the years, but South Dakota is an exception with higher vaccination rates at all ages.

Many factors play a role in determining when and if a person receives an annual influenza vaccination. These factors may include personal knowledge and beliefs, perceptions of vaccine efficacy and safety, physician attitudes and recommendations, cost, availability and convenience of receiving the vaccination. Understanding the attitudes and behaviors toward influenza vaccination
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are important to increase the uptake of this vaccine, thereby effectively reducing the risk in pandemic situations. According to the health belief model, developed by Rosenstock,7 vaccine uptake should correlate with cues such as physician reminders, perception of susceptibility to influenza, perceived benefits and risks of the vaccine, knowledge about the severity of influenza, and barriers to the vaccine. Studies evaluating the connection between the health belief model and vaccination behaviors support the claim that there is a relationship between the identified cues and vaccination acceptance.14 Perceived risk can be thought of as an internal judgment of the likelihood of harm occurring if no preventative action is taken.9 More recently Yang et al.11 evaluated college students’ knowledge and perceptions of vaccination-shunning behaviors and determined that risk information seeking was an important factor affecting the students’ behavior.

On June 11, 2009 the World Health Organization (WHO) declared H1N1 influenza as a pandemic.12 Moreover, H1N1 was the primary strain circulating throughout the majority of the 2009-2010 season.13 Although most people who become infected with H1N1 become mildly ill, and recovered within just a couple of weeks, individuals with chronic diseases, immune deficiencies and pregnant women became much sicker, and younger individuals had increased fatality rates.14 Pregnant women and young children under the age of 5 are also at heightened risk because of their compromised or underdeveloped immune systems. Because of the significant impact H1N1 has had on young people, compared to seasonal influenza, attention to the increased potential for morbidity and mortality was conveyed to this group.14 As a consequence, it seemed plausible that students’ attitude, knowledge, behaviors and perception of influenza and the vaccine uptake may be different than in the past. In the present study we examined the similarities and differences of knowledge and behaviors of college students between a seasonal influenza occurring during 2008-2009 season and pandemic influenza occurring during the 2009-2010 season. We hypothesized that because of the advent of an influenza pandemic, knowledge and vaccine uptake of college students would be increased relative to the previous year.

Methods
Participants
This study took place at a mid-sized university in the Midwest. Participants were recruited each year online using the Sona Experimental Systems program, which provides an organizational framework for university-affiliated research. Enrolled students from a variety of disciplines at the university were permitted to register for this system. Students received credit for various undergraduate courses as incentive to participate. A total of 624 individuals participated during the two-year period.

Materials
The study was approved by the University of South Dakota Institutional Review Board. Survey instruments consisted of 25 questions regarding influenza knowledge (disease-specific and historical) and vaccination behaviors as well as general demographic data. Questions were constructed from information published by the CDC.2-4 Four additional questions were added to the 2009 survey regarding the H1N1 flu season. The format of the questions was predominately multiple-choice, with one exception in which a free text format was required for participants’ comments regarding vaccinations (Table 1, question 10). The consent forms and questionnaires were made available to participants via Sona Systems during Oct. 29, 2008 through Nov. 23, 2008 and to a second separate cohort also during Oct. 20, 2009 through Nov. 11, 2009. All responses were anonymous.

Data Analysis
Demographic data were analyzed using descriptive statistics. Parametric values are expressed as means and standard deviations. For knowledge tests, we scored each participant’s responses to the 15 knowledge questions in the survey. A raw score was calculated for each participant based on the number of correct responses. Chi-square tests were used to compare responses and beliefs regarding influenza knowledge by year and vaccination status. Students’ t-tests were used to compare knowledge scores between groups. Significance was accepted if the P value was less than 0.05.

Results
Table 2 describes the demographics of the two cohorts. The distribution of genders and class representation and ages were similar between the two groups, as were the number of people who claimed they had asthma, had received a seasonal flu vaccine in the last 12 months, and had worked/volunteered in a health care facility. Interestingly, the number of students who heard about influenza in classes increased significantly from the 2008 to the 2009 sample ($\chi^2=8.42$, P=0.004). This did not, however, translate to increased uptake of vaccination in the past 12 months or improved test scores.

In 2009, 31.5 percent of participants indicated they had received their seasonal vaccination within the past three months, 23.6 percent intended to and 44.6 percent were not planning on getting it within the next three months. Regarding the H1N1 specific vaccine, 4.8 percent of 2009 participants indicated that they had received the H1N1 vaccine, 40.1 percent intended to if eligible and 54.8
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### Table 1. Questions Used for Demographic, Knowledge and Vaccination Belief Information

1. What is your gender?
2. What is your date of birth? (please use MM/DD/YYYY format)
3. Which of the following categories (freshman-graduate student) best describes you?
4. Has information about influenza been taught in any of your collegiate classes?
5. Have you worked/volunteered in a health care environment in the last 12 months?
6. Do you have any form of asthma?
7. Are you allergic to eggs?
8. Have you ever received a flu (influenza) vaccination?
9. Have you received a flu (influenza) vaccine in the last 12 months?
10. Why, or why not? (optional comments)
11. Would you prefer to take the chance of getting the flu rather than receiving an injected flu vaccine (shot)?
12. Would you prefer a nasal-spray flu vaccine over an injected flu vaccine (shot)?

The purpose of the remainder of this questionnaire (questions 13-27) is to gain information regarding your knowledge about influenza and influenza vaccination. Please answer each of the following questions to the best of your ability.

13. A person can contract the flu (influenza) as a result of the flu (influenza) vaccination.
14. The flu (influenza) vaccine can provide at least some protection against numerous strains of the disease.
15. Influenza is a potentially deadly disease.
16. On average, approximately how many people in the U.S. get the flu (influenza) each year? (For questions 16-18 choices, please see Table 3.)
17. On average, how many people in the U.S. are hospitalized each year with flu (influenza) complications?
18. In a typical year, how many deaths in the U.S. are due to influenza?
19. The flu (influenza) is most contagious during what time period?
   - 3-5 days before symptoms appear, 1 day before symptoms appear to 5 days after symptoms appear
   - Once symptoms appear and for the next week (7 days)
20. As many as 1 million people in the U.S. could die as a result of a single flu (influenza) epidemic.
21. Which of the following time periods corresponds to the year of the occurrence of the deadliest influenza outbreak?
22. Fever is a common symptom of influenza.
23. Muscle ache is a common symptom of influenza.
24. Sleeping difficulty is a common symptom of influenza.
25. Coughing/sore throat is a common symptom of influenza.
26. Fainting is a common symptom of influenza.
27. Approximately how many people died as a result of the great worldwide influenza pandemic of 1918?
   - Less than 10 million, 10-20 million, 20-50 million, More than 50 million

(Next six questions for the 2009 cohort only)
28. The 2009 H1N1 vaccine can provide at least some protection against numerous strains of influenza.
29. The seasonal flu vaccine can provide at least some protection against numerous strains of influenza.
30. Select the statement which best describes you.
   a. I have received a 2009 H1N1 vaccine.
   b. I intend to receive a 2009 H1N1 vaccine if I am eligible for available vaccine.
   c. I do not intend to get a 2009 H1N1 vaccine.
31. Select the statement which best describes you.
   a. I have received a seasonal flu vaccine within the last three months.
   b. I intend to get a seasonal flu vaccine within the next three months.
   c. I do not intend to get a seasonal flu vaccine.

*For questions 16-18 choices, please see Table 3.*
percent had no intentions of pursuing the vaccination.

Out of a possible score of 15 correct responses, the mean score of the 2008 sample was 7.8 (SD=1.5), and the mean score of the 2009 sample was 8 (SD=1.5). Student t-tests indicated no significant difference in overall knowledge between these groups (p=0.1). Also, there was no difference in mean knowledge scores between individuals who received vaccinations versus those who did not in the total sample of 624 people. The average score for vaccinated individuals was 7.95 (SD=1.46) and for non-vaccinated individuals 7.90 (SD=1.5) (p=0.4).

The following three questions (Table 3) were examined specifically to analyze the nature of beliefs regarding influenza.

Question 1 – On average, approximately how many people in the U.S. get influenza each year? The Chi-square test for independence was conducted to determine if the frequency distribution in 2008 was significantly different than the frequency distribution in 2009, regarding the

<table>
<thead>
<tr>
<th>Table 2. Demographics of the Two Cohorts</th>
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</thead>
<tbody>
<tr>
<td>Number (%)</td>
</tr>
<tr>
<td>2008 (n=311)</td>
</tr>
<tr>
<td>2009 (n=313)</td>
</tr>
<tr>
<td>Gender: Males</td>
</tr>
<tr>
<td>73 (23.5%)</td>
</tr>
<tr>
<td>82 (26.2%)</td>
</tr>
<tr>
<td>Females</td>
</tr>
<tr>
<td>238</td>
</tr>
<tr>
<td>231</td>
</tr>
<tr>
<td>Class Ranking: Freshman</td>
</tr>
<tr>
<td>115</td>
</tr>
<tr>
<td>102</td>
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<tr>
<td>Sophomore</td>
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<td>49</td>
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<td>65</td>
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<tr>
<td>Junior</td>
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<td>61</td>
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<tr>
<td>56</td>
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<tr>
<td>Senior</td>
</tr>
<tr>
<td>59</td>
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<tr>
<td>57</td>
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<tr>
<td>Graduate</td>
</tr>
<tr>
<td>27</td>
</tr>
<tr>
<td>33</td>
</tr>
<tr>
<td>Ages (in years and SD)</td>
</tr>
<tr>
<td>22.4 (0.5)</td>
</tr>
<tr>
<td>21.7 (0.3)</td>
</tr>
<tr>
<td>Asthma status: Positive</td>
</tr>
<tr>
<td>42 (13.5%)</td>
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<tr>
<td>43 (13.7%)</td>
</tr>
<tr>
<td>Had Influenza material covered in class</td>
</tr>
<tr>
<td>40 (12.9%)</td>
</tr>
<tr>
<td>75* (24%)</td>
</tr>
<tr>
<td>Had flu shot in the past 12 months</td>
</tr>
<tr>
<td>87 (28%)</td>
</tr>
<tr>
<td>109 (34.8%)</td>
</tr>
</tbody>
</table>

* Indicates the correct answer.

Percentages may not equal 100 due to rounding.

<table>
<thead>
<tr>
<th>Table 3. Questions Regarding Knowledge About Influenza Incidence, Hospitalizations and Deaths.</th>
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</thead>
<tbody>
<tr>
<td>1. On average, approximately how many people in the U.S. get the flu (influenza) each year?</td>
</tr>
<tr>
<td>Number (Frequency (%))</td>
</tr>
<tr>
<td>2008 sample (n=311)</td>
</tr>
<tr>
<td>Less than 5% of the population</td>
</tr>
<tr>
<td>5-20% of the population*</td>
</tr>
<tr>
<td>20-40% of the population</td>
</tr>
<tr>
<td>Greater than 40% of the population</td>
</tr>
</tbody>
</table>

| 2. On average, how many people in the U.S. are hospitalized each year with flu (influenza) complications? |
| Number (Frequency (%)) |
| 2008 sample (n=311) | 2009 sample (n=313) |
| Less than 100,000 | 113 (36.3%) | 106 (33.9%) |
| 100,000-200,000 | 169 (54.3%) | 152 (48.6%) |
| Greater than 200,000* | 29 (9.3%) | 55 (17.6%) |

| 3. In a typical year, how many deaths in the U.S. are due to influenza? |
| Number (Frequency (%)) |
| 2008 sample (n=311) | 2009 sample (n=313) |
| Less than 10,000 | 157 (50.5%) | 144 (46%) |
| 10,000-20,000 | 99 (31.8%) | 88 (28.1%) |
| 20,000-30,000 | 38 (12.2%) | 47 (15%) |
| 30,000-40,000* | 13 (4.2%) | 21 (6.7%) |
| Greater than 40,000 | 4 (1.3%) | 13 (4.2%) |

* Denotes a significant difference between the two years in regard to material in class covered about influenza.

respondents’ beliefs of the percentage of the population to get influenza each year. There was a statistically significant difference with $\chi^2(3, n=624)=9.92, p=0.02$. The proportion of students who answered the question correctly, was significantly higher in 2008 compared to 2009 ($p<0.008$).

Question 2 – On average, how many people in the U.S. are hospitalized each year with influenza complications? The Chi-square test for independence was conducted to determine if the frequency distribution in 2008 was significantly different than the frequency distribution in 2009 regarding the number of believed hospitalizations (Table 3). A statistically significant difference was found between the responses, $\chi^2(2, n=624)=9.165, p=0.01$. A significantly greater percent of individuals in 2009 answered correctly compared to 2008 ($p<0.01$).

Question 3 – In a typical year, how many deaths in the U.S. are due to influenza? The Chi-square test for independence was conducted to determine if the frequency distribution in 2008 was significantly different than the frequency distribution in 2009 in terms of the respondents’ beliefs of the number of annual influenza related deaths. The indicated difference was not considered significant, $\chi^2(4, n=199)=8.79, p=0.07$. Table 3 summarizes these data. In addition to responses to specific questions mentioned above, comments from the participants in both years indicated that 10 percent believed that vaccinations were not necessary or that they were too lazy to bother getting vaccinated. Very few students indicated that cost was a problem in either year. Overall students scored higher on the questions related to influenza signs and symptoms than those related to historical and epidemiological information.

Discussion

A comparison of the two years showed very similar demographics and overall knowledge levels. Interestingly, more students claimed to have had information about influenza relayed to them during class during 2009 compared to 2008. This study evaluated potential differences in students’ knowledge and behavior regarding influenza between an ordinary influenza season and a pandemic influenza season. We hypothesized that the behavior and knowledge of individuals in the midst of a pandemic situation would be different than during a regular influenza season. This change in behavior may have resulted from the greater attention drawn to increased morbidity and mortality during a pandemic. Consequently, this could increase the perceived risk of contracting influenza and encourage increased education and prevention. Moreover, college students were considered one of the “at higher risk” groups.14 Our results indicate that the overall knowledge levels and vaccination behaviors of these college students were not affected by the presence of a pandemic. The data in Table 3 suggest that the occurrence of the H1N1 pandemic induced a change in the perception of the severity of the disease in the second cohort. However, as indicated in Table 3, students in this cohort also underestimated the number of deaths due to influenza.

There are several studies investigating how subjects perceived the threat of the H1N1 pandemic and their vaccination behaviors. For example, in a large longitudinal study of 19,341 people ranging in age from 18 to 91 years over a 10-month period from May 2009 to January 2010,15 the greatest perceived risk of morbidity and mortality was among people in the lower socioeconomic and educational groups and those who more routinely got vaccinated. However, participants’ overestimation of risk of disease and death did not correlate with their intention to get vaccinated. In part this may have resulted because of lower access to vaccines, which was not a problem among the college students in the present study.

A study by Wilson and Huttlinger16 specifically addressed dormitory-housed college students’ perception of H1N1 influenza morbidity and mortality. Of the 167 students surveyed whose questionnaires were complete, 60 percent of the students believed that living in a dormitory was not a risk factor for getting nor spreading influenza, 25 percent received a flu shot last year, but 69 percent claimed to have had the flu. About 55 percent of participants claimed that the vaccine was safe, whereas 43 percent believed that they could get the flu from obtaining the vaccination. Most heath related knowledge (60 percent or higher) in this cohort was obtained from family, friends and online sources, and 28 percent or less from university-based information (flyers, professors, courses or health services). In another study of college students in India, Suresh and coworkers17 found low vaccination rates and doubts about the efficacy and safety of the H1N1 vaccine that deterred students from getting vaccinated. Uddin and coworkers18 used a cross-sectional survey study to determine factors affecting vaccination uptake in over 800 college students. Using multiple logistic regression analysis, they found that the parental education attainment, discussions with health care providers about risks of influenza, and prior vaccination history were the best predictors for getting vaccinated. Neither risk status nor effects of influenza on family or friends influenced their probability of getting vaccinated.

To investigate the motivations behind college students’ behaviors related to their risk of contracting influenza, Yang11 tested the risk information seeking model to evaluate 371 college students’ perception of influenza risk and vaccination intentions. One of the problems addressed was that the students believed that they knew more about risk
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factors and benefits concerning influenza vaccines than they actually thought they did. This false belief deterred them from actually knowing the facts and making better informed decisions about vaccine uptake.

Finally, a very recent article by Talbot and Talbot examined common arguments against getting vaccinated for influenza which were also used by several of the participants in the present study. The arguments presented in the Talbot and Talbot paper included the belief that the vaccine doesn’t work, that the vaccine actually causes the flu, and that individuals would never get the flu because they are healthy. Many of the rebuttals to these arguments discussed in their paper may be useful to educate and inspire students that vaccinations have a very positive effect on their health and all the individuals they come in contact. For example, Talbot and Talbot mention that although the influenza vaccine is not 100 percent effective, for the age group of students it is about 60 percent effective. Thus, an individual who is vaccinated has increased likelihood of not getting the flu. In regard to getting influenza as a result of vaccination, people may have some side effects at the site of the vaccination and can develop mild discomfort, but will not get influenza from vaccinations. Finally, by getting vaccinated, not only would the person be protected from the flu, but the individual would also help develop herd immunity for those individuals who may not be able to get vaccinated or whose immune system is weakened.

The present study is limited by the fact that college students of a single university comprised the sample. Moreover, there were more female and less male students in the cohorts than what were reported by the university (enrollment statistics for USD for 2008 and 2009 is available at www.usd.edu/academics/academic-affairs/institutional-research/upload/Stat-Highlights). Although a college student sample may not be indicative of the population of the nation, it is a valuable population of study in and of itself. The power of a sample of over 600 individuals from two separate years allows us to say with confidence that overall, college students at this university have consistently low vaccination rates. College students constitute a vulnerable population because of the large number of students living and working together in relatively close quarters. A better understanding of the beliefs and motivating factors of college students regarding vaccinations for influenza and pandemics is necessary to influence preventative health behaviors. By providing more suitable mechanisms to relay factual information to students and having free vaccinations in conveniently located sites, we can hope to increase the knowledge level and vaccination rates of college students so that they can make appropriate health decisions in the future.

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A Comparison of the Sensory Profile Scores of Children with Autism and an Age- and Gender-Matched Sample

By Barbara L. Brockevelt, PhD, OTR/L, FAOTA; Ranelle Nissen, MS, OTR/L; William E. Schweinle, PhD; Eric Kurtz, PhD, NCSP; and Kyle J. Larson, MS, OTR/L

Abstract

Background
The Centers for Disease Control and Prevention (CDC) reports that autism spectrum disorder (ASD) affects one in every 88 children in the United States. The American Psychiatric Association’s Diagnostic and Statistical Manual, Text Revision (DSM-IV-TR) defines ASD as a pervasive neurodevelopmental disorder characterized by qualitative impairment in communication and social interaction, and restricted, repetitive and stereotyped behavior patterns. The purpose of this study was to determine whether children with autism differ in their response to sensory input relative to typically developing age- and gender-matched peers.

Method
The Sensory Profile (SP) is a 125-item caregiver questionnaire designed to measure a child’s ability to process sensory information and to profile the effect of sensory processing on daily life activity. The results of the SP of 21 participants with autism ages 3 to 9 years were compared with an age- and gender-matched sample of typically developing children.

Results
Significant differences were found across all four SP quadrants (Registration, Seeking, Sensitivity, and Avoiding) as well as eight of the nine SP factor scores. This study adds to the evidence indicating that children with autism process and respond to sensory input differently than typically-developing peers.

Conclusion
The findings from this study support previous research findings that sensory processing differences exist between children with ASD and their typically-developing peers, as measured by the SP.

Background

Autism spectrum disorder (ASD) affects an estimated one in every 88 children in the United States. According to the American Psychiatric Association (APA), ASD is a pervasive neurodevelopmental disorder characterized by qualitative impairment in communication and social interaction, and restricted, repetitive and stereotyped behavior patterns. Several studies have also demonstrated that children with ASD perceive and respond to sensory experiences differently from their peers without ASD. Although sensory processing has received less attention among ASD researchers than other developmental characteristics, a review of the literature revealed that most individuals with ASD report sensory processing difficulties at some time during their life. Similarly, several studies involving retrospective videotape analysis of early childhood behavior prior to the diagnosis of autism have identified differences in sensory processing among children with ASD as compared to typical peers. In addition to reports of behavioral differences, the evidence for physiological differences is mounting. For an in-depth review of the neurophysiologic data available to date, see Marco, Hinkley, Hill and Nagarajan.

As a result of evidence in basic science literature, clinical literature, and first-person accounts of differences in sensory processing, revisions to the APA’s diagnostic criteria for autism were published in the May 2013 release of the Diagnostic and Statistical Manual-5. The phrase, “...hyper- or hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment...” has been
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added under the subdomain of stereotyped motor and verbal behaviors. This addition illustrates the importance of sensory characteristics in the definition and diagnosis of ASD.

In order to facilitate participation in home, school and community environments, families and providers must understand how children with autism perceive and respond to sensory experiences differently than their age-related peers. The tool most frequently used to examine the behavioral manifestations of sensory processing is the Sensory Profile (SP). Among studies using the SP, significant variance exists in study design, sample composition, and data collection methods; true replications are few. Furthermore, few studies have employed age- and gender-matched control groups. Rather, most published studies use the SP standardization sample as the control group. The present study used a matched design to add to the body of literature demonstrating differences in sensory processing between children with autism and age- and gender-matched typically-developing peers, 3 to 9 years of age. This is important, as this is the age range when most children with ASD are initially diagnosed. Second, this study matched participants on both age and gender. This is especially significant as previous studies have been unable to match all participants on gender. Given that ASD is nearly five times more common in males, matching participants on this variable is essential.

**Theoretical Perspectives**

There are a number of theories regarding the etiology and nature of sensory dysfunction observed in children with ASD. Rogers and Ozonoff systematically reviewed the extant literature and identified four theories: over-arousal, under-arousal, inconstancy, and impaired cross-modal processing. The theory of over-arousal posits that children with autism react more quickly and are aroused more easily by sensory stimuli than typically developing children. Over-arousal theory further proposes that children with autism either do not habituate to stimuli at all, or are slower to habituate to environmental stimuli than their typically-developing peers.

In contrast to over-arousal theory, under-arousal theory purports that low activity in areas in the brain, e.g., the limbic system, leads to dysfunction in children with ASD. This hypo-activity can inhibit learning related to interaction with the outside world and is evinced by the repetitive, stereotypic and seemingly purposeless behavior characteristic of ASD.

Perceptual inconstancy theory suggests that problems in brainstem functioning cause states of both sensory under-arousal and over-arousal. Finally, cross-modal impairment theory posits that abnormal brain function causes impairment in connecting and integrating incoming sensory information, which in turn causes impaired environmental interaction. All four of these theories propose that abnormal brain functioning contributes to sensory issues that manifest themselves in maladaptive functioning.

More recently, Dunn developed the Model of Sensory Processing, which is the conceptual model for the SP and which posits that neurological activation in response to sensory input shapes behavior. Based on earlier work by Ayres, the Model of Sensory Processing describes behavior based on two continua – neurological threshold (high to low) and behavioral response/self-regulation (from active to passive). The interaction between a child’s neurological threshold and response strategy creates four patterns (i.e., quadrants) of sensory processing: Registration, Seeking, Sensitivity, and Avoiding. Registration and Seeking represent high neurological thresholds, but each denotes a different behavioral response. For instance, children with a Registration pattern display a passive response to a high neurological threshold. They may appear unaware of their surroundings and will rarely seek stimuli to meet the threshold. In contrast, Seeking represents an active response to a high neurological threshold. Children with this sensory pattern seek sensory stimuli to meet the threshold more frequently. For example, they will touch people excessively and will prefer to go barefoot. The other two patterns of sensory processing – Sensitivity and Avoidance – represent low neurological thresholds. Sensitivity is a combination of low threshold and passive response. Children with a Sensitivity pattern appear distressed or distracted in response to sensory input. They may be described as picky eaters and may cover their ears in response to household noise. Avoidance represents an active response to a low threshold in order to control or limit the amount and type of sensory input. Children who display an avoidance pattern may move away from activities or prefer to be alone. The current version of the SP provides scores for each of the four quadrants of sensory processing as well as scores on nine factors.

**Differences in Sensory Processing**

Previous studies using the SP reveal abnormal sensory processing patterns among persons with ASD, including patterns of over-responsiveness and under-responsiveness. Dunn, Myles, and Orr compared the SP scores of 42 children with Asperger syndrome and 42 typically-developing children, ages 8 to 14 years. SP factor scores associated with under-responsiveness include Low Endurance/Tone and Poor Registration. Factor scores associated with...
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over-responsiveness include Sensory Sensitivity and Emotionally Reactive. Similarly, Ermer and Dunn compared SP factor scores of 38 children with autism or pervasive developmental disorder (PDD) ages 3 to 15 years to 38 children without autism or PDD. Relative to the typical children, those with ASD demonstrated a low frequency of behaviors in Sensory Seeking and a high frequency of behaviors in Oral Sensitivity, Inattention/Distractibility, and Fine Motor/Perceptual. Watling, Dietz, and White examined the SP factor scores of 40 children with ASD and 40 without ASD, ages 3 to 6 years. The SP used in this study was an early version that included 10 factors rather than the nine identified in the final version of the SP. There was significant difference between the groups in eight of the factor scores, including Sensory Seeking, Emotionally Reactive, Low Endurance/Tone, Oral Sensitivity, Inattention/Distractibility, Poor Registration, Fine Motor/Perceptual, and Other. Later studies by Rogers, Hepburn and Wehner and Tomchek and Dunn also examined the differences in sensory processing among age and gender matched toddlers; however, these studies used the Short Sensory Profile (SSP), rather than the full SP typically used in practice. Regardless, the scores of children with ASD differed significantly from those of typically developing peers.

Finally, Kern et al. examined differences between individuals with ASD and those without ASD in SP quadrant scores among individuals ages 3 to 43 years. There was a significant difference in all four sensory quadrants. The difference was moderated by age, such that older individuals with ASD obtained scores closer to those of individuals without ASD.

The results of these studies indicate that there are differences in sensory processing between young children with ASD as compared to their peers without ASD when measured by the SP. The purpose of this study was to further investigate these differences among children ages 3 to 9 years as measured by the SP. The specific research questions were the following:

1. Do significant differences exist in the quadrant scores on the SP?
2. Do significant differences exist in the factor scores on the SP?

**Method**

A case-control study design was used to compare the SP scores of a group of children diagnosed with autism, ages 3 to 9 years, with an age- and gender-matched control group of typically-developing children. The university’s Institutional Review Board approved the study. Consent forms were reviewed with each family and all questions were answered prior to obtaining consent.

**Participants**

Children with autism – Data from a convenience sample of 21 children diagnosed with autism, ages 3 to 9 years, was collected through a university-based diagnostic clinic. The parents of children that met the inclusion criteria were invited to participate in the study. Children received a comprehensive interdisciplinary diagnostic evaluation by qualified professionals including medical, psychological, speech and language, occupational therapy, audiology, education, and nutrition assessments. Children were diagnosed in accordance with the APA’s Diagnostic and Statistical Manual-IV, Text Revisions (DSMIV-TR) criteria for Autistic Disorder (299.0). The SP was administered routinely as part of each child’s comprehensive evaluation. Children with a diagnosis of Asperger syndrome or PDD-NOS, an IQ lower than 50, hearing loss, or visual loss greater than 20/80 despite correction were excluded from the study.

Typically developing group – A control group of 21 children recruited from local schools, church and community groups that could be age- (within six months) and gender-matched to the autism group were recruited for the study. Children were excluded from the control group if they had a documented disability or had ever received birth-to-3 services, special education or a related service. In sum, the study included 42 children, or 21 autism-control pairs.

**Instruments**

The SP is a judgment-based caregiver questionnaire that profiles the effects of sensory processing on a child’s performance in daily life. The caregiver is asked to respond to 125 behavioral statements on a 5-point Likert scale, indicating how frequently the child engages in a particular behavior. The response is converted to a numerical score (1=always, 2=frequently, 3=occasionally, 4=seldom and 5=never). More typical children tend to engage in these behaviors less frequently and, thus, tend to have higher scores, while lower scores reflect greater symptoms.

The team’s occupational therapist, trained in administering and scoring the SP provided instructions and was available to answer caregiver questions while completing the questionnaire. The advantage of using a caregiver questionnaire is that caregivers are familiar with the child’s behavior across various contexts and time.

Studies indicate that the SP is a reliable and valid tool for assessing the sensory processing abilities of children ages 3 to 11 years old. Internal reliability of the various sections was estimated as Cronbach’s alphas, which ranged from 0.47 to 0.91. Ermer and Dunn found that the SP can
distinguish between children with disabilities and children without disabilities and can distinguish between children with autism and children with ADHD.

Two types of scores derived from the SP were used in this study. Factor scores represent scores obtained from factor analysis defined clusters of items that characterize a child's responsiveness to sensory stimuli. These factors include Sensory Seeking, Emotionally Reactive, Low Endurance/ Tone, Oral Sensory Sensitivity, Inattention/Distractibility, Poor Registration, Sensory Sensitivity, Sedentary, and Fine Motor/Perceptual. Factor scores were calculated by entering the score for each item onto the factor grid and calculating the sum for each factor.

Quadrant scores represent four unique continua of behavior based on Dunn's Model of Sensory Processing introduced earlier. Each quadrant represents the interaction between the neural threshold of the child and the behavioral strategy the child uses to respond to the sensory information – Registration (passive response to high threshold), Seeking (active response to high threshold), Sensitivity (passive response to low threshold), and Avoiding (active response to low threshold). Items which contribute to each quadrant were determined by the author of the SP using the original factor structure and internal consistency analyses. This study examined differences between the two groups across the four quadrants and nine factors.

Data Analysis

Data from 21 case-control pairs were analyzed using SPSS Statistics version 19. Two MANOVA analyses were used to estimate omnibus group effects on 1) quadrant scores and 2) factor scores. The MANOVAs were followed by univariate ANOVAs to test for group differences in each dependent variable.

Results

The MANOVA testing SP quadrant scores between groups was significant, Wilks' Λ = 0.497, F (4, 37) = 9.366, p < 0.001. The effect size was relatively large (partial η² for group effect = 0.50). Follow-up ANOVAs indicate that children with ASD differ from typical children in all four quadrants (Registration, Seeking, Sensitivity, and Avoiding). See Table 1 for details.

A MANOVA was also conducted to determine whether there was a difference between children with autism and typically developing children on a linear combination of SP factor scores. This was also significant, Wilks' Λ = 0.215, F (9, 32) = 13.014, p < 0.001, partial η² for group effect = 0.785. Note that this is a relatively large effect. Follow-up univariate ANOVAs indicate there was a significant difference on eight of the nine SP factor scores of children with autism as compared to children in an age- and gender-matched group (Table 1). There was no difference in scores on the factor, “Sedentary” (p = 0.232).

Discussion

The purpose of this study was to determine if children with autism, ages 3 to 9 years, demonstrate a difference in their response to sensory input when compared to typically developing age- and gender-matched peers as measured by the SP. The results of this study revealed significant differences between the sensory processing patterns of children with ASD and typically-developing children. These results are significant across all four of the SP quadrants and across eight of the nine SP factors. According to Dunn's Model of Sensory Processing, a child's way of responding to sensory input can be characterized as Registration, Seeking, Sensitivity, and Avoiding. The four quadrants of sensory processing represent the interaction between the child's neurological threshold and the strategies the child uses to act either in accordance with or against those thresholds. The sensory processing patterns can be expressed in behaviors which may impact daily life, and affect a child's ability to carry out his or her daily activities. Observed differences in Sensory Profile Quadrant scores and Factor scores provide further evidence that there are differences in sensory processing between children with ASD and children without ASD.

Consistent with findings by Watling, Dierz, and White, the scores of children with autism in this study were widely varied, indicating that children with autism are not a homogenous group. In addition, children with autism scored lower (i.e., more frequently displayed undesired behaviors) than those without autism in all quadrants and factors. While this pattern of findings is consistent with those of Watling, Dierz, and White and of Dunn, Miles & Orr, it is inconsistent with findings reported by Ermek and Dunn. These authors found a higher score (less frequent behaviors) in Sensory Seeking. Differences in data gathered from these studies, underscore the need for multiple studies of unique age groups.

This study adds to the evidence supporting clinician's use of the SP in the diagnosis and treatment of ASD in young children. By establishing validity in the instrument's ability to effectively detect important differences in how a child interprets and responds to sensory input, targeted and more effective recommendations for modifications to the child's environment can be facilitated based on the results. By understanding the child's neurological threshold and the behavioral strategy the child is using (passive or active), service providers can formulate meaningful interventions that support participation in the context of
family, school and community life. For example, environmental modifications in the school may include enhancing the features of activities and providing contextual cues to meet neural thresholds more frequently and with more consistency. Children with a Sensitivity pattern may need to wear earplugs during outings and accompany parents on errands during non-peak times of the day. School and home interventions may be planned to work with the child’s behavioral strategies, avoid the extremes of those behaviors, and optimize the child’s participation in a variety of contexts. For the child who seeks movement, the teacher may incorporate movement during a group activity by asking the child to distribute materials to the rest of the class. The current Diagnostic and Statistical Manual of Mental Disorders (DSM IV) does not include atypical sensory processing as a characteristic of ASD. And, although further characterization of sensory differences in controlled studies is needed, the ubiquitous nature of sensory dysfunction in children with ASD has led scientists and diagnosticians to recommend inclusion of sensory dysfunction in the diagnostic criteria outlined in the DSM-5.

Primary limitations of this study include the small convenience sample, the limited geographic region used to recruit participants, and the restricted age range (3 to 9 years). Strengths include matching by chronological age within six months and matching by gender.

**Conclusion**

The findings from this study support previous research findings that sensory processing differences exist between children with ASD and their typically-developing peers. Utilizing the SP, significant differences between groups were found in all four quadrant scores and eight of nine factor scores. Based on Dunn’s conceptual model for the SP, these sensory processing deficits may manifest themselves in behaviors that influence participation in a variety of environments. Understanding the nature of how sensory processing in autism affects participation and social interaction can influence therapy interventions for these children.

### Table 1. Tests Between Groups on the Four Quadrants and Nine Factors of the Sensory Profile Scale

<table>
<thead>
<tr>
<th>Factor</th>
<th>With Autism</th>
<th>Without Autism</th>
<th>F</th>
<th>Group Partial η²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sensory Profile Quadrant Scores</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quadrant 1: Registration&lt;sup&gt;b&lt;/sup&gt;</td>
<td>59.19 (4.55)</td>
<td>69.19</td>
<td>18.12***</td>
<td>0.31</td>
</tr>
<tr>
<td>Quadrant 2: Seeking</td>
<td>89.90 (14.28)</td>
<td>110.33</td>
<td>21.12***</td>
<td>0.34</td>
</tr>
<tr>
<td>Quadrant 3: Sensitivity</td>
<td>68.19 (7.59)</td>
<td>89.00</td>
<td>39.20***</td>
<td>0.50</td>
</tr>
<tr>
<td>Quadrant 4: Avoiding</td>
<td>102.86 (13.70)</td>
<td>123.48</td>
<td>22.08***</td>
<td>0.36</td>
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<tr>
<td><strong>Sensory Profile Factor Scores</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 1 Sensory Seeking</td>
<td>54.81 (11.05)</td>
<td>69.05</td>
<td>21.27***</td>
<td>0.35</td>
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<tr>
<td>Factor 2 Emotional Reactive</td>
<td>51.14 (11.16)</td>
<td>64.24</td>
<td>17.92***</td>
<td>0.31</td>
</tr>
<tr>
<td>Factor 3 Low Endurance/Tone&lt;sup&gt;b&lt;/sup&gt;</td>
<td>39.29 (2.54)</td>
<td>43.67</td>
<td>6.27*</td>
<td>0.14</td>
</tr>
<tr>
<td>Factor 4 Oral Sensory Sensitivity&lt;sup&gt;b&lt;/sup&gt;</td>
<td>28.24 (5.01)</td>
<td>40.95</td>
<td>29.41***</td>
<td>0.42</td>
</tr>
<tr>
<td>Factor 5 Inattention/Distractibility</td>
<td>19.52 (4.40)</td>
<td>27.90</td>
<td>35.67***</td>
<td>0.47</td>
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<tr>
<td>Factor 6 Poor Registration&lt;sup&gt;b&lt;/sup&gt;</td>
<td>30.90 (1.81)</td>
<td>37.90</td>
<td>45.368***</td>
<td>0.53</td>
</tr>
<tr>
<td>Factor 7 Sensory Sensitivity&lt;sup&gt;b&lt;/sup&gt;</td>
<td>16.48 (1.62)</td>
<td>18.71</td>
<td>4.765*</td>
<td>0.11</td>
</tr>
<tr>
<td>Factor 8 Sedentary</td>
<td>13.04 (2.77)</td>
<td>14.43</td>
<td>1.472</td>
<td>0.04</td>
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<tr>
<td>Factor 9 Fine Motor Perceptual</td>
<td>9.29 (2.64)</td>
<td>12.48</td>
<td>14.565***</td>
<td>0.27</td>
</tr>
</tbody>
</table>

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**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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The 7th District Medical Society and Alliance wish to thank Dr. William and Rose Asfora for opening up their restaurant, Carnaval Brazilian Grill, to host the district’s annual fall kick-off October 7.

The meal was superb, and the fellowship between the students, residents, physicians and spouses made it an enjoyable evening for all.
Unusual Case of Gastroparesis Leading to Severe Gastromegaly with Demyelinating Disease as a Rare Cause

By Kabir Ahmed, MD; and Yasir Lal, MD

Abstract

Introduction
Gastroparesis is an entity of symptomatic abnormal gastric emptying, with diabetes mellitus, postsurgical and idiopathic etiologies accounting for majority of the cases.

Case Report
We report the case of a young African American female, who presented with abdominal discomfort, inability to tolerate a regular diet and intermittent episodes of numbness, tingling and cramps in her extremities. CT scan of the abdomen and pelvis showed a massively distended stomach, compressing the intestines and liver. A gastric emptying study revealing markedly worsened gastroparesis. Severe gastroparesis causing massive gastromegaly secondary to multiple sclerosis was diagnosed.

Conclusion
This case illustrates severe gastromegaly that is rarely seen to this extent and identifies multiple sclerosis (MS) as a rare cause of gastroparesis. MS should be considered in the differential diagnosis of gastroparesis in appropriate clinical settings.

Introduction
Gastroparesis is a condition of delayed gastric emptying in the absence of a mechanical obstruction, commonly caused by gastric smooth muscle or parasympathetic nerve damage, attributing to gastric enlargement. Normally, gastric motility is regulated by neuronal and hormonal equilibrium, with dominating parasympathetic nerves stimulating motility and by means of various stimulatory and inhibitory hormones. In addition, the vagus nerve coordinates gastric peristaltic movements of the migrating motor complex (MMC), which occurs periodically and correlates with high levels of motilin, A.K.A., “housekeeper of the gut.”

Case Report
A 31-year-old African American female presented with one week history of abdominal discomfort, famishing-type symptoms, intermittent nausea and constipation, with inability to tolerate a regular diet and complaining of pain in multiple joints. For the past six months, the patient has experienced frequent episodes of bilateral upper and lower extremity numbness, tingling and cramps, along with a 19-pound weight gain. Pertinent past medical history included multiple sclerosis (MS), mild gastroparesis and chronic constipation. Physical examination revealed no focal neurological deficits, decreased muscle strength, and subjective loss of light sensation in all extremities. The abdomen was mildly tender, distended with no organomegaly appreciated. CT scan of the abdomen and pelvis demonstrated a massively distended stomach, which compressed the intestines and liver, with duodenal malrotation and a possible gastric outlet obstruction (Figure 1). These images were compared to CT findings performed 9 months prior to presentation (Figure 2).

The patient’s diet was changed to nothing by mouth and a nasogastric (NG) tube was urgently placed on intermittent low suction. The next day, a two-hour gastric emptying study using sulfur colloid labeling was performed. It showed poor activity with severely prolonged half time of gastric emptying, revealing markedly worsened gastroparesis when compared to previous studies. Meanwhile, the NG tube continued to aspirate approximately 1,025 milliliters of greenish appearing semi-liquid.

The differential diagnosis includes progressively worsening gastroparesis and gastric outlet syndrome. Other less likely causes include malignancy, medication-induced, adrenal insufficiency and hypothyroidism. Gastroduodenoscopy
showed Candida esophagitis but no gastric outlet obstruction. An MRI scan of the brain showed at least three small white matter hyperdensities unchanged from previous scans. After ruling out obstruction, and other etiologies, a diagnosis was made of progressively worsening gastroparesis secondary to MS, exacerbated by non-compliance, leading to massive gastromegaly. After stabilization, a diet free of insoluble fiber and high fat content was advised. Metoclopramide dose was also increased. Due to inadequate response to these measures, the patient was transferred to another institution for gastric pacemaker placement.

Discussion
Symptomatically, persistent nausea, vomiting, poor appetite, postprandial fullness, heartburn, weight loss and abdominal discomfort with bloating sensation can be seen in gastroparesis. In evaluating gastroparesis, gastric emptying can be assessed through different U.S. Food and Drug Administration (FDA) clinical testing modalities listed in Table 1.1,2

Initial treatment includes diet modifications, prokinetic medications and antiemetic agents. Diet therapy usually consists of smaller meals, usually six times per day, with avoidance of fat and fiber products. Metoclopramide, erythromycin and domperidone are some of the widely used prokinetic therapies to improve the gastric emptying. Botulism injection, balloon dilation, radiofrequency ablation, gastric electrical stimulation and gastric pacemaker can be used in severe refractory cases. Other options include gastrostomy and jejunostomy tube placement to bypass the gastric paralysis.1,4 Indications for the use of a

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gastric pacemaker include documented gastroparesis (diabetes mellitus, idiopathic and surgical etiologies) with severe nausea and vomiting, refractory to medical management and diet modifications for at least one year.

Table 2 discusses rare conditions associated with gastroparesis and gastromegaly. A particular to our case report, MS has been reported in rare incidences; however, severe gastromegaly to this extent, in relation to MS has never been reported. To our knowledge, this is the first reported case of gastromegaly attributable to multiple sclerosis and gastroparesis.

This case highlights two important aspects in the care of severe gastroparesis patients. First, it illustrates severe gastromegaly that is rarely seen to this extent. Secondly, it points out a rare cause of gastroparesis, MS and its potential to cause severe gastromegaly in a short period of time. In conclusion, MS should be considered in the differential diagnosis of gastroparesis in appropriate clinical settings.

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Obesity is an epidemic in the United States. One out of every three Americans are obese. Obesity is a major risk factor for some of the leading causes of death in the United States including stroke, heart disease and type 2 diabetes. Obesity also creates a large burden on the healthcare system. The average person with obesity has annual medical costs $1,429 higher than a person of normal weight. The primary therapy for this condition is lifestyle modification including changes in diet and increasing physical activity. These changes can be very difficult for patients and many patient's desire for easier weight loss solutions. This desire has led to the development of several medications for the treatment of obesity.

There are currently five prescription medications approved by the Food and Drug Administration (FDA) for obesity and weight loss: diethylpropion (generic), lorcaserin (Belviq), orlistat (Xenical), phentermine (Adipex-P, Suprenza), and phentermine/topiramate ER (Qsymia). Orlistat is also available in a non-prescription formulation. The current therapies available are approved to be used in conjunction with diet and exercise and not as a replacement of diet and exercise. Use of these medications should be targeted at higher risk patients when diet and exercise interventions have not produced an adequate response. This would include any patients that have a body mass index of 30 or greater as well as patients that have a body mass index of 27 in conjunction with a co-morbid weight related condition.

The two oldest medication therapies available for weight loss are diethylpropion and phentermine (Adipex-P, Suprenza). Both of these medications are central nervous system stimulants similar to amphetamines which have the effect of suppressing appetite. These medications both are controlled substances that are contraindicated in patients with a history of drug abuse. Due to the amphetamine like side effects, including tachycardia, hypertension, and palpitations, these medications are also not recommended for patients with cardiovascular disease. These stimulant medications are only approved for short-term use, no longer than a few weeks.

Orlistat (Xenical, Alli) is pancreatic lipase inhibitor that blocks fat breakdown in the gut which in turn reduces fat from being absorbed into the body. This is the only FDA approved weight loss medication available over the counter under the brand name Alli. The prescription dose is 120 mg, while the non-prescription dose is 60 mg. It is dosed with any of the three main meals of the day that contain fat. When used with a high fat meal, this medication can cause bowel changes that can be very problematic for patients including gas with oily leakage and spotting, loose stools and frequent stools that can be hard to control. When taken with low fat meals the risk of these side effects is greatly reduced.

Lorcaserin (Belviq) is a novel medication recently approved for chronic weight management. It is a selective serotonin 2C agonist that acts on the hypothalamus to decrease appetite. Previous non-selective serotonin agonists developed for weight loss, including fenfluramine or dexfenfluramine, have been taken off the market due to concerns with valvular heart disease. Lorcaserin avoids this risk by being selective for a serotonin receptor not thought to be involved in the development of valvular heart disease. Possible adverse effects with this medication include confusion, somnolence, cognitive impairment, hyperprolactinemia and priapism. It is recommended that patients be evaluated after 12 weeks of therapy and to discontinue lorcaserin if the patient has not achieved a weight loss of greater than or equal to 5 percent from baseline.

Phentermine/Topiramate Extended Release (Qsymia) is the newest medication to be approved for chronic weight management. It combines both phentermine and topiramate, two medications that have been shown to cause weight loss, in an extended release capsule. Similar to initiating therapy with topiramate alone, this medication must be started by tapering up to the appropriate dose. After starting with an initial dose of 3.75/23 mg for 14 days, the patient can then increase to a dose of 7.5/46 mg for 12 weeks. If this first dose is not effective then the medication can be tapered up again to a dose of 11.25/69 mg for 14 days and then a top maintenance dose of 15/92 mg for 12 weeks. If the highest dose is not effective after 12 weeks then the medication should be discontinued by tapering down by one dose every other day for at least one week and then stopping. Effectiveness if
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The South Dakota State Medical Association Foundation, the philanthropic arm of the South Dakota State Medical Association, is a tax-exempt 501(C)(3) non-profit corporation, was established to assist and support medical research, medical teaching and medical education at the Sanford School of Medicine.

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defined as a 5 percent weight loss from baseline. Possible adverse events include paresthesia, irritability, dry mouth, dizziness, depression and nephrolithiasis. As part of this medication’s approval, the FDA did place Risk Evaluation and Mitigation Strategy (REMS) requirements on this medication due to the risk of congenital malformations in infants exposed to the drug during the first trimester of pregnancy. Prescribers must have completed training to be allowed to prescribe Qsymia. Patients are only allowed to obtain the medication from certified retail or mail order pharmacies and must be provided a medication guide with the prescription outlining the risks with pregnancy.

Overall, weight loss medications can be effective adjunct therapies but they do have limitations. In addition to possible adverse effects associated with the medications, adherence to therapy can still be an issue. Since weight loss medications are designed to be used with lifestyle modifications, if a patient is not adherent to these changes in their lifestyle the medication may not be effective. It’s also important to remember that current medication therapies will only help the patient lose weight. They have not been shown to decrease cardiac risk or mortality and in the case of phentermine and diethylpropion can possibly increase a patient’s cardiac risk. Weight loss medications are viable options to help patients lose weight but are not replacements for a healthy lifestyle.

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Mark J. Oppenheimer, M.D.
When thinking about a clinical risk assessment, often times we fail to take into consideration the risks of social media – which has established itself as a vehicle for publicly sharing information and ideas. In the past, forums for public communication were either controlled or limited like television or radio programming. However, social media now allows individuals to broadcast messages around the world instantaneously with no filter.

An organization’s employees, customers and vendors can either be its greatest ambassadors or saboteurs of its image. And while organizations cannot control what someone posts online, they can be at greater risk if they fail to monitor it or respond in a timely manner.

The over-sharing of information by employees is another concern. A recent study found that 62 percent of employees Tweet about their work, with more than one in 10 doing so daily. The implications for information breaches are staggering, and so while an employee may perceive such communications as harmless, he or she could unwittingly or unwittingly breach confidentiality obligations to the organization or its consumers – which could significantly harm the organization’s reputation and bottom line.

Your organization should have policies in place to address the following:

1. **Posting on the office website.** Designate authorized employees to post on the office's official website. Advise all other employees that they are not to post without permission from their supervisor.

2. **Posting on other websites.** Employees should be prohibited from making any reference to their employer or the business on sites that are not employer hosted or sponsored. If there is any reference to an employer, it should clarified somewhere within the posting that “these opinions are my own and do not reflect those of my employer.”

3. **Use of email.** Employees should be advised that office email may only be used for business; they should use a separate personal email account for personal business.

4. **Honesty and transparency.** Advise employees that any statement must reflect good standards of conduct, judgment and common sense. If an employee posts a statement that is related to the office, the employee should disclose their identity and affiliation.

5. **Respect.** Advise employees not to post any derogatory, defamatory or inflammatory content about others for any reason.

6. **Lawsfulness.** Train employees so they understand the basic legal and professional framework that governs the office’s policies. What is illegal or unethical offline is most likely illegal or unethical online, too.

In addition to having an explicit policy covering the above, your organization should have a person responsible for monitoring the Internet – including email conducted on behalf of the office. Be sure to have disciplinary actions in place for misuse. Lastly, be sure to contact your liability insurance representative to check if your malpractice insurance covers social media as many insurance policies do not cover social distress, which is a fairly common claim in social media disputes.

In the next issue, we’ll take a closer look at medical record documentation and the ways documentation can help mitigate risk.
Maybe you’re the kind of person who really enjoys giving. If you’re like many others, one of the first things you reach for is your wallet. While cash or checks are meaningful to the charity, you can actually still achieve your charitable goals in a way that allows your money to go further, if you consider giving appreciated securities you’ve held long-term – more than 12 months and a day – instead.

Does giving away appreciated securities mean foregoing any increase in value on those shares to date? Yes, but you’ll also bypass the taxes you would have had to pay on those gains. Here’s a simple example: you purchased stock a few years back for $10 a share; now it’s worth $30. If you decide to give these shares away, you get to deduct the full market value of those shares on your tax return, while the charity pays no tax at all – they get the full market value of the gift. What’s more, you pay no capital gains taxes. This clearly shows how giving appreciated securities can make more sense than simply giving cash. If you think about it, with no tax on either side, larger gifts are created.

The overall deduction limit defined by the IRS for charitable cash gifts is 50 percent of your adjusted gross income (AGI), while gifts of appreciated securities held long-term are deductible up to 30 percent of AGI. So, if your AGI was $100,000, you could give $50,000 in cash, or you could, instead, deduct 30 percent with appreciated securities and the difference in cash, if you want the whole deduction in the tax year. What if you give appreciated securities that equal 40 percent of your AGI? Well, 10 percent can be claimed the following year or carried over for up to five years total. If you happen to give a lot relative to your income, you’ll want to discuss additional strategies with your tax consultant.

It’s not difficult to gift appreciated securities. You need to transfer ownership of the security directly to the charitable entity; you can’t sell the security and give the resulting cash. Often a charity will have a brokerage account already set up and you can initiate the transfer from your personal financial institution. Another great option is gifting securities through a Donor Advised Fund (DAF). A DAF is a functional and easy-to-use tool that offers ease of administration, precise transfer of dollars, and the ability to give to more than one charity from the fund. By transferring shares from your investment account to a DAF, you can then send funds tax free.

One final consideration – when you give appreciated securities instead of cash, you can buy the same securities back the very next day. By so doing, you’ll maintain your position in that market, but now you’ll have no unrealized gains that may be subject to taxes in the future.

Giving appreciated securities is a simple way to meet your charitable goals with tax advantages that benefit both you and the recipient of your gift. So if you’re looking to maximize the effect of your charitable giving, donating appreciated securities is a real “win-win” for you and the non-profits and charities you care about the most.
November is Diabetes Awareness Month and the South Dakota Diabetes Coalition (SDDC) will be participating in several activities in an effort to emphasize the escalating diabetes epidemic. According to the International Diabetes Federation, diabetes affects 371 million people worldwide and kills one person every seven seconds. The United States is ranked third in the world in number of citizens with diabetes. South Dakota is not immune to this epidemic, with an estimated 58,200 people with diabetes and over 200,000 people with pre-diabetes.

Nov. 14 is World Diabetes Day, and the coalition will be “Lighting Up the Monuments Blue” across South Dakota from Crazy Horse to the Capitol building to Falls Park in Sioux Falls. World Diabetes Day is a global event that unites millions of people in over 170 countries to raise awareness of diabetes. World Diabetes Day was created in 1991 by the International Diabetes Federation and the World Health Organization in response to the growing concerns about the escalating threat of diabetes worldwide. Additional activities sponsored by the coalition will include press releases, radio interviews, Blue Circle Tests and television appearances.

SDDC is a volunteer-based organization comprised of medical professionals, business professionals and citizens who are passionate about preventing diabetes and empowering those with diabetes to successfully manage their health. SDDC is made up of over 60 individuals and organizations from across the state whose mission statement is “partnering to improve health outcomes of those affected by diabetes in South Dakota.” The coalition is comprised of four work groups: advocacy, patient education, professional education and public awareness. Operating guidelines provide structure for the coalition and its coordinating panel. The semi-annual Partners’ Conference has provided a venue for professional development, networking and work group collaboration.

SDDC is pleased to present its 2013-2016 Strategic Plan. The goal to engage providers, patients, families and decision makers collaboratively to reduce the burden of diabetes in South Dakota focuses on the following four priorities:

1. Educate health care providers on data findings that may impact their patients;
2. Empower those affected with diabetes;
3. Increase awareness of resources; and
4. Advocate on behalf of South Dakota citizens with diabetes.

In preparation for the creation of the strategic plan, the Coalition facilitated three surveys in 2012. The target audiences included patients diagnosed with diabetes, endocrinologists and SDDC key stakeholders. Significant areas of concern from the survey included the following:

- Self-management of diabetes;
- Cost of diabetes supplies;
- Cost of medical care;
- Improving pre-diabetes diagnosis and education;
- Training primary care providers; and
- Improving insurance coverage.

The new State Diabetes Plan highlights a more assertive advocacy action plan. For the first time in many years, the American Diabetes Association (ADA) has a presence in South Dakota allowing coalition volunteers to partner with the ADA to advocate for citizens at risk for diabetes or diagnosed with diabetes, as well as the health care providers who care for them. The plan also uses several media vehicles to drive a larger audience to the SDDC website so the tools can be accessed without the cost of printing and mailing. For more information on the State Diabetes Plan and survey results, go to www.sddiabetescoalition.org.

Concurrently, the South Dakota Department of Health (SDDOH), in partnership with key stakeholders, developed the South Dakota Chronic Disease State Plan. SDDC supported this state plan by committing to work with partners across the state to accomplish the objectives and aligned their plan objectives to reflect that collaboration. The SDDC is grateful to the SDDOH, particularly its Diabetes Prevention and Control Program, for sustaining funding and facilitating outcomes on behalf of South Dakotans affected by diabetes.
The following are core tenets or beliefs of the SDDC in developing its goals and objectives:

- Commitment to evidence-based models and materials from the Centers for Disease Control and other valid sources;
- Utilization and promotion of the ADA Clinical Practice Recommendations and American Association of Clinical Endocrinologists Guidelines; and
- Collaboration with like-minded partners is strategic to furthering the goal of reducing diabetes in South Dakota.

SDDC will positively affect people’s health and quality of life through teamwork from individuals, organizations, and communities across the state of South Dakota. Here are some ways you can help:

1. Join the SDDC as a member to address diabetes strategic priorities;
2. Use the SDDC resources to guide actions in your organization or local community;
3. Communicate your programs and your successes with the SDDC so we may benefit from your progress and collaborate on initiatives;
4. Share data to enhance information about the burden of diabetes and diabetes prevention efforts in South Dakota and our progress in reducing the burden; and
5. Make a tax-deductible donation to the SDDC to support implementation of the South Dakota Diabetes Plan.

For more information on the SDDC, go to www.sddiabetescoalition.org.

“Quality Focus” is a monthly feature presented by SDFMC, South Dakota’s Quality Improvement Organization. For more information about the SDFMC, visit their website at www.sdfmc.org or SDSMA’s website at www.sdsm.org.
Several weeks ago I had the honor of helping a close friend of mine, who sometimes requires a wheelchair, to tour around a historic town viewing the wonderful sites, and enjoying museums of art and of history. It was an enlightening experience for me. Prior to this, I had been only vaguely aware of how public bathrooms had changed to make one stall wider, and how curbs had been cut down, which I had noticed made it easier for kids on tricycles.

Pushing him around in a wheelchair, I noted every curb with and without a disability entrance. I noticed every building with steps and no elevator. I noticed every home that had no way for a wheelchair bound person to easily enter. Too often the doors were very narrow, the hallways un-maneuverable, the sidewalks too cracked or bumpy. More than once we were stopped dead in our tracks as the wheels caught in a crack or rut, which would just about thrust my friend out of the wheelchair and onto the ground. Up to this time I truly hadn’t recognized the extent that we, as a society, discriminate against people with mobility problems.

Before this, I was dimly aware of the Americans with Disabilities Act, and I remember how business people complained, as they felt burdened with this law. Now I more fully realize its value. The law expects public places to make services accessible to those who are disabled by mobility, hearing, sight or whatever and requires it if federal money is involved.

Think about it; you and I are just one small accident away from paralysis, or a viral infection away from deafness, or a blood sugar away from being blind. Able or disabled, we need to make our world more accessible.
Immunization/Influenza Vaccination Focus – Part 2

This article is the second in a two-part series focusing on immunizations in South Dakota. The first article in October focused on immunizations and the recent South Dakota Board of Medical and Osteopathic Examiners (SDBMOE) declaratory ruling.

An ounce of prevention is worth a pound of cure. The adage holds true as we enter the influenza season. The most effective preventative method for seasonal influenza is to receive an influenza vaccination, commonly called a “flu shot.” Nationwide, there will again be a concerted effort to get people immunized to prevent influenza.

The National Prevention Council, chaired by the U.S. Surgeon General, presented the first ever National Prevention Strategy which recognizes that good health comes not just from receiving quality medical care, but from stopping disease before it starts. The “real life” scenario, where policy meets action, is the emphasis on prevention of the seasonal flu through immunization.

South Dakota has embraced this prevention strategy. Physicians and other health care providers have promoted the vaccine in conjunction with the South Dakota Department of Health (SDDOH). As part of that strategy, in 2002, the Board of Pharmacy adopted rules allowing specifically trained pharmacists to administer the influenza vaccine to adults without a prescription, further increasing the locations and opportunities for immunization. The Pharmacy Board’s administrative rules require the pharmacist administering the vaccination to make a detailed record which must be shared with the primary care provider within 14 days of the vaccination. If provider information is unavailable, the pharmacist provides this record to the SDDOH. Pharmacists may also administer other vaccinations as long as there is a patient-specific prescription signed by a physician or other health care provider with prescriptive authority.

These efforts have made South Dakota a leader in nationwide flu vaccination rates. Part of the success of the vaccination program stems from a willingness to move the accessibility of the flu shot beyond the walls of a traditional clinic. The strategy is working. Nationwide, more than 65 percent of adults get their flu vaccine somewhere other than a physician’s office. Workplaces, colleges, trade schools and public schools, senior centers, drug stores, local health departments and big box retailers have joined the effort to get the public immunized to prevent seasonal influenza. It has become increasingly commonplace to be able to pick up your groceries and get your flu shot at the same location.

Past influenza season success is not an occasion to relax the efforts to promote the need for vaccination. During the 2012-2013 season, 38 South Dakotans died from influenza. Nationwide, the Centers for Disease Control and Prevention (CDC) reported the highest number of pneumonia and influenza deaths in nearly a decade, which was above the epidemic threshold for 11 weeks of the season.

An ounce of prevention makes a very real difference. It is imperative that we succeed in identifying new ways of reaching out to the people who are not being immunized.

“Making vaccines more convenient is likely to improve their uptake,” said Bruce Gellin, national vaccine program office director at the U.S. health department. A study published in Pediatrics also advocated increasing the availability of vaccines in non-traditional settings as a way to increase vaccination rates in adolescents. Due to busy lifestyles, a large proportion of adults being vaccinated receive their vaccines at the pharmacy during the evening, weekend, and holiday hours when traditional vaccine providers are likely unavailable.

Employers are also playing an important role in protecting their workforce by providing health care services such as immunizations on-site.

Physicians are uniquely positioned to provide leadership when it comes to increasing their patients’ flu vaccination coverage. According to the CDC, patients are much more likely to get vaccinated when their health care provider strongly recommends that they get vaccinated. The recommendations urge proactive interventions for people at higher risk of developing a severe illness from influenza. The strategy also suggests that physicians, their staff and other health care providers lead by example and get immunized early in the flu season.

The SDBMOE issued a declaratory ruling in September 2013 to provide guidance and clarity on immunizations. The entire ruling, including which professionals have prescriptive authority as well as those who may administer vaccinations, is available on the SDBMOE’s website at www.sdbmoe.gov.

The SDBMOE declaratory ruling provides flexibility and direction for growth in non-traditional delivery methods while ensuring the confidence of the citizens of South Dakota in the safety of their health care.


REFERENCES
First and foremost to those who have and are serving, a heartfelt, “thank you for your service.” It is an honor and privilege to know and work with you.

Ninety-five years ago on Nov. 11, 1918 World War I ended. The day became known as Armistice Day. In 1954 President Eisenhower (Gen. Ret.) signed a bill proclaiming Nov. 11 as Veterans Day. This action changed this day to an occasion to honor those who have served America in all wars.

This is a passion area for us. Since 1610 the men (and more recently a few women) in Jacquie’s family have served in every conflict we have had as colonies and then as a nation. For Mike, family and personal service as a commander in the U.S. Navy come to mind. So for us, November is a time to give thanks in many ways. Honoring those who have served is great. But our commitment to them doesn’t end there.

We had several days this summer where our temperatures were over 100 degrees. I, like many, complained and ran for the air conditioned cool of the house or office. But our troops were in temperatures higher than that and with 80 pounds of gear and no air conditioning in which to take refuge. Our bad days at the office can be left there. They couldn’t. We could go on, but won’t. Unlike any other time in history, we have learned that everyone who has been through a war or battle of any sort has been changed. They have seen and heard situations which we as civilians will never fathom.

So how do we in our health care roles serve these fine men and women? Simply put, we find them help, support and resources to help where we can. Being subtle and not bossy. As a “bossy sister,” that can honestly be quite challenging.

Historically, resources to help our veterans truly “come home” have been few and far between. Now, with increased awareness, the availability of the Internet and social media, there are several resources supported through the Department of Defense, The Department of Veterans Affairs and various veterans support organizations of which you might want to refer your patients, caregivers, family and friends.

- VA Caregiver Support website, www.caregiver.va.gov, is a great resource for the families and caregivers of our veterans. They have materials which are in civilian/plain language. Yep, the non-medical jargon on medical conditions along with tools.

- General Health Library is available at www.veteranshealthlibrary.org.

- U.S. Department of Veterans Affairs has a special website for military exposures – those who may have been exposed to a range of chemical, physical and environmental hazards during military service. The exposures are also categorized per war and operations. The website is available at www.publichealth.va.gov/exposures/index.asp.

- Veterans Crisis Line (formerly called the National Veterans Suicide Prevention Hotline) connects veterans in crisis and their families and friends with qualified, caring Veterans Affairs responders through a confidential toll-free hotline, online chat or text. Veterans and their loved ones can call 800.273.8255 and press 1, chat online or send a text message to 838255 to receive confidential support 24 hours a day, seven days a week, 365 days a year. Support for deaf and hard of hearing individuals is available. The website is available at www.veteranscrisisline.net.

- General veterans service organizations in South Dakota can be found at by visiting mva.sd.gov/download/VSO%20Directory%20Info.pdf.

- Wounded Warrior Project is available at www.woundedwarriorproject.org.

“All the best,” dear keepers of our country. And welcome home.

- U.S. Army: “This We’ll Defend.”

- U.S. Marine Corps: “Semper Fidelis” (Always Faithful)

- U.S. Navy: “Honor, Courage, Commitment” (Fair Winds and Following Seas)

- U.S. Air Force: Integrity First, Service Before Self, Excellence in All We Do

- U.S. Coast Guard: “Semper Paratus” (Always Ready)
Interprofessional education has become a prominent theme among educational associations as a means to transform our health care system. The Sioux Falls VA Health Care System has provided opportunities for interprofessional education for decades. In South Dakota, not all of the health care professional programs are physically located on the same campus and thus, many of the opportunities for interaction occur in the experiential component of the professional programs and during postgraduate training.

The VA has a long standing tradition for providing educational opportunities, serving as a rotational site for internal medicine residents. In order to further expand the educational vision of the VA, a PGY-1 pharmacy residency program was launched in July 2011. This provides an opportunity for residents from both programs to interact as part of an interdisciplinary team during inpatient acute medicine rotations.

Typically, the medical teams consist of an attending physician, medical residents and students, a clinical pharmacy specialist, pharmacy residents and students, a quality management nurse and a social worker. Both medical and pharmacy residents rotate on the team based on their program requirements. Additionally, the teams are supported by a physician assistant, nurses and professional students from the various medical disciplines.

The teams provide an opportunity to interact on a daily basis with other disciplines. Rounds are a “judgment free zone” where questions are welcomed from both medical and pharmacy residents. Optimal patient care is paramount to the team, and through this process, residents become more knowledgeable and experienced health care professionals. The ability to interact and form rapport among the professionals trains the residents to utilize and value each member for their knowledge and skills.

The different disciplines complement each other by providing a unique expertise that blends together to form a team that provides comprehensive care. Each specialty benefits by learning from the others, but patients stand to benefit the most. Rather than multiple disciplines visiting with the patient at various different times of day and each making their own recommendations, the patient is visited by the team, and treatment decisions can be made in a more time-efficient manner. For example, if a medical resident has a question on what antibiotic should be utilized and specific dosing recommendation, the pharmacy resident is readily available to assist in that process. The function of the team saves time as the medical resident does not need to call central pharmacy for recommendations, nor does the central pharmacy need to contact the resident to verify orders. In this example, a delay in treatment is potentially avoided. Another example is when pharmacy has a question regarding an order for a patient. Instead of the regular process of calling the medical resident, clarification can often be obtained from the pharmacy resident on rounds. Both of these examples illustrate that a team improves communication and saves time.

Residents gain the ability to better recognize and respect the roles of the others in the team. When looking toward future job considerations, having the background experience of working with a team will influence employment decisions. As medical residents become attending physicians and pharmacy residents become clinical specialists, the understanding of the function of a team and how to incorporate teaching opportunities for future residents and students from the respective disciplines will have been previously established. With that foundation in place, constructive relationships can be formed faster creating the opportunity for open discussion and best patient care.

Interdisciplinary teams are becoming more common and necessary for providing quality comprehensive medical care. The ability to work on an interdisciplinary team as a resident with residents and professionals from other teams is an invaluable experience that helps future physicians hone the skills that will be necessary to running these teams in the future. The teaching is also enhanced by having pharmacists who are able to teach more pharmacology and have a deeper knowledge of interactions and spectrums to medicine residents, as well as having physicians who can explain to pharmacy residents why a certain drug, although per textbook would be appropriate, is not in this particular patient. This experience is invaluable and develops skills that will be useful for participating in interdisciplinary teams in the future.
**A Doctor’s Story**

Tim M. Ridgway, MD, FACP

Practice: Chief of Endoscopy, Sioux Falls Veterans Administration Hospital; Dean of Clinical Faculty, Sanford School of Medicine of the University of South Dakota

Specialty: Gastroenterology

Hometown: Ravinia, South Dakota

Family: Wife Mary Pat Wright, children Jack, 25, Marni, 23 and Claire, 14

Tim M. Ridgway, MD, FACP, finds caring for others and making an impact on a person’s life not only powerful, but extremely rewarding. “I try to impart that philosophy with our future physicians, which is very special to me,” Dr. Ridgway says of his role at Sanford School of Medicine of the University of South Dakota (SSOM).

Dr. Ridgway is a lifelong South Dakotan. He grew up on a farm near the small community of Ravinia between Wagner and Lake Andes and received his medical degree from the University of South Dakota School of Medicine. After his residency and fellowship at Mayo Graduate School of Medicine, Dr. Ridgway returned to South Dakota and has practiced at Central Plains Clinic, Yankton Medical Clinic, and Sanford Health and currently is Chief of Endoscopy at the Sioux Falls Veterans Administration Hospital and Dean of Clinical Faculty at SSOM, as well as associate professor in the school’s Department of Internal Medicine. When it’s time for retirement, he plans to stay in the Midwest, because he believes “the quality of life here is second to none.”

As an active member of the South Dakota State Medical Association (SDSMA), Dr. Ridgway serves on the SDSMA Executive Committee as Vice President and has been an American Medical Association (AMA) member for seven years. He is also a member of the South Dakota American College of Physicians Executive Council.

Q&A

Q: When you’re not at work, where the most likely place somebody could find you and what would you be doing?

A: I would likely be on the rural roads or bike trails riding my bicycle. Bike riding is a true passion of mine, and keeps me sane.

Q: What community, area or statewide organizations and/or causes were or are you involved in?

A: I have been involved with the local school district’s nutritional committee to improve nutritional offerings to our school children. I was very proud of what we were able to accomplish. I have also served on various state committees, including one devoted to improving colorectal screening in our state.

Q: What are you most proud of in your life?

A: My children. Mary Pat and I always encouraged them to be their own person, and not try to be someone they are not. They are each following their own path and I believe each in their own way are able to see beyond themselves and care about the world around them. I think they see the big picture and their role in helping others. To us, that is invaluable.

Q: What inspired you to become a physician?

A: Two family physicians who cared for my family growing up. The impact they had, particularly in caring for my dying grandfather, will never be forgotten.

Q: What advice do you have for young people considering a career in medicine?

A: Follow your passion and do not give up! Never forget the reasons you entered medicine, as they should help keep you on the right path.

Q: What do you think is the most critical health care issue facing South Dakota today?

A: We need to be able to deliver quality and accessible health care to all South Dakotans, regardless of their ability to pay.

Q: What do you think is the most troubling aspect of your profession?

A: It can become very dehumanizing if you let it. EHR, billing codes, rules and regulations, etc. are a reality, but we must not forget why we are physicians! I dislike the phrase “the business of medicine.”

Q: Is there a single event or person in your career that stands out or made a unique contribution to your professional development?

A: One of the first nights on call in my residency program, I cared for six individual patients who all had life threatening events on the same night! I have never been more stressed in my life. The following morning, they were all improving and stable. The families and my attending physician were extremely grateful. It was then I realized practicing medicine was clearly what I was intended to do throughout my life.

“A Doctor’s Story” is a quarterly feature that highlights physicians throughout South Dakota who are contributing to the quality of health care and the overall good of the community. The goal of this feature is to connect the faces and work of these doctors with the South Dakota State Medical Association (SDSMA).
Upcoming SDSMA Center for Physician Resources Webinar Focuses on Clinical Risk Assessment

The SDSMA Center for Physician Resources invites physicians, medical students and clinic managers to participate in the first of six programs offering information on mitigating risk in clinical practice. This presentation, "Conducting a Clinical Risk Assessment," at 7 p.m. Central time Thursday, Nov. 14, will provide information on proven strategies for:

• Completing a clinical risk assessment of your practice;
• Identifying and differentiating between real and potential risk;
• Analyzing and assessing risk severity; and
• Formulating and deploying strategies to eliminate, prevent or control risk.

Visit www.sdsmma.org to register for the free webinar. The evening’s presenter is Robert S. Thompson, RT, JD, MBA, director of education at MMIC. Mr. Thompson has a diversified background in law, medicine, medical professional liability insurance and health care risk management. He specializes in patient safety, risk management and health care communication.

Source: SDSMA staff

Enhanced Payments for Certain Primary Care Providers

As part of the Affordable Care Act (ACA), certain primary care physicians are eligible for enhanced payments for services provided between Jan. 1, 2013 and Dec. 31, 2014.

The services eligible for enhanced payments include evaluation and management codes 99201 through 99499 and vaccine administration codes 90460, 90461, 90471, 90472, 90473 and 90474. A separate fee schedule of the enhanced rates is available to providers on the South Dakota Department of Social Services (DSS) website at https://dss.sd.gov/sdmedx/includes/providers/feeschedules/dss/index.aspx.

According to the federal rule, providers must self-attest each year to be eligible for the enhanced payment, which means providers who attested in 2013 must re-attest by Dec. 15, 2013 to have continued eligibility and to have no interruption in their enhanced payments. The DSS has stated it will not issue retroactive payments for forms that are received after Dec. 15, 2013. The 2014 Provider Self Attestation Form is available online at https://dss.sd.gov/sdmedx/enhancedpcppayment.aspx.

Completed forms may be emailed to EnhancedPCP@state.sd.us, faxed to 605.773.5246 or mailed to South Dakota Medicaid, 700 Governor’s Dr., Pierre, SD, 57501. Forms not received or postmarked by Dec. 15, 2013 will be processed in the order they are received.

Physicians who meet the criteria, but have not yet attested, can attest at any time up to Dec. 31, 2014 to receive enhanced payments for eligible codes effective the date the form is received by the DSS.


Source: DSS

Payment Rules Will be Issued by Nov. 27

Although Centers for Medicare & Medicaid Services (CMS) is still assessing the impact of the partial government shutdown on completion of the calendar year 2014 Medicare fee-for-service payment regulations, they intend to issue final payment rules on or Nov. 28, generally to be effective on Jan. 1, 2014. The impacted regulations include:

• Medicare program; end-stage renal disease prospective payment system, quality incentive program and durable medical equipment, prosthetics, orthotics and supplies (CMS-1526-F);
• CY 2014 changes to the hospital outpatient prospective payment system and ambulatory surgical center payment system (CMS-1601-FC);
• CY 2014 home health prospective payment system final rule (CMS-1450-F); and
• Revisions to payment policies under the physician fee schedule and other revisions to Part B for CY 2014 final rule with comment period (CMS-1600-FC).

Source: CMS
What is a Covered Entity under HIPAA?

The term "covered entity" under the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule refers to three specific groups, including health plans, health care clearinghouses and health care providers that transmit health information electronically. Nearly all medical providers are subject to the HIPAA privacy rules. Physicians should assume they are covered entities and must comply with HIPAA regulations if they – or a billing company or other third party on their behalf – transmit any of the following health information transactions in electronic format:

• Health care claims (including attachments);
• Health care payment and remittance advice;
• Information associated with coordination of benefits;
• Health claim status;
• Health plan enrollment and disenrollment data;
• Health plan eligibility data;
• Health plan premium payments; and
• Referral certification and authorization for treatment.

Covered entities remain bound by the HIPAA privacy rules even if they contract with others – labeled by the regulations as "business associate" – to perform some of their essential functions. When a covered entity contracts with a "business associate," the covered entity and the business associate must enter into a contract to protect health information. If a covered entity finds out about a material breach or violation of the contract by the business associate, it must take reasonable steps to cure the breach or end the violation, and, if unsuccessful, terminate the contract with the business associate.

For more about medical record privacy, download the SDSMA legal brief Medical Record Privacy – Covered Entities at www.sdsma.org. Through the SDSMA Center for Physician Resources, the SDSMA develops and delivers programs for members in the areas of practice management, leadership and health and wellness.

Source: SDSMA Staff

The Issue Is... What the New Federal Sunshine Act Means

The Physician Payments Sunshine Act requires manufacturers of drugs, medical devices and biologicals that participate in U.S. federal health care programs to report payments and items of value given to physicians and teaching hospitals. Manufacturers already began the tracking process on Aug. 1, 2013 and are required report payment, transfer and ownership information to the Centers for Medicare & Medicaid Services (CMS) on an annual basis. CMS will then publish this information in a public, searchable online database beginning in September 2014.

It is important that physicians review their reports and challenge any reports that may be false, inaccurate or misleading. Also, physicians who hold any interests in a manufacturer or GPO should check to ascertain what ownership interest they intend to report.

The American Medical Association (AMA) has a number of resources online to help prepare for when it’s time for physicians to review 2013 financial data before it’s published online next year – just visit www.ama-assn.org and select Sunshine Act and Physician Financial Transparency Reports under the Advocacy tab. There, you’ll find a toolkit and a free app to track payments and financial transfers.

The app is available through the Apple Store and Google Play Store. The SDSMA, AMA and other state medical societies have worked to oppose Sunshine Act regulations, especially a rule in which medical textbooks and journal reprints are included in the reporting requirements. The U.S. Department of Health & Human Services (HHS) has refused to exempt the textbook and scientific peer-reviewed journal reporting requirement, even though educational materials that benefit patients are to be exempt. HHS argued that the textbooks and journals “are not directly beneficial to patients.”

The SDSMA believes HHS should exempt the textbook and journal reporting requirement because these are critical to educate physicians about the most current and scientifically verified, unbiased information that is directly translated into medical and patient care.

A letter signed by the SDSMA opposing the textbook and journal reporting requirement was sent to HHS in October. In addition, members of Congress who agree have sent a similar letter to HHS.

Source: SDSMA and AMA staff

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

Legal Services
Available

Do you have questions about prompt pay? Do you have problems relating to patient care? Do you need an update on the latest government regulations? The SDSMA legal staff produces timely updates and advisories on issues that are important to you and your practice, and can provide fee-based, individual assistance.

If you’d like to get involved, give us a call at 605.336.1965, visit www.sdsm.a.org, or email Donna Toay at dtoay@sdsm.a.org. Thank you for your interest and 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.

Action Alert! Tell Congress the Time is Now to Fix the Medicare Payment System

Once again, physician services face a 24.7 percent cut on Jan. 1 due to the flawed SGR payment formula. Join physicians throughout the United States in continuing to press members of Congress to reform the Medicare physician payment system by year’s end. FixMedicareNow.org, the AMA’s new grass-roots campaign website, makes it easy.

Read more about this issue in the SDSMA’s Action Alert on this topic at www.sdsm.a.org, where you’ll find a link to email South Dakota’s members of Congress to tell them now is the time to transform Medicare into an effective, 21st-century model of care.

Join thousands of your colleagues in calling on Congress to move Medicare toward a stable, high-quality program.

Source: SDSMA and AMA staff

Get Smart Week is Nov. 18-24

Nov. 18-24 is the annual Get Smart About Antibiotics Week, a national campaign sponsored by the Food and Drug Administration (FDA), the Centers for Disease Control and Prevention (CDC) and other public health organizations, to highlight the importance of using antibiotics wisely.

The Get Smart: Know When Antibiotics Work campaign is an annual effort to increase awareness about the importance of appropriate antibiotic use and observe antibiotic resistance. Resources for improving antibiotic use in health care settings can be found on the CDC’s website at www.cdc.gov/gets. The website includes a featured section on clinician-specific antibiotic guidelines and recommendations for use that are aimed at facilitating patient care decisions, as well as discussions with patients themselves.

The 2013 observance also marks the fourth year of an international collaboration, which will coincide with European Antibiotic Awareness Day, Australia’s Antibiotic Awareness Week, and Canada’s Antibiotic Awareness Week.

The program is housed in the CDC’s National Center for Emerging and Zoonotic Infectious Diseases.

Source: CDC

Enhancing Your Wealth

The SDSMA Center for Physician Resources held its third in a series of five live events and webinars in October, “A Physician’s Guide to Wealth Enhancement.”

Physicians of all ages and medical students gathered to learn proven strategies for growing and protecting money in today’s tax environment, portfolio rebalancing, and more.

The next SDSMA Center for Physician Resources’ event is a webinar titled, “Conducting a Clinical Risk Assessment of Your Practice,” the first program in the Center’s Risk Management series, will be held at 7 p.m. Thursday, Nov. 14. Visit www.sdsm.a.org to register.

Source: SDSMA staff
## CME Events

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

### November 2013

Nov. 6
Internal Medicine Grand Rounds
12-1 p.m.
Sanford School of Medicine HSC
Room 106
Sioux Falls
AMA PRA Category 1Credit(s)™ available
Register online: www.usd.edu/cme

Nov. 6
Current Concepts in Primary Eye Care
7:30 a.m.-5:45 p.m.
Mayo Clinic Leighton Auditorium,
Seibens Building
Rochester
AMA PRA Category 1Credit(s)™ available
Register online: www.mayo.edu/cme

Nov. 7
Pediatric Grand Rounds:
“Homzygosity: Where Do You Draw the Line Between Shared Common Ancestry and Consanguinuity?”
8-9 a.m
Sanford USD Medical Center Schroeder Auditorium
Sioux Falls
AMA PRA Category 1Credit(s)™ available
Register online: www.usd.edu/cme

Nov. 8-9
23rd Annual Mayo Clinic Symposium on Sports Medicine
Kahler Grand Hotel
Rochester
AMA PRA Category 1Credit(s)™ available
Register online: www.mayo.edu/cme

Nov. 12
LECC Conference: “Prescription Drug Abuse and Identification”
1 p.m.
Best Western Ramkota Hotel
Washington Room
Sioux Falls
To register, email aileen.crawford@usdoj.gov

Nov. 13
Pathology Conference: “Selected Practical Cases in Dermatopathology”
7:30-8:30 a.m.
Sanford Health Pathology Clinic
Room 1513
Sioux Falls
AMA PRA Category 1Credit(s)™ available
Register online: www.usd.edu/cme

Nov. 13
Internal Medicine Grand Rounds:
“Physician Satisfaction and the Antidote to Physician Burnout”
12-1 p.m.
Sanford School of Medicine HSC
Room 106
Sioux Falls
AMA PRA Category 1Credit(s)™ available
Register online: www.usd.edu/cme

Nov. 14-15
OB/GYN Clinical Reviews
Mayo Clinic Phillips Hall,
Seibens Building
Rochester
AMA PRA Category 1Credit(s)™ available
Register online: www.mayo.edu/cme

Nov. 22
VA Medical CME Activity: “Pharmacy Clinical Pearls II”
12-1 p.m.
VA Medical Center Room 124
Sioux Falls
AMA PRA Category 1Credit(s)™ available
Register online: www.usd.edu/cme

### December 2013

Dec. 5
Pediatric Grand Rounds: “The AAP and its Agenda for Children: Your Membership Matters”
8-9 a.m.
Sanford USD Medical Center Schroeder Auditorium
Sioux Falls
AMA PRA Category 1Credit(s)™ available
Register online: www.usd.edu/cme

### DO YOU HAVE A CME EVENT COMING UP? WOULD YOU LIKE TO HAVE IT LISTED HERE?

Contact: Elizabeth Reiss,
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2600 W. 49th Street, Suite 200,
Sioux Falls, SD 57105
Phone: 605.336.1965
Fax: 605.274.3274
Email: droyay@sdsmia.org

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